Lismore Development Control Plan
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Introduction

Name of Plan
This Plan is called the Lismore Development Control Plan.

Structure of the Plan
The Lismore Development Control Plan is comprised of two parts – Part A and Part B.

Part A contains controls that apply to particular forms or aspects of development generally throughout Lismore. Part B contains more specific controls that are applicable to specific areas. Both Part A and Part B may be applicable to a development and are to be read in conjunction with each other.

Land to which the Plan Applies
Part A of this Plan applies to development on land throughout Lismore City. Part B applies to development within specific areas as identified in the individual chapters of that Part.

Aims of this Plan
The aim of this Plan is to provide controls and guidelines for new development that will assist in achieving the aims and objectives of the Lismore Local Environmental Plan 2000.

Specific aims for the various aspects of development or the specific areas identified in this Plan are included in the relevant Chapter.

Adoption of Plan
This Plan has been prepared in accordance with Section 74C of the EP&A Act, 1979 and Clause 16 of the EP&A Regulation, 2000. The Plan was adopted by Lismore City Council at its Meeting of June 12, 2007 and came into effect on June 28, 2007.

Relationship to other Plans
This plan should be read in conjunction with the Lismore Local Environmental Plan 2000. Other relevant plans and guidelines include:

Lismore On-site Sewage and Wastewater Management Strategy
Lismore Stormwater Management Plan
Landscape Guidelines
Sediment and Erosion Control Guidelines

How to Use this Plan
In assessing a Development Application, Council must have regard to the matters listed in Section 79C of the Environmental Planning and Assessment Act, 1979.

Under Section 79C(1)(a)(iii), Council is required to consider any development control plan that applies to the land to which the Development Application relates. This Plan is the Development Control Plan that applies to the City of Lismore. It covers a range of matters that are addressed as individual Chapters in the Plan. When preparing a Development Application, an applicant must have regard for all the relevant matters in this DCP that may be applicable to the proposal.

Variations to the Plan
Compliance with the provisions of this Plan does not necessarily imply that Council will grant consent to a Development Application. Council is required, in relation to all development applications, to take into consideration those matters listed within section 79C of the Environmental Planning and Assessment Act, 1979 (as amended) and all other statutory documents.
Council may refuse consent to development which does not comply with this Plan, or may modify by conditions, the development so that it does comply.

Council may approve development that does not strictly comply with this Plan. This will only be considered where the variation is considered to be minor, or where it can be demonstrated that compliance is physically impossible or impractical, or where the alternative proposed is substantiated as a better design solution.

Variations to this Plan will not be supported where the purpose of the variation is to erode either the objectives or minimum standards, or simply to save development costs.
Chapter 1

Residential Development
1 Residential Development

1.1 Objectives of this Chapter

1. To encourage a high standard of design, both functional and aesthetic, which takes due regard of the needs of occupants, neighbours and the availability of local amenities.

2. To encourage development which is sympathetic to the topography of the land and the scale and character of the surrounding development.

3. To permit a variety of housing forms so as to promote a wider choice in housing and satisfy the demand of a variety of household types and lifestyles.

4. To encourage building design and siting which takes advantage of climatic factors and reduces household energy requirements.

5. To ensure that development has a minimal impact on the environment.

1.2 Definitions

In this Chapter the following definitions apply:

“common open space” means the open space area which is available and accessible to all residents.

“dwelling” means a room or number of rooms occupied, or used, or so constructed or adapted so as to be capable of being occupied or used as a separate domicile.

“dwelling house” means building(s) containing one dwelling.

“dual occupancy” means two but not more than two dwellings on one site (reference to dual occupancy includes duplex developments) and may be either attached, ie sharing a common wall or structures such as a carport, or detached.

“expanded dwelling” means a single dwelling house comprising a main building and a maximum of three habitable outbuildings where:

a) all buildings are contained within a radius no greater than 20 metres from the perimeter of the main building; and
b) only one kitchen and laundry facility are provided and the kitchen and living area are contained within the main building; and
c) all outbuildings are connected to the main building by paths with an all-weather surface; and
d) no separate driveway, car parking area or carport is provided to any outbuilding.

“functional open space” means the main area of private open space, and it is part of the primary open space area which is directly accessible to the living area of a dwelling and is capable of being landscaped or screened to ensure that the area has privacy from adjoining development.

“height” means the distance measured vertically from any point on the ceiling of the top most floor of the building to the ground level immediately below that point. Where there is a cathedral ceiling height is measured to the top plate.

“infill dual occupancy development” means the addition of an attached or detached dual occupancy residence, or ‘granny flat’, on the same property as an existing constructed single residence.

“medium density” means a residential development containing three or more dwellings on one site.
“north” refers to true solar north. This direction is taken to be 11° west of magnetic north in the Lismore City area.

“primary open space” means the part of the site or building which is designed, or developed, or capable of being maintained and used as lawn, courtyard or planted gardens and is available for use and enjoyment of the occupants of the development and,

- includes rooftop spaces, swimming pools, walk ways, tennis courts, balconies, gazebos or other similar structures, used for the recreational enjoyment of open space.
- excludes drying yards, garbage handling and storage areas, areas used for movement or parking of vehicles, and any setback or open space which is less than two metres in width.

“site area” means the area contained within the title boundaries of the site, but in the case of a hatchet shaped site, excludes the area of the access corridor, right of way, and excluding any adjoining public road, laneway or the like.

“site coverage” means the proportion of a site area covered by buildings, including garage or carport, but does not include eaves, driveways or swimming pools, tennis courts or other constructed recreation items.

1.3 External Appearance

Objectives

- To encourage building design which complements the streetscape and character of the neighbourhood.
- To ensure that the bulk and scale of new residential development is compatible with the residential amenity of the locality.
- To encourage development which is sympathetic to the topography of the land, the character and scale of surrounding development and that has minimal impact on the environment.

The external appearance of buildings has an importance influence on urban character. Buildings should be designed to suit the subtropical climate and lifestyle of the North Coast. In areas which have particular heritage or urban design value, it is especially important that new development be sympathetic in design with the existing built form.

Design guidelines for the North Coast area are contained in the Department of Planning’s document North Coast Design Guidelines, copies of which are appended to this DCP.

Bulk and Scale

The bulk and scale of new development should be compatible with that of the neighbourhood. To ensure external walls of buildings are of an appropriate residential scale, no external walls should be greater than 14 metres in length, unless a return, recess or buttress to a depth of at least 600mm, or some other architectural feature such as verandahs or balconies are used to break the line of the wall or it is demonstrated that the wall will not be detrimental to the aesthetics of the building or the neighbourhood.
Medium Density

It is desirable that the design of higher density forms of housing, such as dual occupancy and medium density development, be integrated with that of surrounding development.

Medium density development should contain no more than 3 dwellings under a single roof. Each group of 3 dwellings must be separated by a distance of not less than 4 metres.

![Diagram of medium density development showing 3 dwellings separated by 4 metres](image)

Dual Occupancy

Attached dual occupancy development should be designed to appear as far as possible as a single dwelling when viewed from the street. “Mirror reversed” designs are not acceptable.

![Diagram of dual occupancy showing correct and incorrect designs](image)

Where an attached dual occupancy is to be located on a corner allotment, a better design solution may often be achieved where each driveway accesses from separate street frontages.
Best practice design solutions for dual occupancy development are contained in “Dual Occupancy - Design Solutions Manual”, copies of which are available from the Department of Planning.

**Carports, Garages and Outbuildings**

The design of carports, garages and outbuildings should be compatible with that of the main building in terms of height, roof form, detailing, materials and colours. Location and design of carports and garages should be such that if they extend in front of the building line they do not dominate the streetscape.

Detached carports, garages and outbuildings shall be limited in Residential 2(a), 2(f) and 2(v) zones to no greater than 60m² with an external wall height of 3.0 metres above natural ground. This will allow for three standard size motor vehicles to be parked within the structure.

Note: If any outbuilding (as defined in the Building Code of Australia as a class 10a building) is to be utilised for a use other than one ancillary to the residential use of the land, then Development Consent is required for that non-residential use. It is unlikely that Council will approve any non-residential use in residential areas which might cause nuisance or inconvenience to neighbouring residents.
Service Areas

Site facilities such as garbage bin enclosures, storage areas and clothes drying areas should be designed to be conveniently accessible, yet visually unobtrusive.

An area of at least three (3) m² shall be provided for each ‘waste service’ to a property, in accordance with minimum storage requirements for future provision of an integrated waste, recycling and organics (three bin) system. The storage area should be in a location readily accessible to the waste collection point.

Where collective storage areas for garbage bins are provided they should be suitably screened by landscaping or fencing so as not to be visible from the street or adjoining properties.

A single master television antenna should be provided for each medium density development to service each dwelling within the development.

1.4 Building Height and Setback from Boundaries

<table>
<thead>
<tr>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>◊ To encourage variety in housing design by permitting flexibility in the siting of dwellings.</td>
</tr>
<tr>
<td>◊ To minimise adverse impacts on adjacent development, land use or the streetscape.</td>
</tr>
</tbody>
</table>

Building Height

To reduce the overall bulk and scale of new buildings and preserve opportunities for views, the maximum building height for residential development is limited to 7.2 metres. Building height is defined as the maximum vertical distance from the uppermost ceiling of the building to natural ground level. In the case of cathedral or raked ceilings the height is measured to the uppermost top plate.

Where the height of the building is inconsistent with the height of adjacent or adjoining residences the 7.2m maximum height may be reduced to lessen bulk and loss of residential amenity. Maximum height must be considered in conjunction with building envelopes and with due regard to existing and future adjacent view lines and overshadowing.

Setback Requirements in Urban and Village Areas

The setback from the property boundary fronting the road in urban residential and village areas (Zone No: 2(a), 2(f) & 2(v)) shall be preferably 6 metres, with a minimum of 4 metres. Corner blocks are permitted a 6 metre primary frontage and a 4 metre secondary frontage except in circumstances where a garage is located on the secondary frontage. Variation of setbacks for garages and carports should not be included in a design, and may not be approved, if there is a likelihood of vehicles parked in the driveway intruding onto the public footpath, thus creating difficulties for pedestrians and the disabled.

Design of duplexes or single dwellings on corner blocks, and with garages facing both streets, should observe the 6 metre setback for garages on both frontages so as to prevent vehicles parked in the driveway intruding over the public footpath. Where the established building line in an area is greater than 6 metres Council may increase the building line setback to lessen the visual impact of the development on adjacent properties.
The setback from the property boundary fronting the road may be varied, subject to any or all of the following matters:

- Classification of street and carriageway width.
- The position of adjacent residences and the residential character.
- The location of existing vegetation.
- The size, shape and grade of the lot.
- The effect on visibility and sightlines for pedestrians and vehicles, particularly on corner lots.
- The orientation of the lot with respect to solar access and prevailing wind.
- The location of private open space or landscaped areas.
- The treatment of the front of the dwelling landscaping site works and access to on-site carparking.
- The location and appearance of carparking areas or structures.
- The predominant setback in the street.

In new areas in the urban and village zone, where there is no discernible residential character, the average front setbacks should be as follows:

- 4 metres where the width of the street carriageway is 5.5 metres or less.
- 5 metres where the width of the street carriageway is between 5.5 and 8 metres.
- 6 metres where the width of the street carriageway is greater than 8 metres.
- The minimum front setback from the street boundary in all cases is 3 metres.

The minimum side and rear setback for all dwellings shall be not less than 900mm from the boundary for a one or two storey dwelling and 1500mm for more than two storeys. Guttering, eaves or similar structures or attachments erected between the face of an external wall and the boundary are to be not less than 675mm for 1 and 2 storey buildings.

In urban zones, one side setback may be eliminated for "built to the boundary" or "zero lot line" development providing the requirements of the Environmental Planning and Assessment Act and the Building Code of Australia are satisfied. Development likely to benefit from this provision includes integrated housing, dual occupancy and attached medium density housing. Where zero lot line is proposed particular attention needs to be paid to overshadowing, noise transference and other potential effects on the amenity of the adjoining property.
**Setback Requirements in Rural Zones**

The setback requirements for buildings in rural areas (Zone No: 1(a), 1(b), 1(c), 1(d), 1(r), 7(a) & 7(b)) shall be as follows:

- 28 metres from the property boundary fronting RTA roads (Bruxner Hwy, Bangalow Rd, Nimbin Rd, Blue Knob Rd, Dunoon Rd, Rous Rd, Coraki Rd, Eltham Rd).
- 15 metres from the property boundary fronting any other road.

1.5 Energy Efficiency

**Objectives**

- To ensure that each dwelling design meets the NSW Government targets of:
  - 40% reduction in water consumption
  - 35% reduction in greenhouse gas emissions
  - compared with the average home

**Requirements**

From 1\(^{st}\) July 2005 each development application for a residential dwelling in New South Wales must be submitted with a BASIX Certificate. BASIX (the Building Sustainability Index) is a web based planning tool that measures the potential performance of new residential dwellings against sustainability indices.

BASIX ensures that each dwelling design meets the NSW Government energy efficiency targets.

The building applicant (eg architect, builder, owner builder) is responsible for completing the assessment, ensuring the BASIX commitments are clearly marked on the plans and submitting the BASIX Certificate with the development application.


Resited dwellings and dwelling additions exempt from Basix requirements will be required to meet the remainder of this clause.
Orientation

Passive solar design can reduce energy costs and facilitate more comfortable indoor and outdoor living by maximising winter sun and summer shade. Orientation of a dwelling to true north will achieve maximum sun entry in winter and will assist sun exclusion in summer. However it is possible to rotate the orientation between 30° east of north and 15° west of north, without significant loss of summer or winter performance. Outside of this range winter and heat decreases and careful sun control is necessary to prevent overheating in summer.

Internal layout should ensure that habitable rooms such as living rooms, dining rooms, bedrooms and kitchens are located on the northern side of the dwelling. Non habitable rooms such as bathrooms, toilets, laundries, carports and garages are best located on the southern and western sides. Carports and garages located on the southern and western sides can provide useful buffers to summer heat and/or winter wind.

Glazing and Shade Control

Windows should be located to maximise winter sun penetration and be provided with protection from summer sun through the use of eaves, awnings, pergolas or deciduous vines and trees.
Large windows should be provided on the northern and eastern walls, while smaller openings to allow adequate lighting and cross ventilation are best suited on the southern and western walls.

**Overshadowing**

New and infill development must maintain a minimum of 3 hours solar access to 50% of private open spaces to the proposed development, and to 50% of private open space of adjoining properties, between 9.00am and 3.00pm on June 21.

Applicants may be required to prepare a shadow diagram showing that overshadowing of adjoining residences complies with this requirement.

**Ventilation**

Prevailing winds can have a significant cooling factor. This may be desirable in summer, but not in winter. Efficient ventilation of residential buildings can be achieved in the following ways:

- Cross ventilation is achieved when air enters a building from one side and passes out the other, replacing warm air with cooler air from the outside.
- Stack effect occurs when warm air rises and leaves through windows in the upper levels of the house to be replaced by cool air from the lower levels.
- Mechanical ventilation devices such as roof cap ventilators can be installed in conjunction with insulation to allow hot air to escape from the roof space and cool air to enter via vents.

**Insulation**

The use of insulation in walls, roofs and ceilings can significantly alter the rate at which a dwelling can gain or lose heat. Insulation assists in making buildings easier to heat in winter by reducing the rate in which heat is lost, and helps reduce heat into the house through the walls and roof in summer.

Thermal insulation may be either the reflective or bulk insulation type.
Reflective insulation such as reflective foil laminate reduces the radiant heat flow by reflecting up to 95% of the radiant heat. To be effective, reflective insulation should be used in conjunction with an air space.

Bulk insulation such as glass fibre, rock wool or foam plastics reduces the conducted heat flow by trapping heat between the fibres or particles.

The effectiveness of insulation is measured by its resistance to heat flow. This is known as the materials "R" Value. The greater the R Value, the higher its insulating quality. It is suggested by the use of the following options the energy performance of a building will be greatly improved.

Walls - Weatherboard, metal of F.C. (fibrous cement) should use reflective foil insulation.

Roofs - Tiled roofs – should use reflective foil insulation.
- Metal roofs – should use R1.0 insulating blanket backed with reflective foil.

Ceilings – use a minimum of R1.5 bulk insulation.

In addition, lighter coloured roofs will provide significant energy efficiency improvements on the North Coast of NSW. However, there is a potential for glare to adjoining property owners, and it is thus recommended that the proposed use of light coloured roofs should be discussed with Council.

**Water Efficiency**

**Toilets**
The installation of dual flush (6/3) toilet pans and cisterns, or toilets providing an equivalent or lower average flush volume than this type, is mandatory in all new developments and wherever a cistern and pan is being replaced in an existing installation. Certification from an installing plumber is to be submitted to Council advising of compliance with these requirements prior to final inspection.

**Shower Heads**
The installation of a AAA-rated (9 litres per minute or less) water efficient shower head or equivalent is required in all new developments and wherever a shower head is being replaced in an existing installation. Certification from an installing plumber is to be submitted to Council advising of compliance with these requirements prior to final inspection.

**Water Tap Outlets**
Permanently fixed flow regulators which ensure a maximum flow of 9 litres per minute at the water tap outlet for hand basins and kitchen sinks is required in all new developments and wherever tapware is being replaced in an existing installation. Certification from an installing plumber is to be submitted to Council advising of compliance with these requirements prior to final inspection.

**Dishwashing Machines**
Where dishwashing machines are permanently installed in new premises, they are required to be of AAA-rated (not more than 18 litres per program run). Certification from an installing plumber is to be submitted to Council advising of compliance with these requirements prior to final inspection.

**Outdoor Water Use**
The design of the landscaped area, the choice of irrigation system, the selection of native plant and grass species and the use of mulch can improve water efficiency. Council has provided guidelines for outdoor water efficiency in residential developments at Appendix 2.

### 1.6 Open Space, Density and Site Coverage

<table>
<thead>
<tr>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>✴ To provide private open space for each dwelling that is functional, usable and accessible from living areas and has access to natural light.</td>
</tr>
</tbody>
</table>

Lismore Development Control Plan – Part A

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To ensure that open space satisfies user requirements with respect to landscaping and privacy.

**Open Space**

The most important consideration in the provision of open space is that it should be usable. Open space should be functional and have direct access to the living areas of the dwelling.

It should be of a sufficient size and in a location that suits a range of recreational and leisure activities. The calculation of open space should not include remnant or setback areas less than 2m in width.

Open space should be located where it can benefit from access to sunlight. It should be landscaped and provided with fencing or screening where necessary to maintain privacy and ensure amenity.

For dual occupancy and medium density development, (and dwelling house lots less than 400 square metres in area), the provision of open space is critical. The total amount of open space to be provided for each dwelling unit is referred to as Primary Open Space. Within the primary open space provision it is necessary to ensure that a portion is given to activities directly accessible from living areas of dwelling units. This area is referred to as Functional Open Space and should be rectangular. It is calculated with reference to one minimum dimension.
**Functional Open Space**

The calculation of open space areas should not include land steeper than 15% in satisfying the above requirements. Functional open space areas may be required to be provided with screening and landscaping if visual privacy or amenity would be compromised by surrounding development. In cases where functional open space is proposed between the front of the dwelling unit and the street, landscaping and screening are mandatory.

Medium density development with no direct access to ground level will be required to provide a suitable area of functional open space in the form of a balcony or roof garden.
### Development Type

<table>
<thead>
<tr>
<th>Development Type</th>
<th>Primary Open Space</th>
<th>Functional Open Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum Area</td>
<td>Minimum Dimension</td>
</tr>
<tr>
<td>Detached dwellings (on lots &gt; 400m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is no specific requirement, however all dwellings should have suitable private open space areas which are functional.</td>
<td></td>
</tr>
<tr>
<td>Detached dwellings (on lots &lt; 400m²)</td>
<td>80m²</td>
<td>2.5m</td>
</tr>
<tr>
<td>Dual Occ Devt</td>
<td>35m²</td>
<td>3m</td>
</tr>
<tr>
<td>Integrated and Med Density devt</td>
<td>35m²</td>
<td>3m</td>
</tr>
<tr>
<td>Med. Density Devt above ground level</td>
<td>20m²</td>
<td>2.5m</td>
</tr>
<tr>
<td></td>
<td>An area of 20m² of private open space per unit above the ground floor should be provided in common open space areas.</td>
<td></td>
</tr>
</tbody>
</table>

Where an upper floor unit does not have access to a ground-level private courtyard, the private open space for that dwelling will be taken to be a privacy balcony(ies), or roof garden (if accessible directly from the dwelling). The minimum area of such a balcony(ies), or roof garden shall be 10m², with a minimum dimension of 2.5m. The balcony(ies) or roof garden shall be suitably screened to improve privacy. An area of 20m² of open space per non ground-floor dwelling shall also be provided in a common open space area.

### Density and Site Coverage

Medium density development is permitted throughout the 2(a) Residential zone but is restricted to a density per site area as shown in the following table.

<table>
<thead>
<tr>
<th>Site Area</th>
<th>1 bedroom unit</th>
<th>2 bedroom unit</th>
<th>3 bedroom unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1200m²</td>
<td>200m²</td>
<td>250m²</td>
<td>300m²</td>
</tr>
<tr>
<td>&gt;1200m²</td>
<td>180m²</td>
<td>220m²</td>
<td>270m²</td>
</tr>
</tbody>
</table>
**Dwelling Density per Site Area**

*Note: A bedroom is defined as a habitable room, or that area of a habitable room, capable of being occupied separately as a bedroom.*

Where the maximum development potential of a site is less than 0.5 of a dwelling below the next highest whole number, Council may give consideration to allowing a round up of the figure, providing the design is of a superior quality and the residential amenity of the area will not be detrimentally affected. Dwelling densities referred to in this section represent the maximum possible development which may be achievable on a site. All other design requirements contained in this plan must also be complied with.

The maximum permissible site coverage for ‘infill’ dual occupancy development is 66% of site area.

**Drying Areas**

A suitably paved and screened drying area of minimum area of 7m² must be provided for each dwelling unit within a medium density development.

### 1.7 Landscaping and Privacy

<table>
<thead>
<tr>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>◊ To encourage the use of the landscaping that complements the streetscape and built environment in a residential area.</td>
</tr>
<tr>
<td>◊ To enhance enjoyment of the environment through privacy, beauty and utility</td>
</tr>
<tr>
<td>◊ To manage and adapt micro-climate to create more comfortable living areas.</td>
</tr>
<tr>
<td>◊ To provide connection between buildings and their surrounds.</td>
</tr>
<tr>
<td>◊ To provide assistance with housing energy efficiency and to minimize the impact of shadowing on adjoining properties.</td>
</tr>
</tbody>
</table>

**Landscaping**

Landscaping is an important component of any development and contributes significantly to overall streetscape appearance. A landscape concept plan that identifies species and mature heights must accompany all development applications for dual occupancy and medium density developments. The plan should also identify proposed surfaces and finishes and drainage systems conveying stormwater to the street kerb or drainage line. Council may require more detailed plans prepared in accordance with Council’s Landscape Guidelines to be submitted with the Development Application.

There is no minimum landscaped site area required for attached and detached dual occupancy development. For medium density development a minimum of 40% of the total site area must be landscaped.

When assessing the suitability of landscape design, consideration will be given to the quality as well as quantity of the landscaped areas.

Landscaping should enhance natural vegetation which surrounds the site. Existing native vegetation and other landscape elements such as water courses, rock formations, etc, should be conserved and integrated with the landscaping design. Additionally landscaping designs should minimize the impact of solar access on adjoining properties i.e plants should not reduce the winter sun on adjoining properties.

The use of native ground covers instead of hard surfaces is encouraged to minimise the area of impervious surfaces which contribute to run-off.
Privacy

Visual and acoustic privacy are important considerations in residential building design, particularly as higher residential densities are achieved. Building design should seek to maintain reasonable levels of privacy for both the adjoining neighbours and the future occupants of a new development.

Good landscaping plays an important role in creating privacy between dwellings. Single rows of trees or shrubs along the boundary line do little to achieve privacy. Mounded garden beds which are mass planted with appropriate trees and shrubs are more effective and can be used to define usable open space areas. Savings in water consumption can often be achieved by reducing the amount of lawn area and replacing this with paving and/or garden beds.

Private open space areas and court yards should be suitably screened or landscaped to ensure privacy from the street and adjoining dwellings. Where medium density dwellings face each other across a courtyard, a minimum distance of 10 metres should be maintained between dwellings.

Infill dual occupancy development must maintain the visual and acoustic privacy of the original dwelling on the site and of surrounding properties.

Overlooking of the internal living areas of other dwellings should be minimised by careful building layout, spatial separation of buildings, location and design of windows and balconies through the appropriate use of screen walls, fences and landscaping.

Fences and Walls

Fencing design has implications for streetscape appearance, privacy, and security. Front fences and walls are useful for defining property boundaries and providing safe area for children’s play. They may also offer some acoustic and visual privacy.
However front fences and walls can unduly dominate the street, if their design is not in keeping with the streetscape and built character. High fences may also reduce security by restricting residents’ surveillance of the street and by restricting the view of a property from the street.

**Acoustic Privacy**

Acoustic privacy can be more difficult to achieve than visual privacy. Sound insulation standards for internal noise transmission for walls and floor between units are contained in the Building Code of Australia. However external sources of noise can be a significant factor and particular attention should be given at the design stage to siting, room layout, window and door location and selection of construction materials.

Where traffic noise is a major concern, the design should minimise exposure of habitable rooms to the source of traffic noise. Garages and driveways should be located away from bedrooms of adjacent dwellings. No common driveway should be located within 2 metres of the window of a habitable room unless there is screening at least 1.8 metres high between the window and the driveway or unless there is a vertical separation of at least 1.5 metres between the driveway level and the window sill.
1.8 Parking and Driveways

Objectives

◊ To ensure the provision of resident and visitor carparking that satisfies all residential development parking demand.

◊ To provide on-site parking that is easily accessible and does not inconvenience residents or pedestrians.

◊ To ensure that the design of driveways can accommodate the grade and turning radius limitations of modern vehicles.

◊ To encourage the use of materials other than plain concrete to reduce the visual impact of driveways in residential areas.

On-site Parking
Carparking areas should be easily accessible from dwellings. Visitor carparking areas should be located within a convenient distance to the development and landscaped in a manner that does not detract from their visibility.

Single Dwelling Parking Requirements
A single dwelling house shall provide two on-site carparking spaces behind the Building Line, one of which must be capable of being covered. One parking space may be provided in a stacked arrangement, providing that a length of at least 5.5 metres is available for the stacked carparking space. Minimum setback of garage doors fronting a public road to be 5.5 metres. This is to allow parking of vehicles wholly within the property boundary.

Dual Occupancy Parking Requirements
For attached and detached dual occupancy development, each dwelling must be provided with one on-site carparking space located behind the building line. If the floor area of a dual occupancy exceeds 125 square metres, two on-site carparking spaces are to be provided per unit, in a similar manner as for single dwellings.

Medium Density Parking Requirements
Medium density development must provide on-site parking in accordance with the number and size of the units comprising the development. One visitor space must also be provided for each five dwelling units.

<table>
<thead>
<tr>
<th>No. of Bedrooms</th>
<th>Car parking Spaces/Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>3 or more</td>
<td>2</td>
</tr>
</tbody>
</table>
Each dwelling unit is to have one covered parking space, located as close as practicable to the dwelling unit. Where six or more visitors spaces are required, these spaces should be located in groups of three and should not be scattered individually around the development. All visitor's spaces should be clearly marked or posted.

**Driveways**

All residential development shall provide a driveway from the public roadway to the development, in accordance with the relevant chapters of Subdivision and Infrastructure - ‘Driveway Access’ which requires that driveway egress movements do not create a safety hazard. Motorists are to be able to enter or reverse from a lot in a single movement. If frontage is to a street carrying more than 5000 vehicles per day (vpd) forward movement of vehicles across the verge is required.

The following points should be considered when designing a driveway to provide access to a development:

- Visual impact may be reduced by applying colour and texture to concrete surfaces. Where slope permits, alternative surfaces such as pavers, aggregate or turf plot should be considered.

- In some cases it may be better to provide detached garages or carports in order to reduce driveway length, and the bulk of garage structures.

- Where lots fall steeply below street level, pole frame dwellings which allow a garage or carport to be constructed above the ground should be considered. This will reduce the need for steeply sloping driveways and large cut and fill areas.
- Driveways should be integrated with landscaping and appropriate drainage and erosion control measures, particularly on steep slopes.

<table>
<thead>
<tr>
<th>No. of Dwellings</th>
<th>Driveway Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Dwelling</td>
<td>3m</td>
</tr>
<tr>
<td>Dual Occupancy (2 dwellings)</td>
<td>4m</td>
</tr>
<tr>
<td>3 dwellings or more</td>
<td>5.5m*</td>
</tr>
</tbody>
</table>

*Minimum requirement – see Australian Standard for further requirements.

Vehicle access to the site is to be in accordance with Chapters 5 & 6 Subdivision and Infrastructure - ‘Driveway Access’ and Australian Standard 2890.

The maximum preferable gradient for driveways is 20% with an absolute maximum of 29%, and a maximum change in grade of 12.5%.

**Note:** Fixed grades apply over the footpath area. Changes in grade between the footpath and the lot and the driveway and the garage must be maintained within the limits set by this DCP and the following sketch.
1.9 Drainage

**Objectives**  
◊ To require all stormwater, surface water and subsoil drainage to drain to Council’s drainage system.

Where possible all roof water from buildings and surface water from paved areas, is to be conveyed directly to Council’s drainage system, inter-allotment drainage or the street drainage system. Where direct access to a drainage system is not available drainage is to be located in easements granted in favour of the benefited party(s).

Note: Developers must negotiate privately to obtain easements over adjoining land. A Construction certificate shall not be issued until stormwater disposal has been satisfactorily resolved.

Where a rainwater tank is included in a development, overflow from the tank shall be connected to the stormwater system. Cross connection between a water tank and the city water system is not permitted.

A catch drain must be provided across the driveway, where there is the potential for surface water to enter or affect a building. The catch drain must be connected to the drainage system for the building and site.

Developers must provide for sufficient drainage to remove all roof, surface and subsoil waters to Council’s drainage system. Detailed plans shall be submitted for consideration with the Development Application or application for a Construction Certificate.

1.10 Earthworks and Retaining Walls

**Objectives**  
◊ To minimise the adverse visual and privacy impacts that excessive cut and fill has upon the streetscape environment.  
◊ To ensure integration of retaining walls and cut and fill with site landscaping.  
◊ To ensure that structures are stable and that surface and subsurface drainage are controlled.

Residential development should be designed in harmony with the slope and drainage characteristics of the site. Council's objective is to minimise potential problems relating to visual impact, loss of privacy, instability and drainage which are often associated with excessive excavation and/or filling.

**Cut and Fill**

Building design should attempt to resolve site constraints by responding to the natural slope and topography. The style or form of a house, particularly if it is constructed on a slab foundation, may limit design solutions that are not dependant upon engineering or earthworks. On steep sites split level designs or housing that employs pole, steel or timber framing should be considered in lieu of designs requiring large slab-on-ground construction.

The maximum height for cut and fill is 1.2 metres above or below natural ground level external to the perimeter of the building when measured at the point of greatest cut or fill. Any variation to the maximum height is only permissible where the variation will not detrimentally affect adjoining properties and where it can be shown that the proposed development cannot reasonably be achieved by other means, because of the topography of the site.
The maximum cut and fill restriction is not applicable where the cut and fill is incorporated into the dwelling structure.

All areas containing cut or fill are to be drained, stabilised and landscaped to prevent surface erosion. Areas of cut or fill should not be closer to a property boundary than the depth of cut or fill.

The horizontal distance between a cut and a filled area shall be equal to the height or depth of the fill or cut, whichever is the greater.

Earthworks, buildings and retaining walls must be located a minimum of 1.5m from any sewer main or Council stormwater drainage line, or the equivalent invert depth of the main or line, whichever is the greater. Any earthworks, building and retaining wall is not to encroach into any registered easement. Council shall not consider Development Applications containing earthworks for the purpose of building platform(s) associated with residential development unless the application is accompanied by development application(s) for the dwelling(s). Full details of all proposed earthworks must be clearly indicated on plans and section drawings.

Council may require that engineering drawings be certified by a suitably qualified Engineer before the application is approved.

Battering of cut and/or fill is encouraged, the maximum grade to be in accordance with the table below. Retaining walls or other stabilising measures will be required in lieu of battering of cut or fill.
UNPROTECTED EMBANKMENTS

Notes:
For the purposes of this Table:

1. Retaining walls or other types of soil retaining methods must be installed where—
   (a) the slope ratio is more than that described in Table 3.1.1.1; or
   (b) the soil type is not described in this Table.

2. Embankments that are to be left exposed at the end of the construction works must be stabilised by vegetation or similar works to prevent soil erosion.

<table>
<thead>
<tr>
<th>SOIL TYPE</th>
<th>EMBANKMENT SLOPES H:L</th>
</tr>
</thead>
<tbody>
<tr>
<td>(*see Part 3.2.4 for material description)</td>
<td>Compacted fill (see Part 3.2)</td>
</tr>
<tr>
<td>Stable rock (A*)</td>
<td>2:3</td>
</tr>
<tr>
<td>Sand (A*)</td>
<td>1:2</td>
</tr>
<tr>
<td>Silt (P*)</td>
<td>1:4</td>
</tr>
<tr>
<td>Clay</td>
<td>Firm clay</td>
</tr>
<tr>
<td></td>
<td>Soft clay</td>
</tr>
<tr>
<td>Soft soils (P*)</td>
<td>Not suitable</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Fig. 4*
Retaining Walls

On steep lots retaining walls may be necessary to create usable open space or to stabilise steep slopes. Retaining walls are limited to 1.2 metres in height above natural ground level and are to be constructed of materials that complement the streetscape and site landscaping. Construction methods that permit landscaping within the wall components is encouraged. Soil surcharging of any retaining walls is not permitted unless certification from a suitably qualified practicing professional engineer is provided (see Fig. 4).
### 1.11 Erosion and Sediment Control

<table>
<thead>
<tr>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>◊ To reduce the potential for soil erosion from development sites both during and after construction.</td>
</tr>
<tr>
<td>◊ To prevent pollution and siltation of natural water courses and Council's drainage systems.</td>
</tr>
</tbody>
</table>

Soil erosion represents a major environmental problem leading to loss of top soil, sedimentation of natural and built drainage systems, reduced water quality and damage to the aquatic environment.

While erosion from a single building site may appear negligible, the cumulative impact from many sites can be significant. Areas which are disturbed or exposed during the construction phase are susceptible to soil erosion. Severe erosion may cause landslips and gullying which limit the potential future use of the land.

Developments where the potential for soil erosion exist must provide suitable erosion and sediment controls. A plan of management may be required for some developments where there is likely to be a significant erosion hazard. The plan should outline existing site conditions, what changes are proposed and the measures to be taken to alleviate or minimise any erosion or sedimentation.

The following practices should be implemented on all development sites where there is potential for erosion:

- All disturbed areas should be stabilised and revegetated as soon as possible after completion of the project.
- Topsoil should be stockpiled on site for later use in landscaping and revegetation.
- Stockpiles of sand, gravel and soils should be located clear of drainage lines and water courses and in areas where material will not spill onto the road pavement or kerb and gutter.
- A temporary construction exit of coarse gravel should be used to prevent or reduce the transport of sediment off the development site by construction vehicles.

![Diagram of erosion control measures](image)

- No cut and fill batters should be greater than 45° slope. All batters should be stabilised and provided with diversion drains to direct the water away from batter slopes.

Approved run-off and sedimentation control devices may be required to be erected and maintained on site until such time as the area has been adequately stabilised.

#### Run-off Controls

Run-off controls prevent erosion by diverting water flow and/or reducing run-off velocity in erosion prone areas. They should be used in conjunction with appropriate sedimentation controls.

- Catch or diversion drains are located at the top of cuttings where they divert run-off away from exposed or non stabilised areas.
- Berm drains constructed across slopes which are designed to intercept run-off and divert the flow to a more stable area.
• Toe drains are located at the toe of fill batters and are designed to collect run-off from the batter slope and direct it to the drainage system.
• Energy dissipaters reduce the flow and velocity of run-off by interrupting the flow of water within a drainage channel.

**Sediment Controls**

The purpose of sediment controls is to remove soil particles from stormwater run-off before the water leaves the site.

• Temporary sediment fences are located down-slope of the construction site and are constructed from geotextile filter fabric which filters silt particles from the intercepted run-off. Sediment fences must be adequately supported by posts so as to withstand force of water pressure during periods of intense run-off.

Temporary sediment fences may also consist of straw hay bales which are securely attached to the ground surface by means of staking etc.

• Vegetation buffer areas consist of filter strips of vegetation which are effective when used in conjunction with other forms of sediment control devices. As much vegetation as possible...
should be retained on construction sites, particularly along the edge of drainage lines and water courses.

- Temporary sediment traps are temporary de-silting structure designed to trap sediment before it enters the stormwater system.

Sedimentation basins are temporary barriers or dams designed to detain run-off and remove sediment by allowing soil particles to settle out of suspension.

1.12 On-site Sewage and Wastewater Management Strategy

NOTE: This element applies to dwellings which are not connected to Council’s reticulated sewerage system. These dwellings will be in rural and village areas generally, with the exception of Nimbin.

Objectives
- to ensure the protection of the surrounding environment including groundwater, surface water, land and vegetation through the selection of an effluent disposal system suitable for that particular site;
- to aid in the prevention of public health risk from on-site sewage disposal;
- to continue in maintaining and improving community amenity;
- to ensure maximum reuse of resources;
- to ensure ecologically sustainable development;
- to recognise the value of wastewater for the possibilities of effective reuse of this resource;
- to aid in the public recognition of on-site sewage treatment systems;
- to ensure ongoing maintenance and monitoring program which will involve the land owner/resident and Council.

On-Site Sewage and Wastewater Management Strategy

Dwellings not connected to Council’s reticulated sewerage system are to comply with the Guidelines within this Strategy. Copies of the Strategy are available from Council.
1.13 Guidelines for Submitting a Development Application

Preliminary Consultation

Applicants are encouraged to discuss their proposal with a member of Council’s Development and Governance Group staff prior to submitting their Development Applications. The most appropriate time for pre-lodgement discussions is when an initial concept plan has been drawn. Pre-lodgement discussions can be helpful in ensuring that the proposal will satisfy Council’s planning requirements and may save time and money later at the DA processing stage.

Development Application Requirements

The following must be submitted as a necessary part of any Development Application for residential development:

- A completed DA form including the “owners consent” of all owners of the property;
- Payment of DA fee - these are set by Government legislation but may also include an administration and advertising fee (consult Council’s schedule of fees and charges).
- A completed BASIX Certificate.
- Six (6) copies of plans including:
  - a site plan showing the location of proposed and existing buildings in relation to property boundaries, the north point and existing site features such as trees, contours, drainage lines, etc;
  - a floor plan of each floor level of all proposed buildings;
  - elevations for all buildings indicating the building height plane where the wall of a building is close to an adjoining property boundary. Perspective sketches are desirable for larger developments, particularly those that may have an impact on the streetscape;
- The Construction Plans for the Development must clearly show the following information:
  - North Point (this must be identified as either Magnetic North or True North). True North is approximately 11° west of magnetic north in Lismore.
  - Information presently supplied on the construction materials to be used.
  - Colour of roof and walls (described as light, medium or dark).
  - The type and location (walls, under roof, ceiling, underfloor) of insulation to be used. (including isosilation).
  - Any variations to glazing such as the use of tinted or reflective glass.
  - Floor covering types, if known, and where in the house they will be located (eg tiles, carpet, bare timber etc).
  - Hot Water System type and size to be installed (required only for new developments). Installation location also be shown on the floor plans.
  - Internal floor area (excluding garage)
  - Window area on each face of the building (excluding garage) and the area covered by >300m eaves/awnings; ie North face: 15.1m² (covered) 2.1m² (uncovered), East face: 15.1m² (covered) 2.1m² (uncovered)
  - shadow diagrams for two storey buildings where overshadowing in mid winter may affect neighbouring properties.
  - a Statement of Environmental Effects consisting of a written statement identifying all anticipated environmental impacts (adverse and beneficial) including the effects on the residential amenity of the neighbourhood, together with the steps to be taken to mitigate any adverse impacts.

Following the issue of development consent and prior to commencement of construction a Construction Certificate must be obtained by application to Council or a private certifier. A Construction Certificate is a certificate to the effect that work completed in accordance with the plans and specifications will comply with the requirements of the Building Code of Australia and
associated standards, and also any outstanding Development Consent conditions, including the payment of any levies and bonds.

**Further Information on Building Design and Layout**
The following documents may be useful when preparing design concepts for all forms of residential development:

- The Australian Model Code for Residential Development (AMCORD) - Commonwealth Department of Housing and Regional Development.
- Dual Occupancy-Design Solutions - NSW Department of Urban Affairs and Planning.
- Residential Development Controls, One and Two Storey Low Density Development - NSW Department of Urban Affairs and Planning. (The above guidelines are available from the Department’s Information Branch, GPO Box 3927, Sydney NSW 2001; telephone 02 9391 2000).
- The Solar Angle on Good House Design - NorthPower.
APPENDIX 1

North Coast Design Guidelines
APPENDIX 2

Guidelines for Efficient Outdoor Water Use

Water use outdoors for pools and gardens makes up approximately 50% of total domestic use percentages.

Seven Steps to Save Water in the Garden

1) **Plan your garden.**
   A landscape plan can assist in creating a ‘xeriscape’ or water efficient garden. Consideration of slope, aspect, drainage, climatic conditions, and existing vegetation is essential for water efficiency.

2) **Do a soil analysis.**
   Soil analysis enables proper plant selection for the site, which will increase the water efficiency of the garden.

3) **Select appropriate plants.**
   Maximum water conservation can be achieved by selecting plants that require a minimal amount of supplemental watering in a given area. Plants can be grouped in accordance with their respective water needs to reduce the possibility of over-watering. Plants with a high or medium drought tolerance, which are suitable to the site, are recommended for water efficient gardens. Native plants are water efficient, but low water using exotics can also be used.

4) **Select appropriate lawn areas.**
   As a large percentage of garden water is required by a lawn, its extent should be limited. There are varieties of turf, which require no supplementary watering, for example, ‘CT2 Couch’, which is common in the local area. Maintain lawn around 5 centimetres high so that the blades of grass will shade each other and reduce evaporation of moisture form the soil.

5) **Install efficient irrigation.**
   Underground drip irrigation systems are the most water efficient form of irrigation as it directs water towards the roots of the plant and not to the leaves where it can be lost through evaporation. If using a sprinkler, install a timer at the tap. A forgotten sprinkler can waste up to 1000 litres of water per hour. Water the garden only when it is necessary and when it is cool and not windy. This will maximise the water uptake of the plants and stops the sun from evaporating water before it can be absorbed by the soil.

6) **Use mulch.**
   Mulching will reduce evaporation and enable soil to retain higher moisture content for longer periods of time. Mulch needs to be at least 50 millimetres thick and maintained regularly in order to work effectively. Mulching can reduce evaporation by 75 percent and also aids in nutrient retention. Mulching will also reduce weeds, which also use valuable water.

7) **Carry out appropriate maintenance and cleaning.**
   Ensure that all taps and irrigation systems are free from leaks. A dripping tap can waste up to 200 litres of water a day. Avoid using water for cleaning jobs around the garden. Cleaning paths and driveways with a broom rather than a hose can save up to 100 litres of water.

Council’s Landscape Guidelines contains a list of plant species that are suitable to most areas in the Lismore City Council area.
Chapter 2

Commercial Development

- Urban Design in the CBD
2 Commercial Development - Urban Design in CBD

The purpose of this Chapter is to identify general design principles for new and renovating buildings within the CBD (as shown on Map 1). Design principles include protection of building occupants and pedestrians from the extremes of Lismore weather, ensuring access for the disabled, incorporation of crime prevention measures and recognition of Lismore's heritage values.

Urban design seeks to preserve and enhance the aesthetic and amenity qualities of an area. The quality of the built environment is a key factor which sets the stage for all economic activity and influences the local and regional image of a commercial precinct. Good urban design responds to local features and needs as well as having the ability to strengthen economic life and improve prosperity within a CBD. Design of Lismore’s urban environment is vital to the city’s economic competitiveness within the region. The design quality of the urban landscape affects the city's ability to attract investment and generate wealth, which is vital to the economic and social fabric of the city. By adopting and implementing good urban design principles, function and amenity within the CBD will be improved for the businesses, employees, their patrons and visitors alike.

Historically significant buildings contribute to the identity of the CBD. It is important to prevent loss of character through permitting new buildings which are inappropriate to their setting by reason of architecture, scale, bulk, form, material, or colour. Existing buildings should be well-maintained and future development designed in such a way as to avoid compromising the appearance of existing buildings and the streetscape.

Adequate weather protection will enhance the attractiveness of walking, assisting in reducing traffic in the area by allowing shoppers to park and walk comfortably to their destination without fear of excessive heat, cold, wind or rain.

Urban weather protection is not entirely the responsibility of commercial developers. Parks and other public places in the CBD should include areas where day to day activities can be undertaken in conditions which are comfortable and protected from exposure to sun, rain and wind.

2.1 Objectives of this Chapter

The primary objective of this Chapter is to create an aesthetically pleasing, comfortable, safe and functional CBD streetscape environment, which exploits and improves upon the existing distinctive built form and locational attributes of the city.

New buildings, or redevelopment of existing buildings, should include in their design

- Weather protection for pedestrians
- Energy efficiency
- Crime prevention design principles
- Disabled access
- Respect for streetscape and adjoining buildings.

2.2 How to Use this Chapter

This Chapter sets out Lismore City Council's requirements for the incorporation of measures for weather protection, energy efficiency, disabled access, respect for streetscape and heritage values and crime prevention to be included in new and renovating buildings in the central business district.

The chapter contains:

- an overview of guidelines for development, and
- specific requirements and advice regarding design, including roof form, doors and windows, heritage values, scale/mass, setbacks, materials, colour and signage.
The relevant sections of this Chapter must be studied by an applicant before a building is designed and a building subject to this part of the DCP must comply with the DCP principles. Council acknowledges that attempting, either by negotiation or condition of consent, to add the required design attributes to a building after it has been fully designed, may result in a poor outcome. If considered early in the design process inclusion of the required design elements can be easy and cost effective.

Council will assess each application on its individual merit, taking into account the adjacent building design, context and form as well as the overall character of the surrounding streetscape.

2.3 Lismore CBD Characteristics

The Lismore CBD is the financial and commercial centre of the Lismore region and currently supports a large range of commercial and light industrial activities including retail shops, workshops, offices, banks, hotels and a cinema. Most retail activity in Lismore is centred on “the Block”. This was the block on the original village plan bounded by Molesworth, Magellan, Keen and Woodlark Streets. Social and economic factors, architectural fashions and statutory control have determined the form of Lismore’s Central Business District.

Although the majority of buildings in the precinct are relatively undistinguished in terms of individual architectural integrity, a variety of architectural styles are evident amongst the facades which often go unnoticed above shop front awnings and advertising signs. Sections of the CBD have been affected by unsympathetic, modern developments. Some buildings actively disrupt the rhythm of the streetscape. The flood liability has resulted in less capital improvement in the precinct.

Surveys of the Central Business District have identified a number of short-comings for pedestrians particularly in regard to weather protection, the general aesthetics and consistency of facades and awnings. For example, recently constructed buildings on the west side of Molesworth Street provide little shelter from weather for pedestrians.

2.4 Historical Development

Lismore’s CBD character is a reflection of its historic sporadic development. The consequences of this are evident in the diverse nature of designs and the types of materials used in construction. The majority of the building stock dates from the twentieth century and heritage buildings are dispersed throughout the precinct with the prime groupings in Molesworth Street. Brick buildings predominate although a number of rare sandstone examples exist.

The appearance of Lismore’s CBD changed markedly in 1938, when Council decided to apply Section 267 of the Local Government Act, 1919 to enforce the removal of all post supported verandas in business streets by July 1, 1940. Cantilevered awnings began to appear in 1941, the policy resulting in redevelopment of some sites fuelled by a need to incorporate replacement awnings.

Development since 1950 has generally been of a scale that has a lack of sensitivity to human comfort at a street level. Some recent commercial development has not been sympathetic to the character of the CBD in terms of both built form and materials used. The inconsistent character of building stock has been referred to undesirably in a number of studies of the area such as the Lismore City Wide Heritage Study.

2.5 Urban Design Initiatives

In 1991 Council proposed a City Centre Strategy which addressed:

- Urban design and landscape;
- Land use, employment and retail analysis;
- Traffic and parking; and
- Public Consultation.
As a result of this Strategy a plan for upgrading CBD infrastructure and streetscape was prepared and is being implemented as funds permit.

2.6 General Guidelines
The guidelines for the CBD are intended to reinforce the existing urban form and character.

Building forms within the CBD should:

- Relate to Lismore’s climate by incorporating weather protection elements for pedestrians;
- Draw from local issues, including cultural, existing built form, landscape and other environmental influences;
- Not detract from existing vistas and views;
- Be energy efficient;
- Make a positive contribution to the streetscape; and
- Be compatible with local heritage values.

2.7 New Buildings (Infill Development)
Infill development is a term used when a new building is to be built amongst old in an established streetscape. The designer should always take into account the height and proportions of neighbouring buildings and continue themes common to these buildings while introducing contributory elements that are unique to the new building.

The first principle of infill development is to be guided by the established character of the area, to clearly identify the elements that contribute to the special qualities of the place. The aim should be to harmonise with and complement the existing streetscape fabric rather than competing with it. It should not try to dominate its surrounds, but relate sympathetically with existing scale, mass and proportion.

The following principles should be observed when infill development is being established:

- Ensure new buildings maintain an appropriate scale, mass, detail and continuity of facade to the street; for example, bulky buildings can be broken into smaller components to better reflect the character of the neighbours;
- Infill development should be of contemporary design. It is essential however that the design is sympathetic to adjoining developments and the existing streetscape;
- The principles of energy efficiency should be used in the design of the new building.
- Unless the building is set back from the street, the street frontage should contain elements to protect pedestrians from weather extremes.
- Where the proposal is to establish a traditional veranda style structure, it must be of construction and design that will safely absorb vehicular impacts and not obstruct pedestrians using the footpath; and
- A pedestrian friendly environment should be created as part of any new development and should be suitable for disabled access.

Corner Buildings
In the event of a corner block becoming available for development the design should make an effort to address the corner either in the form of a building itself, or in the awning treatment. Particular care needs to be taken with corner allotments as they have a greater impact on the overall impression of the street than the more central sites and can contribute greatly to the character and identification of the area.

Shop Fronts
While there is no need to faithfully recreate the earlier style of shop front, the design should harmonise with and complement the existing streetscape character.
**Large Scale Developments**

Large-scale developments such as shopping centres, clubs, bulky goods stores and commercial office blocks are particularly difficult to integrate unobtrusively into the streetscapes of older regional urban centres. Developments of this scale have potential to dominate the streetscape and accordingly careful design is required. Building facades should relate to the street and be of a human scale. It is important to minimise visual impact by breaking up the expanse of the facade and there are a number of methods by which this can be achieved:

- Horizontal elements such as awnings and cornice detailing may be introduced;
- The roofline can be broken with a pediment or rounded elements;
- Plantings, landscape elements and lattice screening can be used to integrate the development into the landscape; and
- Large walls or facades should incorporate vertical and horizontal elements or shop fronts to break up the massing of the buildings.
- Minimising the use of bright or intrusive colours.

**2.8 Additions to Existing Buildings**

Complete or partial demolition of any building requires development consent from Council.

When renovating or adding to an existing building within the CBD precinct, the following requirements apply:

- Any redevelopment should retain a form and scale that complements the existing streetscape;
- Where possible, verandas can be reinstated;
- Ensure any additional awnings or verandahs are sympathetic to adjoining buildings and the existing streetscape;
- The materials and colours to be used in additions or renovations should be similar to and complement those used in existing structures;
- Awnings should be connected to adjoining buildings to provide continuous weather protection and should extend to the kerb line.
- The redevelopment of alleyways and laneways in compliance with the adopted streetscape plans.

Redevelopment of buildings fronting laneways will not be required to include awnings if such would conflict with traffic movement or truck deliveries.

**2.9 Weather Protection**

Provision of shade which screens ultraviolet radiation must be integral in the design of buildings in the CBD.

When designing and implementing for weather protection within the CBD, the following principles are to be followed:

- Buildings constructed to front property boundary are to include features to protect pedestrians from rain, wind and summer sun;
- Setting of upper levels of building back above an existing/specified parapet line, will allow mid-winter sun penetration to the street during the midday period;
- Shading devices which permit winter and exclude summer sun should be used.
- Redevelopment of buildings constructed to street boundary is to make provision for extending weather protected routes, particularly along main pedestrian routes to transport centres;
- Awnings should be designed to respect and complement the existing streetscape, character and buildings to which they are attached. Where this involves heritage items, the design and use of awnings will need to be considered carefully;
- Individual entrance canopies are generally inappropriate on frontages to streets as they tend to distract even further from the visual continuity of the streetscape;
- Buildings set back from the street are to use landscaping to enhance climate control by shading walls and windows in summer;
• All plantings should place an emphasis on shade provision wherever possible and conform with the rainforest theme currently evident in the CBD, and as proposed in the City Centre Streetscape Study, and should serve to unify the street planting environment.

2.10 Surface Treatment and Street Furniture

The term ‘street furniture’ incorporates all the ancillary elements of the streetscape and includes such fixtures as benches, rubbish bins, bus shelters, post boxes, bollards, signage and light standards. As well as providing an amenity to the community, street furniture has the ability to improve the visual appearance of a place. Careful selection of appropriate street furniture has the capacity to enhance and contribute to the overall attractiveness of the streetscape in which it is being placed.

The following principles should be considered when planning and designing street furniture within the CBD:

• Footpaths that are in poor condition should be replaced for both safety reasons and aesthetic ones. The treatment of footpaths should be durable and of a non-slip surface;
• A mixture of paving materials, textures and patterns can be incorporated to achieve a suitable finish and design that enhances the streetscape of the CBD. Tactile tiles should be included as they assist visually impaired people to negotiate independently through the CBD;
• The design of street furniture will vary depending on location and circumstances to which it is being placed. Preference will be given to designs which complement the existing character of the CBD and streetscape consideration shall be given to clause 27 of AS1428.2 in the selection and location of street furniture suitable for use by the disabled.
• Street furniture is to be made from robust materials, not have components that can be easily removed and should be made of durable materials to ensure its long term use and low maintenance;
• Seating is to be constructed from comfortable and aesthetically pleasing materials.
• In public spaces provide public seating for groups as well as individuals;
• Bollards can be effective in delineating between pedestrian and vehicular areas as well as adding a decorative heritage style finish to the streetscape.
• Bus shelters should be located with consideration for the entire streetscape as well as public transport accessibility.

Disabled Access

Access for disabled persons must always be considered in the planning, designs and use of public facilities. Access to buildings for the disabled shall comply with the Building Code of Australia; whilst access to new public spaces shall be developed to the design standards provided in the Department of Planning Technical Bulletin No. 17 – "Access to Public Spaces for Disabled People".

There are a number of design principles that may be included when designing for disabled access in Lismore’s CBD:

• Platform steps with short risers and wide tread are preferred;
• The provision of sheltered drop-off and pick-up points should be considered;
• Disabled carparking spaces should be close to amenities;
• Ensure access to buildings and other public spaces are available to people of all abilities;
• Changes in level of less than 150mm and single steps are to be avoided as they can easily be missed by visually impaired people;
• The tread surface on stairs should be constructed with a non-slip surface;
• At least the first step and the last step in a flight of steps should be painted white or in a light colour, or be constructed in a light material and tactile ground indicators at the top and bottom of the stair.

This is not an exhaustive list. Reference should be made to the Building Code of Australia for requirements for access for disabled persons.
Crime Prevention

Although there is growing community concern with crime statistics, research suggests that fear of crime affects people more than the actual risk to their safety. As a consequence, this perceived risk tends to limit the mobility of the more vulnerable members of our community, including women, children and the elderly. Evidence suggests that by diminishing the opportunities of unobserved crime and ease of escape, criminal activities can be reduced.

Chapter 13 sets out design requirements for new buildings in accordance with Crime Prevention through Environmental Design principles.

Heritage Buildings

Heritage plays a vital role in Lismore CBD’s cultural identity and character and accentuation of the City’s special attributes through careful consultation, planning and design is essential.

Molesworth Street retains a large amount of its heritage. Building designs in Molesworth Street therefore need to pay particular attention to the streetscape and the integrity of individual heritage buildings. In Keen, Woodlark and Magellan Streets a greater degree of flexibility may be exercised, however, several basic characteristics need to be recognised in order to maintain compatibility with existing contributory facades.

The designer should take into account the height and proportions of neighbouring buildings and continue the themes common to both buildings while introducing contributory elements that are unique to each. Elaborate details should be avoided, as should awning forms that are not traditional to the Lismore streetscape. New structures in the main street should refer to the vertical and horizontal lines evident in adjoining buildings. All future development undertaken in the CBD should recognise the heritage significance of buildings identified in Lismore LEP, 2000, and in the Lismore Citywide Heritage Study, and seek to conserve rather than detract from that significance.

Refer also to Chapter 12 – Heritage Conservation.

The following design features should be considered when a development is in the proximity of an item of environmental heritage or within a conservation area:

- The character of an individual heritage item and its setting should be maintained or enhanced through careful consideration of alterations and additions or construction of new structures;
- The removal or alteration of any distinctive architectural feature should be avoided and deteriorating architectural or decorative features should be repaired rather than replaced where possible. Local Heritage Assistance Grants may be available for this purpose;
- Existing heritage buildings should form the basis for design guidelines for new development by:
  - aligning horizontal elements
  - repeating major vertical bay widths
  - re-interpreting proportion and articulation of facade components
  - providing examples of materials and colours.
- Proposals for complete or partial demolition of listed heritage buildings or buildings within the nominated conservation precincts shall be assessed in the context of the buildings contribution to streetscape and likely effect on individual architectural integrity; and
- The design, style, materials and colour for new construction shall be considered on an individual basis on the premise that contemporary styles may be more appropriate than emulating traditional designs.

Retention of Trees

Trees perform important functions of providing shade habitat and contributing to urban amenity and streetscapes. Every effort should be made to retain mature trees and shrubs on both private and public land.
Chapter 14 - Tree Preservation Order (TPO) applies to all residential, business, industrial, special use and recreation zones in Lismore. The TPO provides that the ringbarking, cutting down, topping, lopping, removing, injuring and wilful destruction of any tree or trees whatsoever, shall not be undertaken without the written consent of Council. Council will view any contravention of these requirements most seriously and will take legal action appropriate to the circumstances of the case against any person who does not comply with this clause.

Where Council consents to the removal of a tree, Council will normally require its replacement with two or more trees for each tree removed. Replacement trees should be compatible to the locality and take into account the existing and likely human altered environment. Where approval is granted to significantly lop or top a tree Council may require the planting of one or more further trees. The other requirements of Chapter 14 – Tree Preservation, also apply here. Council will expect the owners and occupiers of the premises to nurture any replacement trees.

2.11 Specific Requirements
For new developments or redevelopments within the CBD precinct identified by this plan, there are a number of additional requirements that will have to be met before council will give approval. Additional development and building requirements, including state government regulations, should be ascertained before applications are made to Council.

A site analysis is to be prepared and submitted as part of the Development Application for any new building in the CBD. This analysis is to illustrate the relationship of the new building to those adjoining so that impact on the streetscape may be evaluated.

Building Heights
Building height controls have long been used as town planning regulatory tools in Central Business Areas undergoing redevelopment or expansion, for the purpose of avoiding overdevelopment of sites leading to undesirable effects on the environment and amenity of the centre. The potential adverse effects of overdevelopment of tall buildings include:

- overshadowing of streets, pedestrian areas and other buildings, making these places less pleasant by restricted availability of sunlight;
- adverse visual impact of tall or bulky buildings which may be out of scale with the existing or desired built form and amenity of the centre, including when viewed from some distance; (see Figure 1)

![Figure 1: Adverse visual impact of tall, bulky buildings with inconsistent building heights.](image-url)
The need for height control usually only occurs when significant redevelopment pressures in a particular centre are apparent. In the case of the Lismore CBD, the scale and location of recent redevelopment proposals have suggested the need for appropriate policy to guide the scale and bulk of new buildings in certain parts of the city centre rather than height. The North Coast Regional Environmental Plan recognises that tall buildings over 14 metres need special environmental assessment and the opportunity for public comment on the proposals. The concurrence of the NSW Director-General of Planning is required for Council approval to buildings over 14 metres.

The Manchester Unity building currently is the only building in the CBD, which exceeds fourteen metres in height. The Lismore City Centre Strategy recognises that buildings over six (6) storeys are unlikely to be economically viable in Lismore in the foreseeable future. Heritage buildings are generally 2 storeys and have many variations of façade form and design. Other buildings within the precinct range from 2 to 5 storeys.

Height controls on new building are desirable to certain street frontages where excessive overshadowing of key pedestrian areas may result, or where tall buildings may be significantly out of scale and character with existing building facades. The following are general guidelines for building heights which will avoid these undesirable effects:

- West side of Molesworth Street - 4 storeys, except southern end of Molesworth Street, where 5 storeys above existing street level may would be desirable to balance the Manchester United Building.
- East side of Molesworth Street - 3 storeys above existing street level
- North side of Woodlark Street - 2 storeys above existing street level
- South side of Woodlark Street - 3 storeys above existing street level
- North side of Magellan Street in “the Block” - 2 storeys above existing street level

Council may consider taller buildings than nominated above if the additional height is set back from the street frontage and if the application demonstrates that overshadowing of key pedestrian areas will not occur.

Continuity of the streetscape can be achieved by maintaining consistent parapet heights (see Figure 2). The maximum height of infill development should be determined by the ridge heights of adjoining development unless the additional height is set back from the street frontage.

![Figure 2: Consistent parapet heights and the continuous line of the facades give continuity to the streetscape.](image)
Roof Form

Roof form is one of the most important features determining overall building appearance. Most typical in the CBD are parapet designs. Parapets and other facades often conceal flat roofs. It is desirable for all new development within the CBD to have a parapet or similar structure, in a design that complements the existing built environment (see Figure 2). Roof forms should relate to adjoining buildings by matching style and pitch. Roof materials should be carefully selected to harmonise with neighbouring buildings. The shape of the roof and the pattern it makes against the sky is often distinctive.

Windows and Doors

The placement of doors and windows has the potential to visually impact upon the surrounding streetscape. Large blank walls with no openings will create a negative visual impact from the streetscape, as well as reducing the amount of natural light entering the building (see Figure 3). Due to the climatic conditions in Lismore, the placement and design of openings in buildings should be considered carefully at planning stage. By reducing the size of west facing windows or by designing appropriate window covers or awnings (See Figure 4), it is possible to reduce summer heat gain but still allow cross ventilation and some natural light throughout the building. However, Council does acknowledge the difficulties that developers face within the constraints of street alignment.

Figure 3: Large blank walls create negative visual impact.

Figure 4: Appropriate window awnings, which are in context with the building style and age.
Display windows should not comprise uninterrupted expanses of glass; there should be a regular rhythm of glass and framing. Above the awning line, facades can be broken-up by installing parapet windows (see Figure 5). It may be worthwhile investigating the facades of many of the older buildings within the CBD, as ornate facades may have been covered.

Glass curtain walls or large areas of featureless blank walls will not be permitted. The visual impact of such elevations needs to be ‘broken up’ or articulated.

Figure 5: Large blank facades above the awning line are undesirable. Parapet windows should be installed to break-up the facade.

To counteract the visual impact of large blank walls with new developments in the CBD no external wall should be greater than 14m in length unless a return, buttress, balcony, or recess to a depth of at least 600mm, or some other acceptable design feature is used to break up the straight run of the wall.

**Design**

In building design, concepts of fashion in adornment change from decade to decade and generation to generation. Contemporary design can be well integrated within the streetscape and relate harmoniously with its neighbours. The roof, gable, slope, form and materials relate to building style, age and character. New developments should not directly copy existing designs of historic buildings, but may incorporate design elements, which complement neighbouring buildings and the surrounding streetscape (See Figure 7). The façade of the building should incorporate symmetrically placed upper level windows of vertical proportions and contain no greater than equal portions of glass to masonry.

Figure 6: The designs of these buildings do not relate harmoniously with their neighbours and do not integrate with the streetscape.
Figure 7: New developments need not copy existing buildings, but rather incorporate design elements. Roof pitch, gable and form should complement the existing buildings as shown in this example.

Scale/Mass

The mass of a building is its overall bulk and arrangement of its parts. It is important that buildings across wide frontages do not dominate the streetscape by their bulk and scale. The apparent mass of a development can be reduced if the building is ‘broken down’ into a number of parts. Many of the older buildings in the CBD used this design principle, thus creating a distinct visual richness.

Corner buildings are very important as anchor points in defining the streetscape and need careful treatment. New developments should be designed to blend with, rather than dominate the existing streetscape. Oversize buildings that overwhelm existing structures and dominate the streetscape will be discouraged (See Figure 8). Infill design should identify the predominant massing and then design in sympathy with these forms. For example, bulky buildings can be visually broken down into smaller components to better reflect the character of their neighbours. The major massing can be placed behind a small façade (See Figure 9).

Figure 8: Buildings, which exhibit poor scale and mass, tend to dominate the streetscape and should be discouraged.

Buildings should relate in scale to their site and setting. Existing buildings and mature trees can be used as reference points to ensure new developments are in scale with the established streetscape. Each development will be assessed on individual merit, and will consider its position in the streetscape and adjoining buildings.
Figure 9: Bulky buildings can be visually broken down into smaller components to better reflect the character of their neighbours. The bulk of the central building has been placed behind a smaller facade so it does not dominate the streetscape.

Setback

Infill buildings should be sympathetic additions to the streetscape. Conforming to requirements for scale and mass alone is inadequate if the infill building does not have the same relationship to the street as the adjacent buildings. Where facades create a relatively continuous line, this pattern should be repeated (see Figure 2). Buildings which do not create a continuous line with adjacent buildings for the first two storeys will be discouraged, especially within “the Block” (see Figure 10). The placement of carparking areas between a building and the front boundary is undesirable.

Figure 10: Buildings that do not create a relatively continuous building line with adjacent buildings will be discouraged.

It is suggested that any new infill development, which is not within “the Block” and is adjacent to older style buildings or heritage items, should be setback from the existing building line to allow landscaping to be established. By placing landscaping in front of new buildings, the visual impact can be lessened (See Figure 11).
Figure 11: Setting back new infill development and establishing landscaping can lessen the visual impact of a new building on the streetscape.

**Materials**

Building materials and finishes should be similar to traditional finishes predominant in the area. Architectural character is derived from distinctive materials and their usage from era to era. It is usually preferable to use contemporary matching materials well, rather than attempting to “dress up” a facade by adding reproduction materials and details. Building elevations that are visible to the street should utilise materials common in the precinct. Council will ensure that buildings with glazed facades, roofs and awnings minimise glare by restricting use of highly reflective glass, which should reduce hazardous or uncomfortable glare from reflective materials.

**Colour**

Reconstruction of early colour schemes can greatly assist the enjoyment of streetscapes and their significance. Existing brickwork which has not previously been painted should be retained. Infill development should have a colour scheme that will harmonise and enhance the existing buildings with the streetscape. Colour schemes should be unobtrusive. Colour is an inexpensive way to complement existing character. The use of bright colours will be discouraged as they have the potential to adversely affect the visual amenity of the CBD, however, applications will be assessed on individual merit, taking into consideration adjoining buildings and the existing streetscape. Extra skill is required in the case of prominent corner sites to ensure that the existing character is not overwhelmed by an inappropriate colour scheme.

In the case of items environmental heritage identified in Schedule 1 of the *Lismore LEP 2000*, Council will also assess applications in light of the published guidelines for heritage colours which have been recognised by the Australian Heritage Commission and other official heritage organisations. Council can assist owners by providing information on such publications.

**Signage**

Excessive use of signage distracts the eye from the messages the signs are designed to convey. Signs placed on a building in an inappropriate manner also detract from the form of the building (see Figure 12). Many of the buildings in Molesworth Street have facades which may to varying degrees be marred by the placement of inappropriate or excessive signage. Signage should not dominate facades and should be sympathetic to the building on which it is being placed (see Figure 13).
Figure 12: Excessive signage detracts from the streetscape and the form of the building on which it has been placed.

Figure 13: Signage should not dominate facades and should be sympathetic to the building on which it is being placed.

Advertising and signage should be in accordance with Clause 24 of the Lismore LEP 2000 and Chapter 9 - Outdoor Advertising Structures. In regard to heritage buildings signs should be restricted to discrete panels of the building; should not dominate the facade; should be of heritage character, with details of size, style and colour to be provided with Development Applications. Particular attention will be paid to proposed signage that is to be placed on buildings within the ‘Block’ as to its compliance with Council’s regulations.
Chapter 3

Industrial Development
3 Industrial Development

3.1 Objectives of this Chapter
The objectives of this Chapter are:

1. To promote and encourage industrial development in appropriate locations within the City of Lismore.
2. To ensure that industrial development does not adversely affect the amenity of any adjoining property or public place.
3. To achieve an overall high amenity in industrial areas by encouraging high standards of building design and by making provision for adequate landscaping.
4. To ensure that adequate access, parking and vehicles circulation areas are provided on site.
5. To ensure that adequate services are provided to cater for industrial development.
6. To ensure that industrial development in flood prone areas is compatible with the flooding characteristics of the site, and designed so that the likelihood of damage to buildings, stock and equipment from floodwater is minimised.

3.2 Definitions
In this Chapter the following definitions apply:

“Bulk Store” – means a building or place used for the bulk storage of goods, where the goods stored or to be stored are not required for use in a shop or commercial premises on the same parcel of land or on adjoining land in the same ownership.

“Bulky Goods Showroom” – means a building or place used for the sale by retail or auction, the hire or the display of items (whether goods or materials) which are of such a size, shape or weight as to require –
(a) a large area for handling, storage or display; or
(b) direct vehicular access to the site of the building or place by members of the public, for the purpose of loading items into their vehicles after purchase;
but does not include a building or place used for the sale of foodstuffs, clothing or a motor showroom.

“Industry” – means the manufacturing, assembling, altering, repairing, renovating, ornamenting, finishing, clean, washing, dismantling, processing or adapting of any goods or any articles for commercial purpose.

“Light industry” – means an industry, not being an offensive or hazardous industry, in which the process is carried on, the transportation involved or the machinery or materials used to not interfere with the amenity of the neighbourhood by reason of noise, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, wastewater, waste products, grit, oil or otherwise.

“Materials Recycling Yard” – means a building or place used for collecting, dismantling, storing, abandoning or recycling second-hand or scrap materials for the purpose of resale.

“Potentially Hazardous Industry” – means a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact
in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

(a) to human health, life or property; or
(b) to the biophysical environment;
and includes a hazardous industry and a hazardous storage establishment.

"Potentially Offensive Industry" – means a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including, for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.

"Rural Industry" – means the handling, treating, processing or packing of primary products unless such activity is part of the agricultural activity of the property concerned, and includes the servicing in a workshop of plant or equipment used for rural purposes in the locality.

"Warehouse" – means a building or place used for the storage of goods, merchandise or materials pending their sale and distribution to persons engaged in the retail trade.

3.3 Design Standards

Building Line Setbacks
The setback from the street frontage to the building line should be no less than 6 metres. This area is to be landscaped in accordance with an approved landscape plan to be submitted with the Development Application. Generally, car parking will not be permitted in the landscape setback area.

On corner allotments requests to vary the setback requirement on the minor street frontage and/or permit off-street parking within the setback area will be considered on their merits. Applications for setback variations on corner allotments must demonstrate that visibility will not be impeded at the intersection.

For any development on land located immediately to the east of the proposed new location of East Street, South Lismore, the building line setback from the East Street frontage to the building line shall be not less than 3 metres. Direct vehicular access from this land to the realigned East Street is prohibited.

Where an industrial development is proposed on land in a 2(f) Residential (Flood Liable) Zone which is adjoining an existing residential use, a minimum 2 metres wide landscaped area is to be provided along the common boundary with the residential development.

A reduction in this landscaping setback on the boundary will be considered if allotment width is less than 20m and agreement is obtained from the adjoining neighbour.

Site Coverage
No specific limitation applies to the percentage of the site which may be covered by a building or buildings. Each application will be considered on its merits but should demonstrate compliance with other requirements set out in this Plan, such as building line setbacks, landscaped areas, and the provision of vehicular parking, circulation and loading/unloading areas.

Access
The design of driveways, access points and vehicular circulation areas is to be such that vehicular entry and exit from the site may be carried out in a forward direction. It is preferred that car parking
and light vehicle traffic is separated from heavy vehicle traffic accessing loading and servicing areas.

All driveways shall be suitably signposted and indicate “Entrance”, “Exit” and “Keep Left” as appropriate. Driveways shall be located so that any vehicle entering or exiting from the site is clearly visible to approaching vehicles or pedestrians.

**Carparking**  
On-site parking requirements for industrial development are set out in Chapter 7 – (Off Street Parking) of this Development Control Plan.

Car parking areas should be designed in accordance with the requirements of Chapter 7. They should permit ready access to the development and the public road network while being suitably screened from adjoining developments and public areas. The car park layout should utilise a logical and efficient internal circulation network thus reducing potential conflict for users of the car park. Appropriate landscaping is to be incorporated into the car park design. Landscaped areas should have a minimum width of two (2) metres with shade trees located in landscaped bays at a rate of approximately one per every five (5) car parking spaces.

Internal roads and car parking areas shall be constructed of bitumen seal, or approved pervious pavements or similar material and are to be drained and marked to Council’s satisfaction. Design details are to be submitted to Council for approval with the Development Application.

**Heavy Vehicles Servicing Areas**  
Facilities should be designed in accordance with the requirement of AS 2890:2 – Parking Facilities Part 2 Off-street Commercial Vehicle Facilities and generally be a minimum width of 6.5 metres for two-way traffic and 3.5 metres for single lane.
Loading Docks

Loading docks or bays shall be provided as part of the development to ensure that no loading or unloading of vehicles occurs within Council’s road reserve. The dimensions of a loading bay will depend on the nature of the development and the type of vehicles involved in the delivery/pick up operations but they shall comply with the requirement of AS 2890:2 Part 2 Off-street Commercial Vehicle Facilities and should be no less than 7m x 4m so as to permit access and accommodation of a small rigid truck.

Open Storage Areas

Open storage areas are to be identified on the site plan submitted with the Development Application and should be located behind the building line setback preferably behind any proposed or existing buildings. Open storage areas should be screened from view from the public roadway and adjoining properties, with the design of the screen to be approved by Council.

Landscaping

Landscaping to Council’s requirements is to be established within the building line setback areas and within the car park areas. A landscape concept plan, prepared in accordance with Council’s Landscape Guidelines, is required to be submitted with the Development Application for approval.
by Council. A detailed landscape plan must be submitted with the Construction Certificate and should indicate the names, location and mature heights of all tree and shrub species to be used together with the location of any mounded garden beds, grassed and paved areas. Landscaping should incorporate a mixture of trees, shrubs and ground covers, and garden beds should be mulched to reduce maintenance requirements. The use of mounded landscaped beds is encouraged to screen parking and service areas.

Large developments should make provision for an outdoor lunch area for staff in a suitably landscaped location.

**External Appearance and Building Materials**

Industrial buildings should be designed to be attractive as well as functional. Facades facing the street should be constructed in face brick or rendered and/or painted brick, concrete or masonry. Other materials such as pre-coloured metal sheeting will be considered where the use of these materials can be shown to be compatible with the architectural design of the building.

The use of ventilation and sun control devices such as roof ventilators, louvres, verandahs and awnings are encouraged to minimise energy requirements and improve the visual appearance of buildings.

**Fencing**

Security fencing will be permitted on the side and rear boundaries but should be located behind the designated landscape setback area along the street frontage. Ornamental fences may be erected within the designated landscape setback area as part of the landscape design.

**Signage**

Signage should be attractively designed in a style and colours which complement the amenity of the area. Where possible signs should be integrated into the overall design of the building. The number of signs for a single development should be restricted to those necessary to provide reasonable identification of the business or businesses located on that site. Where there is more than one business located on one site, Council encourages the use of a single integrated directory sign.
Standards for advertising signs are contained in Chapter 9 – Outdoor Advertising Structures. Typical signs which are permissible in the 4(a) Industrial zone include:

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Maximum Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Awning Sign</td>
<td>1.4m²</td>
</tr>
<tr>
<td>Business Signs</td>
<td>5m²</td>
</tr>
<tr>
<td>Illuminated Sign</td>
<td></td>
</tr>
<tr>
<td>- indirectly lit</td>
<td>3m²</td>
</tr>
<tr>
<td>- internally lit</td>
<td>8m²</td>
</tr>
<tr>
<td>Neon</td>
<td>4m²</td>
</tr>
<tr>
<td>Pole or Pylon Sign</td>
<td>4m²</td>
</tr>
<tr>
<td>Sky, Roof or Fin Sign</td>
<td>8m²</td>
</tr>
<tr>
<td>Wall Sign</td>
<td>15m²</td>
</tr>
</tbody>
</table>

**Tradewaste (Effluent) Disposal**

Tradewaste is any discharge to the sewer that is not from a domestic premises. Any effluent that is to be discharged to the sewer from industrial premises must meet specific requirements as set out in Council’s Trade Waste Policy. The effluent may require pre-treatment in order to bring it to within acceptable standards.

A Tradewaste Application must be submitted prior to the release of the Construction Certificate. A Tradewaste Agreement between Council and the owners of the premises will be required before any effluent can be discharged to Council’s sewer.

**Stormwater Disposal**

All stormwater from roofed, paved and landscaped areas shall be piped to the nearest Council approved stormwater inlet in accordance with Council’s Stormwater Specification.

Stormwater from areas which may contain pollutants in the form of solid, liquid or gaseous matter which could alter the physical, chemical or biological condition of the water shall be directed to the sewer following pre-treatment to the satisfaction of Council.

**Solid Waste Storage and Disposal**

Suitable provision is to be made for the on-site storage and collection of all solid wastes. An area for the separate storage of bulk waste, organics and recycling containers is to be provided behind the building line setback where it can be readily accessed and serviced by a waste collection vehicle. Waste storage areas are to be screened from the public roadway and from adjoining properties.

**Environmental Safeguards**

The design is to be taken into account any noise, air, odour and water pollutants that may be emitted from the premises. Full details of any emissions are to be included in the Statement of Environmental Effects to be submitted with the Development Application.

**Availability of Services**

Town water and sewer are available to all industrial land in the City of Lismore. Where some deficiencies in the capacity of services exist these have been previously identified and will be progressively upgraded.

Where a development site is required ahead of the scheduled upgrading, the work will be timed to co-ordinate with the development so that the provision of adequate water and sewer services do not place a constraint on industrial development.
Water and Sewerage Headworks levies will be applicable based on the load the development places on the water and sewer system as measured in Equivalent Tenements (ET’s), where the load exceeds 1 ET.

The availability of other services (eg telephone, electricity, gas) should be checked with the relevant authority.

**Development on Flood Prone Land**

All development on land that has been identified as being flood liable in the Lismore Floodplain Management Plan is to be in accordance with the requirements of Chapter 8 - Flood Prone Lands.

**Section 94 Contributions**

Section 94 Contributions for industrial development apply for the following categories:

- Urban Arterial Roads (per m² site area)
- Street Trees (per lot)
- State Emergency Services (per ET)

Section 94 Contribution rates are contained in Council’s Section 94 Contributions Plan. Additional contributions may apply to some areas on a site specific basis.

**Design Hints**

A typical industrial development incorporating those design features necessary to achieve the objectives of this DCP is illustrated in Attachment 1.

### 3.4 Other Provisions

**Bulky Goods Retailing**

Retailing of items from bulky goods showrooms in the 4(a) Industrial zone is permissible where the retailing is consistent with the definition of bulky goods showroom which requires that the goods or materials are of such a size, shape or weight as to require a large area for handling, storage or display and/or direct vehicular access to the site of the building or place by members of the public, for the purpose of loading items into their vehicles after purchase.

Bulky goods can include categories such as furniture, white electrical goods, bedding, building materials, automotive parts and machinery but does not include clothing or foodstuffs. Bulky goods showrooms should have a minimum gross floor area of 1000m² unless it can be demonstrated to the satisfaction of Council that a lesser area is warranted because of the nature of bulky goods to be retailed. Retailing from Industrial zones should not be in direct competition with the nature of retail activity in the CBD.

Other retail outlets are prohibited in Industrial zones excepting for shops necessary to service an industrial estate.

**Dwellings**

The provisions of the Lismore Local Environmental Plan 2000 permit with the consent of Council the erection of dwelling houses in the 4(a) Industrial Zone only where they are to be used in conjunction with an industrial use and situated on the same land as that industry. Such dwelling houses will be restricted to one per lot and will be permitted only where it can be demonstrated to Council’s satisfaction that:

(a) the dwelling house is a caretakers or managers residence,
(b) the dwelling house is necessary for the operation and security of the industry,
(c) the occupant will be an employee of the industry.
**Change of Use**

Where a building has previously been approved by Council for the purposes of an industry or light industry, its use may change to that of a light industry of another kind without the need for further Development Consent, providing that a change of use application under State Environmental Planning Policy No. 4 has been submitted to Council.

**Referral to NSW Roads & Traffic Authority**

The following developments will be referred to the NSW Traffic Authority for comment as required by State Environmental Planning Policy No. 11 – Traffic Generating Developments.

1. Buildings to be used for the purposes of an industry where the gross floor area of the building is equal to or greater than 20,000m², or where an extension to an existing building to be used for the purposes of an industry has an area equal to or exceeding 20,000m².

2. Transport terminals, bulk stores, container depots or liquid fuel depots (or the extension of any existing transport terminal, bulk store, container depot or liquid fuel depot which increases by more than 8,000m² the area of land or the gross floor area of buildings to be used for that purpose).

3. Materials recycling yards and depots to which waste is transported from any other premises for treatment, storage or disposal.

4. Buildings to be used for the purposes of an industry where the gross floor area of that building is equal to or exceeds 5,000m² (or where an extension of an existing building to be used for the purposes of an industry is equal to or exceeds 5,000m²) and where the land on which the development is proposed has direct access to an arterial road or the access is within 90 metres of the alignment of an arterial road.

**Siting of Certain Industries**

To ensure that various types of industry are compatible with surrounding land uses the following restrictions on the location of certain industrial development will apply.

**Light Industries**

Light industries, as well as bulk stores, bulky goods showrooms and warehouses, usually generate relatively minor environmental effects and may be located in all 4(a) Industrial zones as well as 2(f) Residential (Flood Liable) zones throughout Lismore City subject to development approval being issued by Council.

**General Industries**

General industries (other than light industries) and including materials recycling yards, which may affect the amenity of a neighbourhood through the generation or emission of noise, vibration, smell, fumes, smoke, steam, soot, ash, dust, waste products etc should not be located adjacent to residential areas and should generally be restricted to the 4(a) Industrial zones. As the supply of existing industrial land in Lismore is limited, Council will give consideration to the location of larger industries in suitable rural locations providing adequate services can be provided.

**Potentially Hazardous and Offensive Industries**

Potentially hazardous or offensive industries should be sited in locations where impacts on adjoining land uses can be minimised and which are isolated from residential areas. Developments in this category should generally be restricted to sites in the 4(a) Industrial zones in South Lismore west of Union Street and south of the Casino-Murwillumbah Railway, and in North Lismore in the Macaulay Street precinct, providing it can be demonstrated that sufficient separation from residential development can be satisfactorily achieved.

Alternatively, large industrial developments with potentially significant impacts on the surrounding land use could be located on suitable 1(a) Rural land providing adequate services can be provided.
Zoning Controls

The following industrial developments are permitted with development consent in the 4(a), 2(f) and 1(a) zones:

4(a) Industrial Zone: All industrial development.

2(f) Residential (Flood Liable) Zone: Light industries, bulk stores, bulky goods showrooms, warehouses.

1(a) General Rural Zone: Industries, light industries, bulk stores, rural industries.

Future Industrial Subdivision

All applications for the rezoning of land to a 4(a) Industrial zone shall be accompanied by a subdivision concept plan which may provide the basis for a future DCP applying to that land. Where the proposed rezoning is supported by Council the Draft DCP amendment will be placed on public exhibition prior to the rezoning being forwarded to the Minister for gazettal.

3.5 Information required to be lodged with Development Applications

The following details will be required to be shown in plans submitted for Council’s consideration (in triplicate for any industrial developments):

1. A site plan indicating:
   - Location of buildings (proposed and existing)
   - Distance from boundaries
   - Location of any buildings on adjacent sites
   - Location of carparking areas, access ways, vehicular circulation areas and loading bays
   - North point.

2. All four elevations.

3. A floor plan of the building showing internal dimensions of each room and its intended use.

4. A cross-section through the building showing structure and levels of all floors.

5. A concept landscaping plan showing the location of the Council’s sewer and indicating the overall landscaping strategy for the development.

6. A contour plan indicating contours at 1 metre intervals, finished floor levels of the proposed building, and any proposed cut and fill and retaining walls.

7. A certificate from a recognised practising Structural Engineer certifying that the design of the building has taken into account the soil and other geological foundation conditions relating to the site.

8. Details concerning surface and sub-surface drainage.

9. A Statement of Environmental Effects which includes the following information:
   (a) an overview of the processing operations including inputs and outputs;
   (b) the proposed hours of operation;
   (c) a list of all materials and chemical products that will be stored on site;
(d) whether the materials are to be stored in an enclosure (storage areas are to be indicated on the submitted plan);

(e) whether washdown activities are proposed, and if so, the location of washdown areas are to be indicated on the submitted plan;

(f) the type of waste materials to be generated on site;

(g) what materials will be recycled;

(h) where other waste materials are to be disposed of;

(i) what waste will be discharged to the sewer;

(j) details of any noise, odour or air pollutants that may be emitted from the premises;

(k) details of any pollution control devices to be installed (eg oil separators, bunded walling, emission control, noise attenuators);

(l) details of back flow prevention devices to be installed to prevent contamination of the reticulated water supply (in accordance with the National Plumbing and Drainage Code AS 3500 Part 1).

In addition to the above information potentially hazardous or offensive industries shall also include a Hazardous Analysis Report which identifies all hazards and risks associated with the operation or facility and the adequacy of proposed safeguards.

A Hazard Analysis Report shall include the following:

1. identification of all potential hazards associated with the development;

2. the estimated likelihood of hazardous incidents that have the potential to result in significant consequence;

3. recommendations for risk reduction using cost effective, technically feasible resources to limit the consequences and likelihood of potentially hazardous incidents.

Full details of the required content and format of Hazard Analysis Reports are contained in the Department of Planning’s “Hazardous Industry Planning Advisory Paper No. 6”.
ATTACHMENT I.

DESIGN HINTS FOR A TYPICAL INDUSTRIAL DEVELOPMENT.

Updated: 26/2/08
Chapter 4

Subdivision and Infrastructure

General Requirements
4 Subdivision and Infrastructure – General Requirements

4.1 Objectives of this Chapter

1. To facilitate subdivision which is sustainable and appropriate for its intended use;

2. To ensure subdivisions are provided with the necessary services required by Council;

3. To ensure subdivisions are designed in accordance with the best engineering and planning practices, meeting Council's minimum requirements to improve levels of amenity, accessibility and safety;

4. To encourage the use of innovative planning, design and engineering practices;

5. To provide for subdivisions which recognise development industry and community expectations, environmental constraints and the circumstances unique to the City of Lismore;

6. To maximise the efficient use of land and provision of infrastructure that avoids adverse environmental impacts.

4.2 Definitions

The following definitions apply to Chapters 4, 5 and 6 in this DCP:

“AMCORD” means Australian Model Code for Residential Development.

“Buffer/Separation Distance” means an area of prescribed width between adjoining land developments, which is created for the purposes of mitigating the impacts of one or more of those land uses, and in which the carrying out of certain types of development is restricted.

“Building Envelope” means a diagram drawn on a lot of a subdivision plan defining the limits for the siting of a dwelling and/or outbuildings, private open space and driveways.

“Carriageway” means the area of street reserve which is provided for the movement or parking of vehicles and determined by the invert of a kerb and channel and the point adjacent to the pavement edge for kerb (only) and edge strips.

“Ecologically Sustainable Development” means development using, conserving and enhancing the community’s air, land (soil) and water resources so that ecological processes, on which life depends, are enhanced or repaired, and the total quality of life, now and in the future, will be increased.

It requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

a) the precautionary principle namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

   In the application of the precautionary principle, public and private decisions should be guided by:

   i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
ii) an assessment of the risk-weighted consequences of various options,

b) inter-generational equity namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations,

c) conservation of biological diversity and ecological integrity namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

d) improved valuation, pricing and incentive mechanisms namely, that environmental factors should be included in the valuation of assets and services, such as:

i) polluter pays that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

“Endangered Species” means species listed in Part 1 of Schedule 1 of the Threatened Species Conservation Act, 1995. A species is eligible to be listed as an endangered species if:

a) it is likely to become extinct in nature in NSW unless the circumstances and factors threatening its survival or evolutionary development cease to operate,

b) its numbers have been reduced to such a critical level, or its habitat have been so drastically reduced, that it is in immediate danger of extinction, or

c) it might already be extinct, but is not presumed extinct.

“Effluent Disposal Envelope” means a diagram drawn on a lot of a subdivision plan defining the limits for the siting of an on-site effluent disposal system.

“Habitat” means an area or areas occupied, or periodically or occasionally occupied, by a species, population or ecological community and includes any biotic or abiotic component (TSC Act, 1995).

“Integrated Development” means a form of development where all elements of physical infrastructure are designed and developed in an integrated manner.

“Integrated Housing” means a form of development where:
• housing and associated facilities and infrastructure are planned, designed and built by the same developer or through a developer-builder combination; or
• a developer undertakes the site planning and development or infrastructure as well as establishing detailed requirements for building design without actually constructing the dwellings.

“Legibility” means the ease which people can understand the street and/or road layout and find their way.

“Native Vegetation” means indigenous pasture, bushland and/or timber species adapted to the prevailing environmental conditions including climate and soils.

“Objectives” means a statement of the desired outcomes to be achieved in the completed development, relating to particular Design Elements.
“Performance Criteria” means criteria to be used in the preparation, submission and assessment of development proposals for measuring performance of the proposals against the Element Objective.

“Permeability” means maximising connections with surrounding streets and roads and activities and making their role clear to potential users.

“Prime Agricultural Land” means land which because of its soil, climate, topography and location is suitable for a wide range of agricultural uses. These areas are usually classified as Class 1, 2 or 3 land, under NSW Agriculture land capability classification guidelines.

“Regeneration” means the re-establishment of depleted vegetation by natural self-seeding or regrowth (e.g. after bush fires, clearing etc.).

“Rehabilitation” means the treatment of degraded or disturbed land to achieve an agreed level of capability and stability, preferably at least equal to that which existed prior to degradation or disturbance.

“Restoration” means the rehabilitation of degraded or disturbed land so that not only is the landform capability and stability re-established, but also the form and usage of the land are returned to a state closely resembling that before degradation disturbance.

“Revegetation” means the re-establishment of plants on an area of ground that is depleted or devoid of vegetation.

“Road/street” means any road, street, lane, footway, right of way, driveway or passage incorporating the full width from property line to opposite property line as well as the road/street pavement and the verge.

“Road/Street Reserve” means the land set aside for a road/street pavement and verge.

“Site Analysis” involves the identification and analysis of the existing character of the site, locality and adjacent properties to assist in understanding the locality and the development of a range of appropriate design responses.

“Site Analysis Plan” means a plan which demonstrates an appreciation of a site and its context to identify opportunities and constraints on site layout and design. The plan may include information on topography and services, existing buildings on site, vegetation on site, adjoining property conditions, views, noise sources and street character and context.

“Suggested Solution” means an example of what may enable the achievement of the relevant Performance Criteria (they should not preclude other solutions).

“Verge” means that part of the road/street reserve between the carriageway and the boundary of adjacent lots (or other limits to road/street reserve). It may accommodate public utilities, footpaths, stormwater flows, street lighting poles and landscaping. Also known as the nature strip.

“Vulnerable Species” means species listed in Schedule 2 of the Threatened Species Conservation Act, 1995. A species is eligible to be listed as a vulnerable species if it is likely to become endangered unless the circumstances and factors threatening its survival or evolutionary development cease to operate.

4.3 Relationship to other Plans
This Chapter provides general guidelines for the preparation and assessment of subdivision applications permissible under the Lismore Local Environmental Plan 2000. This Chapter should
also be read in conjunction with other relevant Guidelines and Specifications of Lismore City Council.

This Chapter, where relevant, prevails over those plans, policies, guidelines and specifications.

4.4 Statutory Requirements for Development Applications

The statutory requirements for the consent and preparation of development applications for subdivision of land are contained in the Environmental and Planning and Assessment Act, 1979 (as amended) and the Environmental and Planning and Assessment Regulation, 2000.

In determining a development application, Council is required to consider a number of statutory plans, codes and policies prior to making its final decision. To ensure that applications are valid and adequate, it is essential that applicants consider all relevant matter in preparing applications.

Additional to the guidelines of this Plan component of the following plans, codes and policies may be relevant to a subdivision proposal.

4.4.1 Local Plans

Lismore Local Environmental Plan 2000

The Lismore Local Environmental Plan 2000 (as amended) is the principal plan applying to subdivision in the Lismore local government area.

The LEP contains the following provisions for subdivision:

Clause 6 Definitions
Clause 9 Exempt and Complying Development
Clause 11 Subdivision of Land Generally
Clauses 12 – 17C Heritage and Conservation requirements
Clause 18 – Preservation of Trees
Clause 19 – Development of land near adjoining zones
Clause 20 – Buffer zones to avoid potential land use conflicts
Clause 22 – Development on flood affected land
Clause 25 – Development along main roads
Clause 28 – Additional development on certain land
Clause 28A – Development on land identified on Acid Sulphate Soil Planning Maps
Clause 29 – Zone objectives and zoning control tables
Clauses 30 – 35 Land use tables for rural zones
Clause 36 – Subdivision and development in rural zones
Clause 40 – Rural Residential Development
Clause 41 – Development on ridge tops in rural areas
Clause 45 – Water catchment and inundation area for proposed dam near Dunoon
Clause 51 – Subdivision of land in Zones No. 2(a) and 2(v)
Clause 52 – Subdivision of land in Zone No. 2(f)
Schedule 5 – Matters relating to environmental impact

S94 Contribution Plans and S64 Contribution Plans

Council has adopted a S94 Contributions Plan which sets the contributions levied for public services and facilities where a need is established for these services and facilities as a consequence of new development.

Section 64 of the Water Supply Authorities Act, 1987, enables Council to set and levy monetary contributions towards the cost and construction of existing or projected sewer mains and sewerage treatment works and water mains and water headworks. These are referred to in the development consent as S64 contributions.
The development consent for subdivision will indicate the amount of monetary contributions sought for the above services and facilities. Levies will be calculated in accordance with the Plan in force at the time of lodgement of a development application, and will be indexed annually by CPI.

4.4.2 Regional Plans

North Coast Regional Environmental Plan
The North Coast Regional Environmental Plan (as amended) is the regional plan and framework which certain forms of development must address. The following parts and divisions maybe relevant to a land subdivision proposal:

Part 2: Division 1 - Agricultural resources
Division 2 - Catchment management
Division 4 - Rural housing

Part 3: Division 1 - The natural environment
Division 3 - Heritage

Part 4: Division 2 - Urban housing
Division 3 - Environmental hazards

Part 5: Division 1 - Transport
Division 2 - Utility services
Division 3 - Health and education
Division 4 - Community services

Part 6: Division 1 - Tourism
Division 2 - Recreation

4.4.3 State Environmental Planning Policies (SEPP's)
The following SEPP's may be relevant to certain subdivision applications.

SEPP No. 1 - Development Standards
This policy sets out the principle that a development standard may be varied with an objection where strict compliance can be shown to be unreasonable or unnecessary.

Generally, where the objection demonstrates that the standard is unreasonable or unnecessary Council may support the objection and consent to the application subject to the concurrence, where required, of the Department of Planning. The Department Planning Circular No. B1 describes the operation of the Policy and the situations where the concurrence of the Director-General can be assumed i.e. delegated to Council.

SEPP No. 11 - Traffic Generating Development
This policy requires Council to consult with the Council (local) or Regional Development Committees (Traffic) on the traffic aspects of certain development applications. The following describes the situations where a subdivision proposal requires referral to either of the above committees.

1. Council Development Committee (Local Traffic Committee)
   Residential subdivisions (urban and rural residential) comprising 50 to 200 allotments.

2. Regional Development Committee (Regional Traffic Committee)
   Residential subdivisions comprising more than 200 allotments.
Where a subdivision is to be staged it is important that the anticipated final number of lots be identified. This is important in determining road hierarchy and any roadworks conditions which may have a major impact on the design of the subdivision.

**SEPP No. 44 - Koala Habitat Protection**

This policy applies to all land in the City of Lismore. It aims to encourage the conservation and proper management of areas of natural vegetation that provide habitat for koalas, to ensure permanent, free-living populations over their present range and to reverse the current trend of population decline.

The Department of Planning Circular B35 provides the guidelines to be in force for the purposes of the policy. The policy and Circular B35 identify a 3 step process to determine whether or not the policy applies to a subdivision proposal, whether a plan of management is required and if the development can proceed. Briefly:

- The land, subject of the application, (and adjoining land in the same ownership) has to be greater than 1 ha.
- Step 1, is to determine whether or not the land is potential koala habitat. If the land is koala habitat, then;
- Step 2, determines whether or not the land comprises "core" koala habitat. If the land is "core" habitat, then;
- Step 3, a Koala Plan of Management (KPOM) must be prepared to the satisfaction of the Director-General of the Department of Planning prior to the development being determined by Council.

Should the land, subject of the application, be identified as potential koala habitat Council requires that a person with appropriate qualifications and experience in biological science, and fauna and flora surveys and management, undertake the assessment in accordance with the policy.

**SEPP 71 - Coastal Protection**

This Policy applies to a small part of the Lismore LGA in the Broadwater area which is generally in a rural zoning. The Policy must be considered if subdivision in any zone into any number of lots is proposed and if the future development of any lot created by the subdivision will require effluent to be disposed of by means of a non-reticulated system.

**4.4.4 Applicable Acts**

**Environmental Planning and Assessment Act, 1979**

Under the Environmental Planning and Assessment Act 1979, "Subdivision of land" means:

1. The division of land into two or more parts that, after the division, would be obviously adapted for separate occupation, use or disposition. The division may (but need not) be effected:
   (a) by conveyance, transfer or partition or
   (b) by any agreement, dealing, plan or instrument rendering different parts of the land available for separate occupation use or disposition.
2. Without limiting subsection (1), "subdivision of land" includes the procuring of the registration in the office of the Registrar General of:
   (a) a plan of subdivision within the meaning of section 195 of the Conveyancing Act 1919, or
   (b) a strata plan or a strata plan of subdivision within the meaning of the Strata Schemes (Freehold Development) Act 1973 or the Strata Schemes (Leasehold Development) Act 1986.
3. However, "subdivision of land" does not include:
   (a) a lease (of any duration) of a building or part of a building, or
   (b) the opening of a public road, or the dedication of land as a public road, by the Crown, a statutory body representing the Crown or a council, or
(c) the acquisition of land, by agreement or compulsory process, under a provision of an Act (including a Commonwealth Act) that authorises the acquisition of land by compulsory process, or
(d) a division of land effected by means of a transaction referred to in section 23G of the Conveyancing Act 1919, or
(e) the procuring of the registration in the office of the Registrar General of:
   (i) a plan of consolidation, a plan of identification or a miscellaneous plan within the meaning of section 195 of the Conveyancing Act 1919, or
   (ii) a strata plan of consolidation or a building alteration plan within the meaning of the Strata Scheme (Freehold Development ) Act 1973 or the Strata Schemes (Leasehold Development) Act 1986.

Threatened Species Conservation Act, 1995
This Act provides for the protection of all threatened plants and animals native to NSW and their habitats, (including endangered populations and ecological communities, and their habitats,). Threatened fish and marine vegetation are protected by the Fisheries Management Act, 1994.

The TSC Act provides for the listing of species, populations and ecological communities considered to be threatened. Schedule 1 of the TSC Act contains listings of endangered species, populations and ecological communities, and Schedule 2 of the TSC Act contains listings of vulnerable species.

The TSC Act introduced a set of factors which must be considered for informed decisions to be made regarding the effect of a proposed development, activity or action on threatened species, populations or ecological communities, or their habitats. These factors form part of the assessment process under section 5A of the EP&A Act and section 94 of the TSC Act. These factors are also taken into consideration for threatened fish and marine vegetation under section 220ZZ of the FM Act. These factors have previously been referred to as the '8 Part Test', but are referred to collectively as 'Assessments of Significance'.

The Assessment of Significance is contained within section 5A of the EP&A Act. It is the responsibility of the proponent, when lodging a development application, to provide the consent authority with an Assessment of Significance. Equally it is the responsibility of the applicant, when applying for a section 91 licence under the TSC Act or a section 220ZW licence under the FM Act, to provide the licensing authority with an Assessment of Significance.

It is the responsibility of the consent authority to form a view as to whether the development is likely to significantly affect threatened species, populations or ecological communities, or their habitats. A consent authority is required to take the Assessment of Significance into account when:
   • ascertaining whether it has received a valid development application under Part 4 of the EP&A Act; and
   • evaluating the likely impacts of the proposed development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality.

Native Vegetation Act, 2003
This Act sets a framework for:
   • The end of broadscale clearing unless it improves or maintains environmental outcomes; and
   • Encouragement of revegetation and rehabilitation of land with appropriate native vegetation.

Approval for clearing remnant vegetation or protected regrowth cannot be granted unless the proposal improves or maintains environmental outcomes. A landholder wanting to clear native vegetation has two options:
   • Submit a development application to Department of Natural Resources
   • Request a property Vegetation Plan through their local Catchment Management Authority

For more information contact the Department of Natural Resources or the Northern Rivers Catchment Management Authority (CMA).
This Act provides a single licensing arrangement to replace the different licences and approvals under separate Acts relating to air pollution, water pollution, noise pollution and waste management. Further information may be obtained from the Department of Environment & Conservation (incorporating the former Environment Protection Authority).

Soil Conservation Act, 1938
This Act makes provision for the conservation of soil resources and farm water resources and for the mitigation of erosion. Relevant sections of this Act are:

Section 21C: this relates to the restriction of removal of trees on any protected lands.

Protected lands includes; any land with a surface slope generally greater than 18° (33%) from the horizontal, as identified on maps held by the Dept. of Natural Resources. Or, land that is situated within 20 metres of, the bed or bank of any part of a river or lake identified in a list of streams available from the Department. Exemptions apply, contact the Department.

Section 15A: this relates to mitigation of causes or likely causes of soil erosion. The Act permits the Commissioner of the Soil Conservation Service to issue notice to owners, occupiers, holder or grantees to abstain from the act or thing that is causing soil erosion.

Crown Lands Act, 1989
This Act was introduced to provide for the administration and management of Crown land in the State.

Section 6 specifies that Crown land cannot be occupied, used sold, leased, licensed, dedicated or reserved or otherwise dealt with unless the occupation, use, sale, lease license, reservation or dedication or their dealings is authorised by the Act or the Crown Lands (Continued Tenures) Act, 1989.

Roads Act, 1993
This Act relates to the creation of public roads, dedication of land for public roads, closing, transfer and control of roads, setting road boundaries and levels, and acquisition of land for public roads etc. Some relevant parts of the Act are:

Part 2 - Opening of Public Roads
Division 1 - Methods of opening public roads
Division 2 - Resolution of doubts concerning status of certain roads

Part 3 - Road Boundaries and Road Levels
Division 1 - Identification of road boundaries

Part 12 - Acquisition of Land
Division 1 - Acquisition of land generally

The Act provides for three separate roads authorities, the Crown, local Councils and the RTA. Crown consent is required to construct Crown public roads, or to open and close a public road over freehold land.

Roads Act /Roads (General) Regulation 2000 and requirements of the Geographical Names Board.
Development Applications for subdivisions which include new roads should include proposed names for those roads. Such names are to be selected in general accordance with ‘Guidelines for the Naming of Roads’ and ‘Road Naming in NSW’ by the Geographical Names Board of NSW. These guidelines are available at the Board’s web site www.gnb.nsw.gov.au/info

Any proposal for the use of Aboriginal names should be referred to the appropriate Aboriginal organisation for comment.
**Water Supply Authorities Act, 1987**
As a consequence of section 64 of the Local Government Act 1993 Council is empowered under the Water Supply Authorities Act, 1987 to require payments towards the cost and construction of water and sewer works. Works includes:
- water mains and water headworks,
- sewer mains and sewerage treatment works,
- drainage channels,
- any works ancillary to these works.

An applicant can be required to do one or more or all of the following before a compliance certificate is issued:
- make a payment towards existing works,
- make a payment towards projected works,
- construct works to serve the development.

The issue of a compliance certificate from Council certifies the development complies with the Act.

**Rivers and Foreshores Protection Act, 1948**
This Act provides for the carrying out of work for the removal of obstructions from and the improvement of rivers and foreshores, and the prevention of erosion of lands by tidal and non-tidal waters.

A person must not make an excavation or remove material from the bed or within 40 m. of the bank of a river, or do anything which obstructs, or detrimentally affects, the flow of a river without a Permit under this Act. Works include excavations for pump holes; sand, gravel and topsoil extraction; culverts; causeways etc.

**Water Management Act, 2000**
Allows for the preparation of water management plans that may address matters such as water sharing, water source protection, drainage management, and floodplain management.

**Native Title Act**
The Native Title (NSW) Act was introduced with the intention of validating past State acts, invalidated because of the existence of Native Title.

The introduction of the Commonwealth Native Title Act 1993 and the Native Title (NSW) Act, 1994 has implications for the administration and management of Crown land in NSW. Prior to consenting to any development of Crown land, the Minister must be satisfied that if a native title interest exists in the land, then that interest would not be discriminated against by the issue of any such consent.

**Aboriginal Land Rights Act, 1983**
The Dept. of Natural Resources is required to consider any claim over Crown land made by a Local Aboriginal Land Council under the provisions of this Act. Any claims that may affect a proposed development would impact on the Department’s ability to authorise use of the Crown land, or consent to the inclusion of the Crown land in that proposal.

### 4.5 The Development Application process

**Making an Application**
Applicants should ensure that their subdivision proposal is permissible in the zone in which the land is situated, and that Council’s consent is required.

Generally, development is classified into three categories:
- development that does not need consent,
- development that needs consent and
- development that is prohibited.
The following table describes the various classes and sub-classes of development under the Act.

<table>
<thead>
<tr>
<th>Development that does not require development consent</th>
<th>Development that requires development consent</th>
<th>Prohibited development</th>
</tr>
</thead>
<tbody>
<tr>
<td>No consent under Part 4 but Part 5 of The EPA Act applies</td>
<td>Exempt development - not subject to Part 4 or 5 of the EPA Act</td>
<td>Local development</td>
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<td></td>
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<td>Integrated development</td>
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<td>Designated development</td>
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<td>Advertised development</td>
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<td>Complying development</td>
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</tbody>
</table>

In most instances subdivision of land will be a local development that requires consent of Council. Local development, or aspects of it, may comprise either:

- "integrated development", if it requires an approval under the following legislation (Fisheries Management, Heritage, National Parks and Wildlife, Pollution Control, River and Foreshores Improvement, Roads, Waste Minimisation and Management or Water Acts).
- "designated development", if it is declared to be under Schedule 3 of the Environmental Planning and Assessment Regulation or the Lismore Local Environmental Plan.
- "advertised development", if it is declared to be under the Environmental Planning and Assessment Regulation, Lismore Local Environmental Plan or Development Control Plan.

Under s.78A of the Act a person may apply to Council to carry out development, as defined.

**Evaluation of Applications**

Section 79C(1) of the Act lists the matters that Council must take into consideration in determining all development applications.

To ensure that an adequate application has been prepared applicants should consider all relevant matters contained in section 79C(1), and address relevant matters in a Statement of Environmental Effects submitted with the Development Application.

**Determination of Applications**

Section 80 requires Council to determine an application by either consenting to the application, either unconditionally or subject to conditions, or refusing the application. Section 80(3) enables Council to issue a "deferred commencement" consent which does not operate until the applicant satisfies Council as to any matter specified.

This provides a mechanism which enables Council to provide positive direction to applicants. The consent is issued subject to a requirement to provide additional information to address an issue/s that Council believes is not a significant impediment to the subdivision and therefore not a possible reason for refusal, if adequately addressed.

Section 80(4) enables Council to issue a staged consent permitting a proposed subdivision to be staged. The consent will specify parts or aspects of the overall development which are subject to another development application.

**Imposition of Conditions, Period and Extension of Consents**

Generally all subdivision approvals will be subject to conditions which must be satisfied by the applicant.
Section 80A lists the circumstances where a condition may be imposed. Council may impose conditions which:

- relate to any matter in section 79C(1);
- require modification or surrender of previous approvals or existing rights;
- require modification or ceasing of development;
- limits the period of a consent;
- requires the removal of buildings or works;
- requires the carrying out of certain works related to section 79C(1);
- modifies details of the application;
- are authorised under section 94.

Section 94 enables Council to impose conditions requiring the dedication of land or the payment of a monetary contribution, or both, where a particular development will increase the demand for public amenities and public services within the local government area.

Section 80A(6) enables Council to require the applicant to provide security for the payment of the cost of any one of the following:

- making good any damage caused to any property of the consent authority as a consequence of doing anything related to the consent,
- completing any public work (e.g. roads, kerb and guttering, footpaths, drainage and environmental controls) and
- remediying any defects in any such public works that arise within 6 months after the work is completed.

Section 95 provides that a consent generally lapses after 5 years. Council has the discretion to set a shorter period. Generally, a subdivision consent issued by Lismore City Council lapses after a period of 2 years.

A consent for subdivision of land does not lapse if either the requirements of s. 81A(3) are satisfied or engineering or construction work relating to the subdivision is physically commenced before the consent lapses.

Section 95A of the Act enables Council to extend the period of consent a further 1 year, upon application by the applicant, prior the consent lapsing. An application to extend the period of consent must be in writing and provide good reason why the consent should be extended. The applicant has a right of appeal should Council not grant an extension or not determine the application within 40 days of the application.

**Effect, Commencement and Review of Consents**

Under section 81A(3) a consent for subdivision of land may authorise the carrying out of any physical activity in, on, or over land in connection with the subdivision, including the construction of roads and stormwater drainage systems.

Section 84A(4) requires that subdivision work must not be commenced until:

- detailed engineering plans and specifications relating to the works have been endorsed with a construction certificate issued by Council or an accredited certifier,
- the beneficiary of the consent has appointed a principal certifying authority and has notified the consent authority and Council of the appointment and
- the beneficiary of the consent has given Council at least two (2) days notice to Council of the intention to commence works.

Council is the principal certifying authority for subdivision of land.
Under section 82A and when Council is the consent authority an applicant, within 28 days of determination of the application, may request Council to review the determination of the application.

**Modifications of Consents**

Section 96(1) enables Council, on application, to modify a consent granted by it to correct a minor error, misdescription or miscalculation.

S96(1A) concerns modifications involving minimal environmental impact. Council may consent to a modification of the consent if:

- it is satisfied that the proposed modification is of minimal environmental impact, and

- it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted, and

- it has notified the application in accordance with relevant notification/advertising requirements and has considered any submissions made concerning the proposed modification.

Section 96(2) enables Council, on application, to modify a consent granted by it if:

- it is satisfied that the proposed amended development is substantially the same development,

- it has consulted with the relevant Minister, public authority or approval body which had a concurrence role,

- it has notified the application,

- it has considered any submissions

4.6 Procedure

**Discussion with Council and community consultation**

Prior to legal or financial commitment to a proposed subdivision, and prior to commencing any preliminary planning, applicants should ensure that their proposal can be considered under the Lismore Local Environmental Plan.

Applicants can contact Council’s Planning and Development Group by phone or in person between 8.30 and 10.00am to check whether the proposal is permitted in the chosen location, and which Development Control Plans or other policies may apply. Alternatively, an applicant may check with Council’s planning guidelines on its web site, [www.lismore.nsw.gov.au](http://www.lismore.nsw.gov.au)

Council’s Development Assessment Panel can assist by giving advice on large development proposals before lodgement of the application. The Panel meets weekly and comprises senior officers in planning, environmental health, building and engineering, and other specialist staff as may be required. Applicants who take the opportunity of using this panel and who heed the advice usually save time and avoid unnecessary delays during the processing of their applications.

To meet with the panel the applicant should forward details of the proposal including plans (four copies) to the chairman at least a week before the meeting to enable the relevant staff to assess the proposal and where necessary, carry out a site inspection. To arrange a meeting please contact the chairman of the Panel on (02) 66250-506. Council will provide a written report on the outcomes of the meeting.

For large and complex developments, pre-lodgement meetings with the panel during the early stages can be crucial to achieving a desirable outcome for all parties concerned.

Subdivision proposals can generate concerns among existing residents, relating to possible effects on amenity, stormwater drainage, native vegetation and wildlife, traffic and parking, etc. Early in the design of the project developers are encouraged to undertake consultation with adjoining landowners or the wider community, independent of Council, prior to finalising the proposal.
concerns of neighbours are addressed and the project is designed to overcome possible objections, then the approval process need not be delayed by the need to address objections later in the process when alteration may be more expensive.

Chapter 10 - ‘Notification and Advertising of Development Applications’ sets out Council’s policy for public notification of applications. Comments and objections from any member of the public will be considered during assessment of the application.

Should significant objections from the public be received Council may:

- Initiate mediation between the applicant and objectors; or
- Seek to negotiate an alteration to the proposal; or
- Impose conditions of consent to require works which would overcome objections; or
- Refuse consent to the application.

**Consultation with NSW Government Departments**

The following Government agencies may have a role in planning and development activities:

- Department of Environment & Conservation
- Department of Planning
- Department of Natural Resources
- Department of Primary Industries
- Department of State & Regional Development
- Roads and Traffic Authority

**Definition of subdivision classes**

For the purposes of providing general guidance as to the extent and level of information to be supplied with a subdivision development application the various types of subdivisions have been grouped into the classes described below.

Intending applicants should note that as each subdivision proposal is unique in location and circumstance the level of information to be provided in support of the application and to enable proper assessment will vary.
**Subdivision Classes**

<table>
<thead>
<tr>
<th>Class</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Class A. Urban boundary adjustment</td>
<td>The adjustment to an existing boundary or boundaries within an existing residential, commercial or industrial subdivision without creating any additional lots or changing existing lot area by more than 10%. It also includes the consolidation of allotments into one lot or substantially changing the shape of lot/s.</td>
</tr>
<tr>
<td>B. Class B. Minor urban subdivision</td>
<td>Any subdivision fronting onto an existing constructed road, not being an arterial road, or not involving the significant construction of new roads or significant extension of Council services or containing less than a total of ten (10) residential lots or less than five (5) industrial or commercial lots.</td>
</tr>
</tbody>
</table>
| C. Class C. Major urban subdivision | Any urban subdivision which requires any significant new road or extension of services or comprises a total of 30 or more residential or 10 or more industrial or commercial lots.  
This scale of subdivision has the potential to create significant "flow-on" effects to neighbouring lands and therefore should give careful consideration to adjacent properties, open space networks, road hierarchy etc. |
| D. Class D. Comprehensive subdivision | Any subdivision which causes significant population, traffic generation or major changes in land use. |
| J. Class J. Rural subdivision | The subdivision of land into allotments that are permissible in the following rural zones and clause of the Lismore Local Environmental Plan 1992, as amended:  
  - Zone 1(a) - General Rural Zone - 40 ha.,  
  - Zone 1(b) - Agricultural Zone - 20 ha. and 13 ha. for a horticultural lot,  
  - Zone 1(d) - Investigation Zone - 40 ha.,  
  - Zone 1(r) - Riverlands Zone - 40 ha.,  
  - a lot created as a special purpose lot in accordance with Clause 11(4) or,  
  - farm adjustments where boundaries between existing farming properties are altered. |

**Preparation of development applications**

The statutory requirements for preparing, assessing and determining development applications for the subdivision of land are complex and as such often require a multi-disciplinary approach.

Delays in processing of applications can often be attributed to a lack of knowledge of planning law and practice and inadequate or lack of relevant information submitted.

Applicants are strongly recommended to discuss their proposal with Council officers before lodging their application. Such pre-lodgement advice can assist in ensuring that the design of the project meets Council and State Government requirements, facilitating efficient assessment and determination.
It is the responsibility of the applicant to ensure that an adequate level of information is submitted with the application. It is strongly recommended that developers of major subdivision projects engage qualified consultants in all relevant disciplines to assist in the preparation of subdivision applications.

At the subdivision approval/construction stage of large projects it is also recommended that a competent Project Manager be engaged to ensure that all conditions of the development consent and subdivision approval are met. This assists to ensure quick approval and release of Title plans, bonds or securities etc.

Depending on the scale and purpose of the subdivision it is expected that the application will be supported by specialist reports which examine various components of the site and development.

The following list is typical of the matters that may have to be addressed. Some specialist skills and expertise may overlap.

<table>
<thead>
<tr>
<th>Specialist Field</th>
<th>Typical range of matters addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Environmental</td>
<td>• geotechnical assessment, • erosion and sedimentation control, • means of effluent disposal,</td>
</tr>
<tr>
<td>Science Surveying</td>
<td>• stormwater disposal and water quality management, • hydraulic and flood impact assessment,</td>
</tr>
<tr>
<td></td>
<td>• traffic/transport studies, • contamination assessment, • infrastructure supply and demand impacts,</td>
</tr>
<tr>
<td></td>
<td>• acoustic assessment, • design of civil works e.g. roads, water etc. • topographic and cadastral information</td>
</tr>
<tr>
<td>Agricultural science</td>
<td>• assessment of land agricultural class and suitability, • impact on adjoining land uses, • landuse buffering</td>
</tr>
<tr>
<td>Ecology</td>
<td>• fauna and flora assessment, • koala management plan</td>
</tr>
<tr>
<td>Landscape</td>
<td>• landscape planning</td>
</tr>
<tr>
<td>Archaeology</td>
<td>• archaeology and heritage assessments</td>
</tr>
<tr>
<td>Social planning</td>
<td>• social impact assessment</td>
</tr>
<tr>
<td>Valuation, Marketing</td>
<td>• economic impact assessment, • market analysis, • marketing</td>
</tr>
<tr>
<td>Solicitor</td>
<td>• covenants, easements, legal agreements, titles etc.</td>
</tr>
</tbody>
</table>

Practitioners in the above specialist fields are to be qualified in or accredited for the range of issues to be addressed.

Where a proposed subdivision falls within the following subdivision classes:

- **Class B:** Minor urban subdivision
- **Class C:** Major urban subdivision
- **Class D:** Comprehensive subdivision
the applicant is strongly advised to consult with Council in writing, and to have regard to any requirements notified by Council.

**Information in development applications**

Information to be supplied should enable full and proper assessment of the application and reflect the provisions of this Plan and statutory requirements listed below.

The following is a checklist generally describing the minimum level of information required to make a legal development application for each class of subdivision (Refer to section 4.8.3 above):

<table>
<thead>
<tr>
<th>APPLICATION INFORMATION</th>
<th>SUBDIVISION CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>DA FORM</td>
<td>*</td>
</tr>
<tr>
<td>fully completed</td>
<td></td>
</tr>
<tr>
<td>PAY FEES</td>
<td>*</td>
</tr>
<tr>
<td>PLANS</td>
<td></td>
</tr>
<tr>
<td>• 6 copies</td>
<td>*</td>
</tr>
<tr>
<td>• drawn to scale</td>
<td></td>
</tr>
<tr>
<td>• showing:</td>
<td></td>
</tr>
<tr>
<td>location,</td>
<td>*</td>
</tr>
<tr>
<td>boundary dimensions,</td>
<td>*</td>
</tr>
<tr>
<td>site area,</td>
<td>*</td>
</tr>
<tr>
<td>north point,</td>
<td>*</td>
</tr>
<tr>
<td>existing lots and boundaries,</td>
<td>*</td>
</tr>
<tr>
<td>existing vegetation on site and adjoining lands,</td>
<td>*</td>
</tr>
<tr>
<td>location and use of existing buildings,</td>
<td>*</td>
</tr>
<tr>
<td>existing contours and levels of land to a fixed datum,</td>
<td>*</td>
</tr>
<tr>
<td>location of adjoining buildings,</td>
<td>*</td>
</tr>
<tr>
<td>full details and dimensions of proposed lots and roads,</td>
<td>*</td>
</tr>
<tr>
<td>location of rivers, streams etc.,</td>
<td>*</td>
</tr>
<tr>
<td>water and sewer networks including;</td>
<td>*</td>
</tr>
<tr>
<td>• impact on existing network</td>
<td>*</td>
</tr>
<tr>
<td>• proposed network</td>
<td></td>
</tr>
<tr>
<td>stormwater disposal</td>
<td>*</td>
</tr>
<tr>
<td>proposed method of access to each lot,</td>
<td>*</td>
</tr>
<tr>
<td>proposed/likely building envelopes.</td>
<td>*</td>
</tr>
<tr>
<td>Development Context Plan</td>
<td>*</td>
</tr>
<tr>
<td>Site Analysis Plan</td>
<td>*</td>
</tr>
<tr>
<td>Landscape Plan</td>
<td>*</td>
</tr>
<tr>
<td>ON THE SITE</td>
<td></td>
</tr>
<tr>
<td>show lots</td>
<td>*</td>
</tr>
<tr>
<td>show roads and intersections</td>
<td>*</td>
</tr>
</tbody>
</table>

Applications, depending on the scale of the proposal, should be supported by a Statement of Environmental Effects or Environmental Impact Report (for advertised developments). This report should include a statutory assessment of the proposal and include the following information, as relevant:
INFORMATION TO ADDRESS

<table>
<thead>
<tr>
<th>Description of proposal:</th>
</tr>
</thead>
<tbody>
<tr>
<td>legal land description,</td>
</tr>
<tr>
<td>land area, number, location, and size of lots, access and road layout.</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement of objectives and relationship to objectives of zone.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Describe existing environment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>land use, slope, aspect, geology, soils, flood liability, fauna, flora, hydrology, historical use e.g. cattle dips, banana crops etc.</td>
</tr>
<tr>
<td>* * * * * * * * * *</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Analysis of the interaction between the development and environment: e.g. vegetation and wildlife corridors, access to open space, traffic and road hierarchy and movement systems, public transport etc.</th>
</tr>
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<tbody>
<tr>
<td>* * * * * * * * *</td>
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</table>

<table>
<thead>
<tr>
<th>Analysis of impacts: e.g. loss of agric. land, water quantity and quality, land use conflicts, increase in traffic, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>* * * * * * * *</td>
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</table>

<table>
<thead>
<tr>
<th>Measures to reduce impacts: e.g., visual control and landscaping, stormwater management, road improvements and traffic controls, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>* * * * * * * *</td>
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</table>

<table>
<thead>
<tr>
<th>Justification of the proposed subdivision</th>
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</thead>
<tbody>
<tr>
<td>* * * * * * *</td>
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</table>

<table>
<thead>
<tr>
<th>Alternatives</th>
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<tbody>
<tr>
<td>* * * * * * *</td>
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</table>

<table>
<thead>
<tr>
<th>Consequences of not carrying out the proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>* * * * * * *</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Likely increase in demand for Council services</th>
</tr>
</thead>
<tbody>
<tr>
<td>* * * * * * *</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Social impact assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>* * * * * * *</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Matters notified in writing from Council</th>
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<tbody>
<tr>
<td>* * * * * * *</td>
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</tbody>
</table>

A Statement of Environmental Effects may incorporate the relevant requirements for a Development Locality Context, Site Analysis or Landscape Plans. (Refer clause 5.7)

At the development application stage, sufficient information must be submitted demonstrating that the broad design requirements can be complied with. Any departures are to be sufficiently justified having regard to the requirements of this Plan and the circumstances of the proposal.

Council may request further information if submitted information is insufficient to permit adequate assessment of the application. Assessment time can be suspended until the requested information is received.

**Staging subdivision developments**

In some cases, a subdivision may be of a magnitude, or circumstances require, that it be developed in stages. The following options are available:

a) lodge an application for the whole of the development and nominate the lots involved in each stage. This allows Council to consent to the whole development and formulate conditions appropriate for each stage.

b) lodge an application for stage 1 only together with a conceptual layout for all remaining stages. Separate applications are then required for each subsequent stages.

It should be noted that each subsequent application for the subsequent stages must comply with the subdivision requirements and range of S94 Contribution Plan and water and sewer contributions levied at the time of determination.
Council may require that second and subsequent stages be completed within a specified time frame of completion of the first stage where separate Development Applications are not submitted for each stage.

**Site inspections**

As it is likely that a series of site inspections will be conducted by accredited certifiers or Council staff, and possibly Councillors, it is important that the lot and road layout of the subdivision be readily identifiable in the field.

Where a subdivision does not involve the creation of a new road, proposed lots are to be identified with visible stakes, painted marks or other markings on structures, buildings etc.

Where a subdivision involves the opening of a new road or temporary road the centre-line of the proposed roads must be visibly staked, at a maximum of twenty (20) metre intervals with intersections and cul-de-sacs identified. The approximate location of lot side boundaries is also to be indicated in relation to the proposed road.

**Assessment of Applications**

The following generalised flow diagrams show the key basic steps in the assessment of development applications generally and for the assessment of subdivision applications specifically.

**ASSESSMENT OF APPLICATIONS FOR LOCAL DEVELOPMENT**

1. **RECEIPT OF APPLICATION**
   - DA lodged at front counter
   - Counter staff check fees, attachment of plans, owners signature
   - Need for notification and advertising determined, letters sent to adjoining owners if required, copies of application referred to other sections of Council for advice.
   - Applications for integrated development referred to relevant authority.
   - Allocation made to Assessing Officer.

2. **ASSESSMENT**
   - Application discussed at Development Assessment Panel
   - Any need for additional information identified
   - Any need for additional notification to Government Authorities determined.
   - Within 14 day advertising/referral period, assessing officer checks compliance with LEP and DCPs, evaluates supporting information, carries out site inspection, drafts possible consent conditions.
   - Comment/concerns/suggested conditions received from other Council Sections within 14 days.
   - Final assessment of application undertaken, integrating concerns arising from public submissions, Government departments, other sections of Council.
   - Draft determination prepared.

3. **DETERMINATION**
   - Development Assessment Panel considers draft determination, discusses appropriate conditions, then determines application in accordance with delegation from Council.
   - Consent/refusal notice typed and checked by assessing officer.
   - Determination issued to applicant.
   - Objectors notified in writing of outcome.
   - Notice of determination published in newspaper and included in consent register.
STAGE 1:
PRELIMINARY SUBDIVISION DESIGN AND LAYOUT

Is development consent required? (section 3)

YES  NO

Seek pre-lodgement advice

Lodge Development Application (section 4)

Proposal exhibited

Council considers application and submission

Proposal modified

Council refuses application

Council approves application consent issued

Are subdivision works involved

YES  NO

Do not proceed or modify  Appeal to Court

Proceed to Stage Two (Works) (Construction Certificate)
Proceed to Stage three (Title Plans) (Subdivision Certificate)
STAGE 2:  
DETAILED ENGINEERING DESIGN AND CONSTRUCTION

Submit Construction Certificate to Council  
(Section 4.8)

Council checks plans against consent and engineering specifications

Revision required  
Plans approved

Is the Title Plan required prior to completion of works  
(section 4.9)

No  
Yes

Notify Council and carry out works  
(section 4.8.2)

Lodge securities

Council inspects works, developer carries out repairs  
(section 4.8.3)

Submission of "works as executed" plans and pay maintenance bonds

Final check, developer rectifies defects

Council accepts works

Proceed to Stage Three  
(Linen Plans)  
(Subdivision Certificate)
STAGE 3:
TITLE PLAN AND RELATED DOCUMENTS

Applicant lodges Subdivision Certificate
Title Plan and related documents
(Section 4.9)

Council checks compliance with consent, payment
of s94 & water and sewer fees, easements,
securities and maintenance bonds

Amendment or extra
information required
(uncertified plans returned)

Council returns certified
plans to applicant

Plans forwarded to
Land Title Office by
applicant

Subdivision registered: Council
notified of Lot and Deposited Plan
title

STAGE 4:
FUTURE DEVELOPMENT

D A's can be
submitted

Maintenance bond
expires after 12
months, inspection
and refund
Commencing work

Subdivision design requirements
Subdivision construction works are not to commence until engineering plans, addressing all the relevant conditions of development consent, are approved, stamped and returned to the applicant by Council.

The plans should comply with the subdivision design requirements for the construction of roads, drainage, water and sewers contained in Lismore City Council’s specifications.

Four copies of the plans, together with the required plan checking fee, should be submitted to Council. Final approval, in writing, will be issued by Council, together with the return of 2 stamped copies of the plans.

Commencing Work
Prior to commencing works in accordance with the approved plans the applicant shall complete the “Notice to Commence Work” form and advise Council in writing of the following matters:

- The name of, and procedure for contacting the authorised supervisor of the works. All relevant site instructions will be addressed to this person.
- The name of the authorised supervising engineer who will be responsible for inspecting and issuing relevant compliance certificates that the works are in accordance with the approved plans and specifications.
- The name of the contractor/s who will be performing the works and their relevant licences and quality assurance procedures.
- The name and copy of cover for Public Liability Insurance for the applicant and his contractors to the value of $10m.

Upon satisfactory receipt of this information Council will issue final approval to commence work. No work is to commence without final approval. Erosion protection measures, where required, must be provided and in place prior to any site works commencing.

Works outside the approved site and the authority of Council, should not commence until permits (e.g. road opening and/or closing) and bonds required by the relevant agencies and the necessary consents to enter both public and private lands, obtained.

Completion of Work
Where the subdivision required engineering or constructed works the applicant shall submit the following information to Council, prior to lodging linen plans:

- A copy of certified "works as executed" plans, notating any variations made during construction. Drainage and sewer invert and final lot fill and cut levels should also be provided.
- Certification for completed works from a suitably qualified person certifying that all roads, drainage and civil works required by the development consent and the approved design plans have been completed satisfactorily in accordance with Council's Development, Design and Construction Manual (as amended).
- A computerised copy of plans in a digital DXF format.
- Surveyor's certification that all pipelines etc. are within easements, and
- Information to satisfy the provisions of Australian Accounting Standard No. 27 for all assets (e.g. roads, bridges, driveways, drainage, footpaths, kerbing, pavements, retaining walls, water and sewerage underground pipes and pumping stations parks and gardens and open space) transferred to Council.
Information is to include:
- a description of the item,
- a fair market value,
- name and qualification of certified valuer, in relation to any real property valuation
- date of valuation, and
- name and qualification of qualified person for valuation of improvements on land or any assets to be transferred to Council.

Upon receipt of a letter of compliance from Council, a linen plan (original and 8 copies) prepared by a Registered Surveyor, should be submitted to Council when necessary works are complete and the applicant wishes to finalise the subdivision. The "final" plan, documentation and works should comply with Council approvals and be accompanied by the payment of all necessary securities and contributions. Certification, by a qualified person, is required to be prepared and submitted to Council stating that all relevant conditions of development consent have been complied with.

Council’s certification and approval of the subdivision and plan is finalised when the linen plan is signed by Council.

**Plan release (Linen / Title Plans)**

The linen plan for any subdivision will only be released when all the conditions of the subdivision have been completed, the information required in clause 5.6.9 provided and maintenance bonds for all civil, structural, stormwater, water and sewerage works lodged to the satisfaction of Council.

Linen plans are to be accompanied with a completed "Subdivision Certificate Registration". This form sets out the number of plans, and documentation etc. to be provided with the plans.

**Early release of plans**

No linen plans will be released unless it can be shown, to the satisfaction of Council that the subdivision will be completed within 6 weeks of the proposed release date.

Council requires in this instance that a satisfactory legal agreement, payment of Bonding Fees and a security as either a Bank Guarantee or Cash Bond be provided by the applicant to cover outstanding works etc.

The requirements and terms for this to occur are:

1. All engineering design plans are approved;
2. Evidence that Country Energy securities have been lodged;
3. A legal agreement is lodged for Council to perform the works on behalf of the developer in case of failure to complete the works or outstanding conditions within 6 weeks of the bond date;
4. The bond is to be 130% of the value of the outstanding works as assessed by Council;
5. No Development Application for future dwellings etc on that section of the bonded development will be approved by Council until all works covered by the bonding agreement have been completed and approved by Council;
6. No bond for uncompleted works will be released, either in whole or part until all works covered by the bond have been completed and approved by Council;
7. Prior to Council releasing the linen plan the following works have to be completed:
   - earthworks, including the final shaping of lots,
   - kerb and gutter and stormwater is in place,
• base pavement material laid,
• sewerage reticulation completed,
• water reticulation completed,
• electricity supplied,
• lots can be physically identified,
• works as executed plans for water, sewer and interim civil works are submitted and approved,
• roads sealed

**Maintenance period and bonds**

Where works are in compliance with Council's design and construction standards a bonded maintenance period of 6 months applies from the date the bond is lodged with Council (usually at the time the linen plan is released). Where works are not in compliance the maintenance period shall be a minimum of 12 months. The bond is to cover the repair of any defects (faulty material or workmanship) which may arise in the period, if not rectified by the applicant to the satisfaction of Council. The bond or unexpended funds are refunded after the 6 month period.

The bond is to be accompanied by a legal agreement, satisfactory to Council, nominating the applicant/developer as the responsible person/s. The agreement should be in the favour of Council and identify the application by the Development Application number.

The value of the bond is to be a minimum of 5% of the total cost of the completed works, or $1,000, whichever is the greater, as calculated by Council.

The maintenance bond is taken to also cover the following works and public items not necessarily part of the approval that may be directly affected as a result of the development:

- additional works undertaken by the applicant;
- damage to the existing road network;
- damage to street furniture and trees to be retained in the road reserve;
- damage to water, sewer or drainage services.

### 4.7 The Subdivision: Context in Locality, site analysis and design process

**Development Locality Context Plan**

A Development Locality Context Plan is to be prepared and submitted as part of the Development Application for the following classes of subdivision:

- **Class C:** Major urban subdivision
- **Class D:** Comprehensive subdivision
- **Class G:** Major village subdivision
- **Class H:** Minor rural residential subdivision
- **Class I:** Major rural residential subdivision

The plan is to be prepared to enable an understanding of the site in relation to matters such as, public transport, shops and other services, schools, recreation facilities, major roads and the local street network.

The plan should analyse the site and the proposed development to explain:

1. How the proposal fits into Council's strategic planning and development intentions for the site.

   The relevant provisions of:
Lismore Local Environment Plan 2000, as amended;
Lismore Urban Strategy;
Lismore Village Development Strategy;
Lismore Rural Housing Strategy;
Relevant chapters of this Development Control Plan; and
Other local strategic planning policies as may be prepared from time to time;

should be addressed.

2. The relationship of the site to the local community. Information is to be provided identifying the locality’s identity and character, the streetscape and the relationship of the site to local road and social networks.

3. The relationship of the site to adjoining properties. When housing is to be built among existing dwellings and development, the design and the relationship of the site must take into account factors that are of importance to immediate neighbours.

4. The general physical characteristics of the site. The general arrangement of buildings and spaces on a site is also part of the development context and will influence the quality of the existing and proposed environment.

A Development Locality Context Plan may include information that should be provided in a detailed Site Analysis Plan.

**Site Analysis Plan**

A detailed site analysis establishes the development in the context of the site, identifying and explaining graphically the key influences on the design and how the proposed subdivision will relate to the immediate surroundings.

A Site Analysis Plan is to be prepared and submitted as part of the Development Application for the following classes of subdivision:

- **Class B**: Minor urban subdivision
- **Class C**: Major urban subdivision
- **Class D**: Comprehensive subdivision
- **Class F**: Minor village subdivision
- **Class G**: Major village subdivision
- **Class H**: Minor rural residential subdivision
- **Class I**: Major rural residential subdivision
- **Class J**: Rural subdivision

A site analysis plan should not be a standard exercise. At its most exhaustive such a plan should document the site in terms of:

- contours;
- existing vegetation;
- buildings (including any to be retained);
- views to and from the site;
- access and connection points;
- stormwater and sewer drainage;
- provision of services (electricity, gas, telecommunications);
- orientation, microclimate, prevailing wind direction and noise sources;
- contaminated soils, geotechnically unstable areas;
- fences, boundaries and easements;
- environmentally sensitive areas;
- archaeologically sensitive areas;
- any notable features.
The plan would document the surrounds of the site in terms of:

- the location and use of adjacent and opposite buildings and out-buildings;
- abutting private spaces and habitable room windows which have outlooks towards the site, particularly those within 9 metres of the site;
- views and solar access enjoyed by adjacent residents;
- major trees of adjoining land, particularly those within 9 metres of the site;
- location and height of walls built to the property boundary;
- characteristics of any adjacent public open space;
- street frontage features such as adjacent and nearby development, including characteristic fencing and garden styles;
- direction and distances to local shops, schools, public transport, parks and community facilities and
- the differences in levels between the site and adjacent properties.

A written statement is to be provided that explains how the design of the subdivision responds to the opportunities and constraints identified in the site analysis.
Design Process

One way of improving the quality of a subdivision, particularly for urban, village and rural residential subdivisions, is to establish and understand the context and relationship of the development in the area in which it is proposed.

The analysis of the proposed development site and its surrounds provides a framework for "fitting" the development in the neighbourhood, as well as identifying the constraints and opportunities of the site.

Establishing the development context typically involves understanding the following aspects:

- Council's strategic planning and development intentions for the site;
- The relationship of the site to the local community;
- The relationship of the site to adjoining properties;
- The physical characteristics of the site.

Phases in the Design Process:
The following describes indicative design concept phases and inputs for achieving successful subdivisions. The emphasis or role of each phase will vary according to the circumstances and conditions of each site.

Site Analysis

The statement of environmental effects accompanying a DA should include a comprehensive site survey and analysis. Best practice design methods require that site survey and analysis processes be carried out at the project feasibility stage and that the final design demonstrates response to the survey and analysis.

The site analysis should identify the full range of contextual and site specific constraints and opportunities affecting the proposed development; evidence conceptually how it is intended to successfully address these in the final design; and contain evidence of consultation with neighbours. The site survey and analysis has many important uses, including clarifying what is realistically achievable, providing clear design guidelines, speeding up the entire development process, and also providing an excellent negotiating tool that can reduce if not eliminate the possibility of conflict.

The following matters should be addressed in the site analysis:

- **Site context and environmental assessment**
  - establish the site context, major features (e.g. views, remnant vegetation) and environmental constraints and opportunities (e.g. slopes, gullies, flood-prone land, bushfire hazards, contaminated soils, prevailing winds, and air and water quality).

- **External influences**
  - establish significant external connections to and from the site, such as habitat corridors.
  - identify external drainage and open space networks, facilities and services (e.g. schools and community facilities, services and centres) and employment opportunities and their relationship to the site.
  - establish structures and processes to guide the community planning process, including methods for continuing community involvement.
  - identify broad opportunities for integrated catchment management, the provision and multi-use of open space and non-residential facilities.

- **Movement and service connections**
  - establish major local movement systems into and out of the site.
  - identify opportunities for bicycle and pedestrian movements through and beyond the site.
  - establish street connections to facilitate local and external movement and identify options for services connections, including provision for public transport.
Neighbourhood development, identity and integration
- determine the location and nature of proposed and existing features and facilities which will create, and identify and achieve a relatively self contained, distinctive neighbourhood with a strong "sense of place".
- consider alternative development and density scenarios which in turn, will influence the type, range and location of facilities and services to be provided (e.g. schools and centres).
- ensure that some flexibility is built into the various design options.
- define the preferred form of edge development to provide identity but also encourage integration with existing or future neighbourhoods.

Safety and security
- ensure that safety and security are considered in the design process. They will influence such design elements as street and allotment layout, open space and bicycle and pedestrian networks, dwelling and orientation, and the design of non-residential facilities.

Connectivity
- establish the basic movement network, linking existing streets where necessary and ensuring good local connectivity, permeability and legibility, including management of through traffic.
- ensure that motor vehicle networks are compatible with pedestrian and bicycle movements.

Street and path layout
- connect movement networks to a street and path layout, considering issues such as safety, legibility, environmental capacity, allotment and orientation, and climatic factors.

Lot size and mix
- determine broad distribution of lot sizes, housing types and land requirements for non-residential activities and facilities.

Utility services and infrastructure
- identify the location and capacity of services such as water, sewer and electricity.

The outcomes of the concept design process should be reflected in the Development Context Plan and Site Analysis.

Landscape Concept Plan
The intent of this plan is to define the general concepts that establish the character, structure and treatment of the proposed landscape development of the subdivision. Landscaping detail is to be provided with the engineering plans.

A Landscape Concept Plan, prepared in accordance with Council's "Landscape Guidelines" and submitted as part of the Development Application for the following classes of subdivision:

Class B: Minor urban subdivision
Class C: Major urban subdivision
Class D: Comprehensive subdivision
Class F: Minor village subdivision
Class G: Major village subdivision
Class H: Minor rural residential subdivision
Class I: Major rural residential subdivision
The plan should document the following details, where relevant:

- preferred plan scale, 1 : 200; 1 : 500 or 1 : 1000 on standard size plan sheets (A1, A2, A3 or A4);
- existing and proposed levels;
- site boundaries;
- building envelopes, where applicable;
- location and canopy of existing trees, adjacent streets and trees.

The landscape concept plan should contain:

Statement of intent and management defining:
- purpose and function of landscape;
- desired theme and character;
- responsibility for maintenance etc. between the developer and Council.

Landscape structure in a broader context showing:
- any connections to open space networks;
- intended location of proposed open space areas;
- identification of major tree planting;
- scale of trees.

Soft landscape planting showing:
- planting concept showing grassed areas, mature height and spread of trees and plantings with botanical and common names; and
- overland drainage proposals.

Hard landscape surfaces showing:
- outline location of all hard surface areas (streets, footpaths and likely driveways).

Hard landscape and service utility structures showing:
- details of any fencing and retaining walls;
- signage;
- location of electricity substations and street lighting standards;
- location of underground utilities (water, sewer, electricity etc.).
Chapter 5

Subdivision and Infrastructure

Urban Subdivision
5 Subdivision and Infrastructure – Urban subdivision

This chapter is divided into three sections, as follows:

5.1 Residential Subdivision
5.2 Commercial Subdivision
5.3 Industrial Subdivision

5.1 Residential Subdivision

5.1.1 Minimum Allotment Sizes
The Lismore Local Environmental Plan 2000 specifies the following minimum lot sizes in urban zones:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Minimum lot size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2(a) - Residential Zone</td>
<td>400* m²</td>
</tr>
<tr>
<td>2(f) - Residential (Flood Liable) Zone</td>
<td>No subdivision for dwellings is permitted</td>
</tr>
</tbody>
</table>

Clause 51(4) of the Lismore Local Environmental Plan permits subdivision of residential land to lots of less than 400m² if a covenant restricts the erection of a dwelling to a particular site on the lot, or if strata subdivision is proposed.

5.1.2 Provision of Sewerage
Lot layout and sewerage networks are to be designed to ensure that each lot can be connected to sewer by gravity connection.

Community title or strata title properties with significant number of dwellings that are unable to be seweried by gravity may under exceptional circumstances install a common, privately owned pump station in accordance with Policy 7.2.2 at: http://www.lismore.nsw.gov.au/Mayor>Councillors & Staff/Management Documents/Business & Enterprise Policies

5.1.3 Neighbourhood Planning
This plan encourages a concept of neighbourhood design for particular sites, integrating surrounding urban areas while creating distinctive, identifiable and relatively self contained neighbourhoods based on the following design principles:

- higher residential densities;
- increased local self sufficiency (local employment and service provision);
- reduced travel to employment (interconnected streets and local centres within walking distance);
- smooth travel speed and flow;
- lot orientation to minimise building energy use;
- provision of accessible public transport; and
- higher levels of public safety.
Figure 5-1: Mixed use urban centres
## 5.1.4 Design Elements

**Element: Neighbourhood Design**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
</table>
| To provide safe, convenient and attractive neighbourhoods that meet the diverse and changing needs of the community by:  
- Offering a wide choice in good quality housing and associated community facilities;  
- Encouraging walking and cycling;  
- Minimising energy consumption; and  
- Promoting a sense of place through neighbourhood focal points and the creation of a distinctive identity which recognises, and where relevant, preserves the natural environment. |

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
</table>
| The objective may be achieved when the Phases in the Design Process (refer section 5) are followed and where:  
1. The subdivision layout responds to site characteristics, setting, landmarks and views through street and open space networks.  
2. The subdivision layout enhances positive features of the existing urban character and townscape.  
3. Neighbourhood identity is reinforced by locating community facilities at focal points within convenient walking distance for residents.  
4. The street network provides a high level of internal accessibility and good external connections for local vehicle, pedestrian and cycle movements, with traffic management to restrain vehicle speed, deter through traffic and create safe conditions for all road users.  
5. The street layout and lot density minimise fuel use by reducing travel distances, maximising public transport effectiveness, and encouraging walking and cycling to daily activities.  
6. The street and lot layout enables efficient provision of physical services.  
7. The street and lot orientation and lot dimensions facilitate the siting and design of energy efficient dwellings.  
8. The lot design and layout provide a variety of lot sizes and enable a variety of housing types and other compatible land uses.  
9. The lot design and layout provide for higher densities in areas close to the CBD, services, public transport, open space etc. | There are no recommended suggested solutions for this Element, as each situation requires an individual approach. |
10. The layout provides well distributed public open spaces that contribute to the character of the development, provide for a range of uses and ages, are cost effective to maintain, and contribute to stormwater management and environmental care.

11. The layout ensures that major linear or regional open spaces are located to define the boundaries of neighbourhoods.

12. The layout retains significant vegetation and habitat areas, particularly koala habitat.

13. The layout is integrated with the surrounding urban environment, complements existing attractive streetscapes and landscapes, and provides for shared use of public facilities by adjoining communities.

14. The layout enhances personal safety, and minimises potential for crime through surveillance by pedestrians and drivers of passing vehicles.

15. The pedestrian network is safe, attractive and efficient, running largely along public spaces fronted by houses, and avoiding areas that generate major breaks in surveillance on routes used at night.

16. The layout of residential development provides:
   • protection from bushfire;
   • incorporates natural and cultural features;
   • minimises soil erosion;
   • avoids development on flood prone and hazardous i.e. unstable land;
   • avoids contaminated areas e.g. cattle tick dip sites.

---

**Element:- Major Movement Networks**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide movement networks for vehicles, public transport, pedestrians and cyclists that are integrated, cost effective, environmentally acceptable, and minimise the impact of traffic on the residential environment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>
1. The street network meets local needs and allows for the provision of public transport, for pedestrians and cyclists, and for expected vehicle traffic in a co-ordinated manner.

2. The arterial road network has the capability to accommodate public transport services and has capacity to safely and efficiently accommodate projected movements.

3. The street network connects with external traffic routes in a manner which maximises movement efficiency on the traffic routes.

4. Corridor traffic routes are more convenient for through traffic than streets within precincts.

5. Streets within any neighbourhood do not operate as through traffic routes for externally generated traffic (other than for pedestrians, cyclists public transport).

6. Safe and efficient connections between transport corridors and residential neighbourhoods are provided.

7. Safe and convenient links are provided for pedestrians and cyclists across transport corridors.

8. The spacing of connections between street networks in neighbourhoods, and road networks in corridors, protects the performance of the road corridors and preserves the quality of the street networks in the neighbourhoods.

9. Access arrangements for housing along an arterial road do not impede the traffic performance of the road.

The plan conforms to a Development Control Plan approved by Council which provides for public transport, pedestrians and cycleways.

OR

A Traffic Study with the proposal provides for an integrated approach to movement systems in a manner specified in this Plan

Provision is to be made for arterial road corridors as specified in Council's Regional City Plan.

The street network conforms to a Development Control Plan for the area and/or Traffic Study with the proposal showing an existing and proposed major road network above the level of arterial road which satisfies projected district travel.

The street network provides for pedestrians and cyclists in accordance with the requirements of this plan.

The street network conforms to a Development Control Plan for the area, showing an existing and proposed road network which satisfies projected district travel.

Through traffic with projected traffic volumes exceeding those specified in Table 5-2 is not preferred in neighbourhood streets.

Connections between residential streets and arterial roads are in accordance with the requirements of Table 5-3.

Intersections between the external roads and the internal road network are located so as to minimise restriction of movement on the roads, and to avoid traffic volumes in excess of 3000 vpd on local collector streets.

Proposed housing development along a movement corridor does not have direct vehicle access to an arterial road unless there are no suitable alternatives. In this case provision must be made for vehicular access, to and from the road, to be in a forward direction and preferably shared between allotments.
Minimum Standards and techniques

**Figure 5-2: Road Hierarchy / classification**

**Table 5-1: Residential Street Types**

<table>
<thead>
<tr>
<th>Street</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Laneway (including right of way)</td>
<td>is an access street to be held in private ownership. These streets provide a shared carriageway for use by pedestrians, cyclists and vehicular traffic. No provision for parking is made within the laneway. The laneway services less than 10 dwellings where the majority of those dwellings do not utilise the lane as the sole means of access. Where the laneway is the sole means of access the number of lots it services is to be less than 5.</td>
</tr>
<tr>
<td>Privately owned right of way or access easement under Community Title.</td>
<td></td>
</tr>
<tr>
<td>Access Place (e.g. small cul-de-sac)</td>
<td>is a street in which the residential environment is dominant. These streets provide a shared carriageway for use by pedestrians, cyclists and vehicular traffic. Footpaths not required. There is only one entry and exit point. Generally, the number of dwellings does not exceed 10. Traffic volume, less than 100 veh/day.</td>
</tr>
<tr>
<td>Local Street</td>
<td>is a street in which the residential environment is dominant. Minor streets provide a shared carriageway for use by pedestrians, cyclists and vehicular traffic. Paved footpaths not required. Pedestrian movements are facilitated by paths in the verge if it links to a Collector Street. Traffic volume, less than 2,000 veh/day.</td>
</tr>
<tr>
<td>Collector Street</td>
<td>typically collects traffic from lower volume streets and may provide bus routes within residential neighbourhoods. Separate provision to be made for cyclists and pedestrians which provide district connections. On-street parking is provided in the carriageway. Traffic volume, up to 3,000 veh/day.</td>
</tr>
<tr>
<td>Sub-arterial Street</td>
<td>connects collector streets with higher volume arterial roads. Its function is to facilitate the convenient and safe movement of residential traffic to and from the arterial road system. Access to lots is restricted because of higher volumes of traffic.</td>
</tr>
<tr>
<td>Arterial Roads</td>
<td>connect major urban areas and provide inter-regional linkages. Because of the high volumes of traffic direct access to individual lots is denied.</td>
</tr>
</tbody>
</table>

Source: AMCORD
Element: Local Street Networks

**OBJECTIVE**

To create street networks in which the function of each street is clearly defined, providing acceptable levels of access, safety and convenience for all users.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Function and structure</strong></td>
<td><strong>Function and structure</strong></td>
</tr>
<tr>
<td>1. The street network has a clear structure and component streets conform to their function in the network.</td>
<td>Streets link with other streets that are no more than two levels higher or lower in the hierarchy and cul-de-sacs are minimised.</td>
</tr>
<tr>
<td>2. The network has clear physical distinctions between each type of street. These distinctions are based on function, legibility, convenience, traffic volumes, vehicle speeds, public safety and amenity.</td>
<td>The street network reflects the characteristics specified in Table 5-1, 5-2, 5-3, 5-4 and 5-5.</td>
</tr>
<tr>
<td>3. The design features of each type of residential street encourage driver behaviour appropriate to the primary function of the street.</td>
<td></td>
</tr>
<tr>
<td><strong>Safety, access and convenience</strong></td>
<td><strong>Safety, access and convenience</strong></td>
</tr>
<tr>
<td>4. Intersections along residential streets are spaced to create safe and convenient vehicle movements.</td>
<td>Intersections are spaced as set out in Table 5-3.</td>
</tr>
<tr>
<td>5. The street network creates convenient movement for residents between their homes and higher order roads.</td>
<td>The driving distance from any dwelling to the nearest collector (or higher-order) road is minimised.</td>
</tr>
<tr>
<td><strong>Mode choice</strong></td>
<td><strong>Mode choice</strong></td>
</tr>
<tr>
<td>6. There is provision for efficient bus routes which are direct and safely accessible by foot from all dwellings and activity centres.</td>
<td>Public transport routes and stops are provided as set out in Element – Public Transport.</td>
</tr>
<tr>
<td>7. The alignment and geometry of streets carrying bus routes provide for ease of movement of buses between developments and major activity centres without complicated turning manoeuvres and without facilitating high traffic speeds.</td>
<td>Streets provide a safe, convenient and legible network for pedestrians and cyclists in accordance with Element – Pedestrian and Cyclist Facilities.</td>
</tr>
<tr>
<td>8. The street network facilitates walking and cycling within the neighbourhood and to local activity centres.</td>
<td></td>
</tr>
</tbody>
</table>
Urban design and character

9. The street network takes account of the topography and vegetation, respects any existing or potential site assets, and takes advantage of opportunities for views.

10. The street network takes account of the streetscapes that may be created or that already exist.

11. The street network is oriented, where practical, to promote efficient solar access for dwellings.

12. The street network takes account of natural drainage and open space systems.

Environmental protection

13. Traffic generated by a development is within the acceptable capacity of the roads.

14. Streets do not operate as through traffic routes for externally generated traffic, while limiting the length of time local drivers need to spend in a low speed environment.

15. The street network is designed to reduce traffic speeds and volumes to acceptable levels, with most dwellings fronting streets with low volumes.

16. The impact of measures intended to restrain traffic speeds and/or volumes takes account of the needs of other street users and adjoining dwellings, by avoiding:
   • stop start conditions;
   • increased vehicle emissions;
   • unacceptable traffic noise to adjoining dwellings;
   • devices which reduce convenience or safety levels for cyclists and public transport.

17. Streets and lots are located so that dwellings are not subject to unacceptable levels of traffic noise.

Cost effectiveness

18. Streets and carriageway widths and street lengths optimise the cost effectiveness of the street network.

19. The network provides for the cost effective provision of public utilities.

Urban design and character

The street network permits the establishment of streetscapes that incorporate the provisions of Element Neighbourhood Design.

The streets are aligned in east-west or north-south direction, wherever possible.

Environmental protection

Intersections within the street network are either roundabouts or other appropriate traffic management treatments to slow and control traffic.

Traffic speeds and volumes are restrained through measures such as:
   • limiting street length;
   • introducing bends; and
   • introducing slow points

Traffic noise in residential streets should not exceed 55 dB(A) L10 at the front of dwellings.

Cost effectiveness

The length of sub-arterial streets is minimised, except where the topography or the location of major traffic routes makes a longer distance unavoidable.

The network caters for the provision of public utility networks including water, sewerage, electricity, and telecommunications.


Minimum Standards and Techniques

Table 5-2: Classification of Residential Streets

<table>
<thead>
<tr>
<th>Street level/type and function</th>
<th>Design speed (km/hr.)</th>
<th>Indicative traffic vol. (vpd)</th>
<th>Stopping sight dist. (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private laneway or Right of Way</td>
<td>10</td>
<td>&lt; 100</td>
<td></td>
</tr>
<tr>
<td>Access Place</td>
<td>40</td>
<td>&lt; 100</td>
<td>30</td>
</tr>
<tr>
<td>Local Street</td>
<td>40</td>
<td>&lt; 2,000</td>
<td>30</td>
</tr>
<tr>
<td>Collector Street</td>
<td>60</td>
<td>&lt; 3,000</td>
<td>70</td>
</tr>
<tr>
<td>Sub-arterial Street</td>
<td>60</td>
<td>3,000</td>
<td>70</td>
</tr>
<tr>
<td>Arterial Road</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 5-3: Desirable Minimum Intersection Spacing

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Same side of street (metres)</th>
<th>Opposite side of the street (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laneeway or Right of Way</td>
<td>Refer to Austroads Pt. 5.</td>
<td></td>
</tr>
<tr>
<td>Access Place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector Street</td>
<td>approx. 0.5 km.</td>
<td></td>
</tr>
<tr>
<td>Sub-arterial Street</td>
<td>approx. 1 km.</td>
<td></td>
</tr>
<tr>
<td>Arterial Road</td>
<td>approx.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5-3: Minimise turning movements from the lot to collector streets
**Element:- Pedestrian and Cyclist Facilities**

**OBJECTIVE**

To encourage walking and cycling by providing safe and convenient movement networks to points of attraction within and beyond the development.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Planning</strong> 1. The residential street and path network provides a network of pedestrian and cyclist routes, with connections to adjoining streets, open spaces and activity centres. 2. A network of footpaths and cycle routes is provided that accounts for:  - the need to encourage walking and cycling;  - likely users (e.g. school children, parents with prams, the aged and people with disabilities, commuter and recreational cyclists);  - opportunities to link open space networks and community facilities, including public transport, local activity centres and schools;  - topography;  - cyclist and pedestrian safety.</td>
<td><strong>Planning</strong> Where a Development Control Plan, Traffic Study with a proposal, or an approved Pedestrian and Cyclist Plan exists, pedestrian and cyclist paths are to be provided in accordance with that plan.</td>
</tr>
<tr>
<td><strong>Location and design</strong> 3. The location of footpaths and cycleways in a street reservation is determined by:  - whether vehicle speeds and volumes are low and the use of the street pavement by cyclists does not affect the comfort and safety of pedestrians;  - whether pedestrians and cyclists are protected from parked vehicles and vehicles moving along the street and on driveways;  - whether postal delivery will be significantly inconvenienced;  - the location of physical services;  - cross falls;  - landscaping;  - whether there is any development fronting that part of the street;  - cyclist and pedestrian safety;  - cost effective construction.</td>
<td><strong>Location and design</strong> Footpaths and cycleways are provided in accordance with Table 5-5.  <strong>OR</strong> Footpaths are provided on one side of streets with traffic volumes greater than 1,000 vpd. No footpaths are required on streets with a traffic volume &lt;1,000 vpd as pedestrians can share with vehicles in a low speed environment.</td>
</tr>
<tr>
<td>4. The alignment of paths allows safe and convenient use by pedestrians and cyclists and is varied to preserve trees and other significant features. A focus on vistas and landmarks add visual interest where they exist. 5. Footpaths and cycleways are well lit and located where there is casual surveillance.</td>
<td>Collector streets on which there is access to lots or where there is a planned pedestrian or cyclist path are provided with a separate path on each side clear of the carriageway pavement. A pedestrian (only) footpath, where required, is 1.5 metres wide.</td>
</tr>
</tbody>
</table>
### Footpaths or shared paths

6. Footpaths or shared paths are designed and constructed of appropriate width, longitudinal gradient and sight distance to cater for the number of projected pedestrians and cyclists, and user types (e.g. the aged, the very young, people with prams and people with disabilities).

7. Design of streets accommodates pedestrian and cyclist use of street pavements in access places, and cyclist use of street pavements in access streets and collector streets.

8. Provision is made for the location of seats in appropriate places.

9. There is adequate provision for passing with paths widened at potential conflict points or junctions on high use facilities to allow for passing of pedestrians/cyclists.

**Safe Crossings**

10. Safe street crossings are provided for all street users with safe sight distances and adequate pavement markings, warning signs and safety rails (where appropriate for cyclists).

**Construction**

11. Pedestrian and cyclist paths are constructed to provide a stable surface for projected users which is easily maintained.

Footpaths are widened to 2.0 metres minimum in the vicinity of meeting points, schools, shops and other activity centres and along Sub-arterial Streets or where linking these activities.

Cycle paths and shared paths have widths in accordance with Figure 5-4.

Maximum longitudinal gradient of cycle paths to be no greater than that at any adjacent street pavement.

Dedicated cycle paths are provided in accordance with the Lismore Cycleways Plan.

Paths are widened at potential conflict points or junctions in areas of high use, such as schools, corner stores etc.

**Safe Crossings**

Where traffic volumes exceed 5,000 vpd or speeds exceed 50 km/h, safe crossings are created with the use of pedestrian refuges, slow points, thresholds or other appropriate mechanism.

Pram and wheelchair crossings are provided at all kerbs and are adequately designed for this purpose as well as assisting sight impaired people.

**Construction**

Footpaths are to be constructed in accordance with Councils "General Specification for the Construction of Road and Drainage Works".

Cycleways may be constructed of an asphalt sealed pavement or equivalent standard concrete pavement.
Minimum Standards and techniques

Figure 5-4: Protection for cyclists and pedestrians

Segregated path dimensions

Desirable minimum shared path

Desirable minimum bicycle path

Source: AMCORD
Figure 5-5: Designing for cyclists on collector and sub-arterial roads

* may be utilised for additional clearance to cyclists in 80km/h zones.
### Element: Public Transport

#### OBJECTIVE

To increase opportunities for choice in mode of transport and provide cost effective and energy efficient public transport services that are accessible and convenient to the community.

#### PERFORMANCE CRITERIA

<table>
<thead>
<tr>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Neighbourhood densities are provided at levels that encourage the economic provision of regular public transport services.</td>
</tr>
</tbody>
</table>

| 2. Net residential densities within walking distance of public transport stops are provided at levels that take advantage of the infrastructure investment and support the economic operation of services. |

<table>
<thead>
<tr>
<th>3. A network of public transport routes is provided that takes account of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• projected travel demand;</td>
</tr>
<tr>
<td>• distribution of likely demand;</td>
</tr>
<tr>
<td>• scale and time of demand;</td>
</tr>
<tr>
<td>• characteristics of travellers;</td>
</tr>
<tr>
<td>• travel time;</td>
</tr>
<tr>
<td>• operating characteristics;</td>
</tr>
<tr>
<td>• cost of providing the service;</td>
</tr>
<tr>
<td>• route location and design.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Route location and design</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Convenient connections to adjoining areas and other public transport routes, (including future routes), provide for ease of movement of buses between developments, and link activity centres within and external to the development.</td>
</tr>
</tbody>
</table>

| 5. Buses are able to safely gain access to the development without complicated turning manoeuvres. |

| 6. The alignment and geometry of the streets that form the bus route allow for the efficient and unimpeded movement of buses, without facilitating high traffic speeds. |

<table>
<thead>
<tr>
<th>Bus stop location and design</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Public transport stops provide for pedestrian safety, security, comfort and convenience.</td>
</tr>
</tbody>
</table>

#### SUGGESTED SOLUTIONS

The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

<table>
<thead>
<tr>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where a Development Control Plan or other planning instrument exists, routes and neighbourhood and net residential densities conform with that plan.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbourhood densities are at least 12 dwellings per ha and/or net residential densities are not less than 16 dwellings/ ha, or at other such densities as approved by Council.</td>
</tr>
</tbody>
</table>

The majority of lots are within 400 metres safe walking distance from an existing or potential bus route.

<table>
<thead>
<tr>
<th>Route location and design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus routes linking residential areas across roads which carry in excess of 2,000 vpd are designed to enable a left turn into the road from one area followed by a right turn from the road into the adjoining residential area.</td>
</tr>
</tbody>
</table>

Routes for regular bus services are designed in accordance with *Table 5-4 and 5-5.*

<table>
<thead>
<tr>
<th>Bus stop location and design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus stops are, or are planned for, 400 metre spacings where the route serves residential development.</td>
</tr>
</tbody>
</table>
8. Bus stops are designed to prevent vehicles from overtaking a stationary bus, or vehicle speeds are reduced to ensure safe pedestrian crossing.

9. Bus stops are located and designed to provide shelter, seats, adequate lighting and timetable information, are overlooked from nearby buildings, and are located to minimise adverse impact on the amenity of nearby dwellings.

The siting of bus stops is related to the pedestrian path network.

Bus shelters are to be provided at key locations.

---

**Minimum Standards and Techniques**

**Table 5-4: Minimum requirements for Bus Routes**

<table>
<thead>
<tr>
<th>STREET CARRIAGEWAY WIDTHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-way: 6.5 metres</td>
</tr>
<tr>
<td>Two-way: 9.0 metres or 7.5 metres</td>
</tr>
<tr>
<td>where bus bays are provided with a</td>
</tr>
<tr>
<td>traffic calming and management.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TURNING CIRCLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum desirable pavement crossfall: 3%</td>
</tr>
<tr>
<td>Maximum desirable longitudinal gradient: 6%</td>
</tr>
<tr>
<td>Absolute maximum gradient: 6%</td>
</tr>
<tr>
<td>Radius 15 metres for single bus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROUNDABOUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute maximum gradient: 12%</td>
</tr>
</tbody>
</table>

---

**Figure 5-6: Traffic control for buses**
### Element: Public Open Space

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The multi functional role of public open space and its use as a community facility is recognised and promoted.</td>
<td>Public open space is provided in accordance with an approved open space strategy or Development Control Plan.</td>
</tr>
<tr>
<td>2. Public open space provides:</td>
<td>Submission of a plan and documentation showing:</td>
</tr>
<tr>
<td>• a range of recreation settings, corridors for community paths, and attractive urban environment settings and focal points;</td>
<td>• the adjacent street reserves, carriageways, parking bays, footpaths, cycleways and street and park lighting;</td>
</tr>
<tr>
<td>• adequate facilities to meet the needs of the community as reflected by indicators such as population density and demographic structure;</td>
<td>• existing vegetation and proposed general character of tree planting and landscaping (including proposed species);</td>
</tr>
<tr>
<td>• accessibility to users in conjunction with existing facilities;</td>
<td>• existing rare or significant vegetation, natural habitats and features (e.g. creeks) which are retained, enhances or otherwise affected;</td>
</tr>
<tr>
<td>• opportunities for the incorporation of existing trees, rocks, streams and other sites of natural or cultural value, and linkage of habitats and wildlife corridors;</td>
<td>• general arrangement of hard landscaping elements and major earth cuts, fills and mounding;</td>
</tr>
<tr>
<td>• opportunities to link public open spaces into a legible network;</td>
<td>• indicative treatment of any drainage systems, along with general information on fencing, access points and furniture;</td>
</tr>
<tr>
<td>• public safety and reasonable amenity of adjoining land users in the design of facilities and associated engineering works;</td>
<td>• proposed recreation facilities; and</td>
</tr>
<tr>
<td>• for future maintenance requirements;</td>
<td>• the age groups of intended user targets and the facilities to be provided to service the user group;</td>
</tr>
<tr>
<td>• opportunities for regional open space to meet neighbourhood open space requirements;</td>
<td>• the distances from the furtherest lot in the development.</td>
</tr>
<tr>
<td>• a clear relationship between public open space and adjoining land uses established by appropriate treatment including alignment fencing, landscaping, and issues of noise, security and surveillance;</td>
<td>Parks include provision for lighting where appropriate in accordance with <em>Australian Standard 1158.1</em> (1986).</td>
</tr>
<tr>
<td>• avoidance of continual lengths of solid fencing along open space areas for security, surveillance, aesthetic and maintenance reasons.</td>
<td>Parks are located so that at least 50% of their perimeter length has a direct frontage to a public road and near facilities such as community facilities, sports fields shops etc.</td>
</tr>
<tr>
<td></td>
<td>Parks should have a minimum area of 5,000m², except where there function is primarily to provide cyclist / pedestrian connection or habitat linkages.</td>
</tr>
</tbody>
</table>
5.1.5 Physical Infrastructure

**Element:- Street design and on Street Parking**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide for streets that:</td>
</tr>
<tr>
<td>• fulfil their designated functions within the street network,</td>
</tr>
<tr>
<td>• accommodate public utility services,</td>
</tr>
<tr>
<td>• accommodate drainage systems, and</td>
</tr>
<tr>
<td>• create a safe and attractive environment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

**Function and width**

1. The design features of each type of residential street convey its primary function.

**Function and width**

The following street components for each type of street are as specified in Table 5-5.
2. The street reserve width is sufficient to cater for all street functions, including:
   - safe and efficient movement of all users;
   - provision for parked vehicles;
   - provision of landscaping;
   - location, construction and maintenance of public utilities.

3. The verge width is sufficient to provide for special site conditions and future requirements.

**Designing for safety**

4. The design facilitates safe use by pedestrians, particularly people with disabilities, the aged and children, by:
   - providing a carriageway width which allows vehicles to proceed safely at the operating speed intended for that level of street;
   - making allowances for restrictions caused by on street parking;
   - providing a horizontal and vertical alignment which is not conducive to excessive speeds;
   - promoting the safety of pedestrians at bus stops and other crossing points;
   - promoting the safety of cyclists in streets and at crossing points.

5. Speed reduction techniques are used to achieve desired speeds, as part of a design for the whole street environment, and include the following principles:
   - slow points including either horizontal or vertical deflection are designed to slow traffic to design speeds;
   - slow points and carriageway narrowing are designed to take into account the needs of cyclists, by ensuring speed compatibility, adequate space for concurrent passage or off street diversions;
   - landscape design, on street parking and streetscape design are used to complement speed restriction measures;
   - speed restriction techniques and devices are not used in isolation; and
   - the verge provides safe sight distances, taking into account expected vehicle speeds and pedestrian and cyclist movements.

Traffic speeds and volumes are restrained through one or more of the following measures:

**(i) Limiting street length**
Where street 'leg' length is limited to control vehicle speed, the lengths between slow points are designed to restrict operating speeds as specified in Table 5-3.

**(ii) Introducing bends**
Where bends are introduced to control speeds to 20 km/h or less, the deflection angle in the change of the alignment of a street or pavement is at least the angle determined from Table 5-6.

**(iii) Introducing slow points**
Where slow points are used to allow speeds greater than 20 km/h, the length of street between two bends or slow points complies with the distances specified in Table 5-7.
6. Safe sight distances, based on vehicle travel speeds, exist at property access points, pedestrian and cyclist crossings and at junctions and intersections.

**Driveway Access**

7. The carriageway and verge width allows for unobstructed access to individual lots, even when a car is parked on the opposite side of the street.

Driveway egress movements do not create a safety hazard.

Street and lot design ensures suitable vehicle access to all lots.

**Geometric Design**

8. Bus routes have a carriageway width that:
   - allows for the movement of buses unimpeded by parked cars;
   - safely accommodates cyclists;
   - avoids cars overtaking parked buses.

9. The horizontal and vertical alignments satisfy safety criteria and reflect physical land characteristics and major drainage functions.

10. Geometric design for intersections, roundabouts and slow points is consistent with the vehicle speed intended for each street.

11. Kerb radii at intersections and junctions are kept to a minimum, subject to:
   - satisfying required turning manoeuvres;
   - keeping pedestrian crossing distances to a minimum;
   - controlling the speed of vehicles.

Speed reduction devices are part of a design for the total street environment.

Where speed restriction devices are used in isolation, they include:
   - full horizontal displacement of the vehicle path;
   - swept vehicle paths to have a 20 m radius;
   - constriction on exit rather than on entry (otherwise there is a risk that the device may be used as a short cut);
   - additional pavement treatment behind the kerb for large vehicle;
   - line marking and signposting

**Driveway Access**

Motorists can enter or reverse from a lot in a single movement.

Lot design enables driveways on Sub-arterial Streets and streets which carry more than 5,000 vpd to be designed to promote forward movement of vehicles across the verge. Refer Figure 5-11.

Driveway gradients are a preferred maximum grade of 20% with an absolute maximum grade of 29%. Maximum change of grade is 12.5%.

**Geometric Design**

The geometry of streets identified as bus routes provides suitable turning, stopping sight distance, grade and parking for buses (as determined from appropriate design documents), and has maximum carriageway widths within the ranges specified in Table 5-4.

Longitudinal gradients do not exceed the gradients specified in Table 5-5.

Curve super elevation does not exceed 6%.

For downgrades of 5-10% street design should be based on an increase of the maximum speed of 5 km/h. For downgrades >10%, this maximum speed should be increased by 10 km/h.

Desirable crossfall on street pavement is to be 3%.

Design complies with AUSTROADS Guidelines.

Sufficient area is provided at the head of hammer head cul-de-sac for waste disposal vehicles to make a 3 point turn.

Kerb radii are a minimum 8 m.
12. Siting conditions on land abutting major and minor distributor roads ensure that all vehicles can enter or leave the street in a forward direction.

Street and parking design enables adequate servicing of waste collection vehicles to all lots.

**On street parking**

13. Carparking is provided in accordance with projected needs which are determined by:

- the number and size of probable future dwellings;
- the carparking requirements of likely future residents;
- availability of public transport;
- likely future on-site parking provisions;
- locations of non residential uses such as schools and shops;
- the occasional need for overflow parking.

14. Carparking is designed and located to:

- conveniently and safely serve users, including pedestrians, cyclists and vehicles;
- enable efficient use of car spaces and accessways including adequate manoeuvrability between the street and lots;
- fit in with any adopted street network and hierarchy objectives, and any related traffic management plans;
- be cost effective;
- achieve relevant streetscape objectives.

Turning vehicles are accommodated using turning templates, to enable the following turns to be made in a single forward movement:

- between collector and access streets, the design heavy rigid vehicle (turning path radius 15 m.) using any part of the pavement.
- between access streets, the 99 % design car (turning path radius 7.5m), using the correct side of the pavement only.

**On street parking**

One on street parking space is to be provided for each dwelling. These are to be located against the kerb or in parking bays constructed within the verge, located within 20m of each allotment.

Provision of on-street car parking may be reduced where allotments are within easy walking distance of shopping, employment, educational, public transport or other facilities which may reduce the demand for private motor vehicles.
Minimum Standards and techniques

Figure 5-8: Carriageway widths
Table 5-5: Urban Residential Street Characteristics (refer Fig. 5-2, Tables 5-1, 5-2, 5-3 & 5-4)

<table>
<thead>
<tr>
<th>Element</th>
<th>Battle-axe lots</th>
<th>Access Place</th>
<th>Local Street</th>
<th>Collector Street</th>
<th>Sub-arterial Street</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road Reserve Width</strong></td>
<td><strong>Minimum of the greater of 3m per lot or sum carriageway width &amp; verge width</strong></td>
<td>&lt;14</td>
<td>16</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td><strong>metres</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carriageway Width</strong></td>
<td>3m - 1 lot</td>
<td>6</td>
<td>9</td>
<td>11 (incl. bus route)</td>
<td>13</td>
</tr>
<tr>
<td><strong>Metres</strong></td>
<td>4m - 2 lots</td>
<td>5 with designed traffic calmin &amp; parking</td>
<td>6.5 with designed traffic calmin &amp; parking</td>
<td>7.5, (9 bus route) with designed traffic mgmt &amp; parking</td>
<td>11 with designed traffic mgmt &amp; parking</td>
</tr>
<tr>
<td><strong>(pavement cement stabilised)</strong></td>
<td>6m - 3 lots or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Preferred max. longitudinal gradient (%)</strong></td>
<td>20%</td>
<td>16 %</td>
<td>16 %</td>
<td>12 %</td>
<td>8 %</td>
</tr>
<tr>
<td><strong>No. travel lanes</strong></td>
<td>1</td>
<td>2+</td>
<td>2+</td>
<td>2+</td>
<td>2+</td>
</tr>
<tr>
<td><strong>Parking in reserve</strong></td>
<td>None</td>
<td>Kerb/verge + indent parking @ 1 / 1 lot if pavement&lt; 6m.</td>
<td>Kerb/verge + indent parking @ 1 / 1 lot if pavement 6.5m.</td>
<td>Carriageway</td>
<td>Carriageway</td>
</tr>
<tr>
<td><strong>Kerb type</strong></td>
<td>Layback</td>
<td>Layback</td>
<td>Layback</td>
<td>Upright</td>
<td>Upright</td>
</tr>
<tr>
<td><strong>Footpath Formed in concrete</strong></td>
<td>Nil, road</td>
<td>Nil, road</td>
<td>1 x 1.5 m. in verge if links to collector street</td>
<td>1 x 2 m. in verge</td>
<td>1 x 2 m. in verge</td>
</tr>
<tr>
<td><strong>Cycleway</strong></td>
<td>Road</td>
<td>Road</td>
<td>Road</td>
<td>Combined footpath</td>
<td>Combined footpath</td>
</tr>
<tr>
<td><strong>Verge width</strong></td>
<td>2 x 1m minimum</td>
<td>2 x 4</td>
<td>2 x 3.5</td>
<td>2 x 3.5</td>
<td>2 x 3.5</td>
</tr>
<tr>
<td><strong>Metres</strong></td>
<td></td>
<td>2 x 4.5 with traffic calming</td>
<td>2 x 4.5 with traffic calming</td>
<td>2 x 4.5 with traffic calming</td>
<td>2 x 4.5 with traffic calming</td>
</tr>
<tr>
<td><strong>No. of lots to be serviced</strong></td>
<td>&lt; 5 sole access &lt;10 with alternate access</td>
<td>&lt; 11</td>
<td>&lt; 200</td>
<td>&lt; 300</td>
<td>&gt; 300</td>
</tr>
</tbody>
</table>
Table 5-6: Street leg length and travel speed.

<table>
<thead>
<tr>
<th>Street type</th>
<th>target travel speed (km/hr)</th>
<th>Max. leg length between slow points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Place</td>
<td>30</td>
<td>75 - 100</td>
</tr>
<tr>
<td>Local Street</td>
<td>40</td>
<td>120 - 140</td>
</tr>
<tr>
<td>Collector Street</td>
<td>50</td>
<td>120 - 150</td>
</tr>
</tbody>
</table>

Visibility uninterrupted by fixed objects to be provided over entire shaded area. Hilly terrain may require junctions to be moved onto or well away from crests to satisfy sight distance requirements.

Stopping distance Y is directly related to speed. Increased speed requires increased verge width to improve visibility of people or cars coming out of driveways or at intersections.

Figure 5-9: Street design and visibility

Figure 5-10: Measures to control vehicle speed
Table 5-7: Minimum deflection angles for traffic control devices (20 km/hr).

<table>
<thead>
<tr>
<th>Bend type</th>
<th>Street pavement width</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.0 - 6.0 metres</td>
<td>7.0 - 7.5 metres</td>
</tr>
<tr>
<td>Single bend</td>
<td>70°</td>
<td>90°</td>
</tr>
<tr>
<td>Chicane (two reverse single bends)</td>
<td>45° - 45°</td>
<td>60° - 60°</td>
</tr>
</tbody>
</table>

Figure 5-11: Examples of verge and on-street parking treatment
Figure 5-12: Options to control access on Trunk collector streets

- **Lots with car access from side street**: Wide lots allow for large driveways so vehicles can enter and exit forwards.

- **Shared driveways**: Reduce the number of entry points and allow vehicles to enter and exit forwards.

- **Adding a rear lane**: Provides vehicle access for houses fronting a major street.

- **Driveway and kerb crossover design**: For narrow streets, where pavement is 5.5 m or less in width.
### Street Construction

#### OBJECTIVE

To construct streets that support the design intentions without unnecessary construction and whole of life cycle costs.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The pavement edging and landscaping support the specified functions and amenity of the street.</td>
<td>Pavement and landscape materials are used, where appropriate, to distinguish different street functions.</td>
</tr>
<tr>
<td>2. The pavement edge:</td>
<td>Pavement edges at pedestrian crossings are constructed for wheelchair and pram access and to assist sight-impaired people in accordance with AS1428 Pt 1 and Pt 4.</td>
</tr>
<tr>
<td>• controls vehicle movements by delineating the carriageway for all users;</td>
<td>Flexible pavement construction and kerb and gutter profiles are based on the requirements contained in Council's &quot;General Specification for the Construction of Road and Drainage Works&quot;.</td>
</tr>
<tr>
<td>• assists in controlling stormwater runoff; and</td>
<td></td>
</tr>
<tr>
<td>• provides for people with disabilities, by allowing safe passage of wheelchairs and other mobility aids.</td>
<td></td>
</tr>
<tr>
<td>3. Street pavement surfaces are well designed and durable enough to carry wheel loads of travelling and parked vehicles; ensure the safe passage of vehicles, pedestrians and cyclists; the discharge of rainfall, and the preservation of all-weather access; and allow for reasonable travel comfort.</td>
<td></td>
</tr>
<tr>
<td>4. Consistent with Performance Criteria 3, public street construction and whole of life cycle costs are kept low.</td>
<td></td>
</tr>
</tbody>
</table>

![Figure 5-13: Pavement treatment](source: AMCORD)
### Element: Utility Services

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Design and provision of utility services, including sewerage, water, electricity, street lighting, and communication services, are cost effective over their life cycle and incorporate provisions to minimise adverse environmental impact in the short and long term.</td>
<td>The design and provision of utility services conforms to Council's;</td>
</tr>
<tr>
<td>2. Compatible public utility services are located in common trenching in order to minimise the land required and the costs for underground services.</td>
<td>- &quot;General Specification for the Construction of Road and Drainage Works&quot;;</td>
</tr>
<tr>
<td>3. Cables for cable television should be underground where electricity service is underground.</td>
<td>- &quot;Specification for the Construction of Sewers&quot;, and</td>
</tr>
<tr>
<td>4. Development occurs within locations where there is an adequate water supply for domestic and fire fighting purposes.</td>
<td>- &quot;Specification for the Construction of Water Reticulation&quot;.</td>
</tr>
<tr>
<td>5. Development is staged to ensure that each stage is fully serviced before a new area is released.</td>
<td>Lot layout to be designed to ensure that each lot can gravitate into the sewer. This might require a building envelope and a minimum floor level.</td>
</tr>
<tr>
<td>6. Public lighting shall be designed to maximise energy efficiency.</td>
<td>The requirements of other relevant supply authorities.</td>
</tr>
<tr>
<td>7. Water supply and sewerage networks are accessible, easy to maintain, and cost effective based on life cycle costs.</td>
<td>- Public lighting to be designed in accordance with:</td>
</tr>
<tr>
<td>7. Sewerage networks to be designed to ensure that each lot can be connected to sewer by gravity connection.</td>
<td>- Australian Standard AS/NZS 1158 “Lighting for Roads and Public Spaces”;</td>
</tr>
<tr>
<td>8. The selection of materials used for water supply and sewerage works is determined by suitability, durability, ease of maintenance and whole of life cost effectiveness, achieving beneficial environmental impacts/energy savings etc. from new materials and technologies.</td>
<td>- The NSW Public Lighting Code; and</td>
</tr>
<tr>
<td>9. Adequate buffers are maintained between utilities and houses to protect residential amenity and health.</td>
<td>- Any relevant street lighting service agreements between council and the service provider.</td>
</tr>
<tr>
<td></td>
<td>- The efficiency of public lighting lamps should be no less than 60 lumens/watt (Note that mercury vapour lamps do not meet this criterion).</td>
</tr>
<tr>
<td></td>
<td>- Public lighting lamps should be shielded such that no light is emitted above the horizontal thus minimising wasted light.</td>
</tr>
</tbody>
</table>
5.1.6 Stormwater Management

Element:- Stormwater Drainage

**OBJECTIVE**

To provide major and minor drainage systems which:
- Adequately protect people and the natural and built environments to an acceptable level of risk and in a cost effective manner, in terms of initial cost and maintenance, and
- Contribute positively to environmental enhancement of catchment areas.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

**Major system**
1. The major stormwater drainage system has the capacity to safely convey stormwater flows resulting from the relevant design storm under normal operating conditions, taking partial minor system blockage into account.

2. The major system has the capacity to convey safely, but possibly with flooding, stormwater flows resulting from events more extreme than the design storm without significant property damage.

3. Ground floor levels of all buildings are located above the design flood level to provide protection to property in accordance with the accepted level of risk.

4. Floodways are developed for storms greater than pipe capacity and which ensure that there is a low risk of property damage.

5. Community benefit is maximised through the retention of natural streams and vegetation wherever practicable and safe, the incorporation of sports grounds and other less flood sensitive land uses into the drainage corridor and the placement of detention basins where necessary to control stormwater.

6. The major system is designed to ensure that there are no flow paths which would increase risk to public safety and property.
### Minor System

7. The minor storm drainage system has the capacity to control stormwater flows under normal operating conditions for the relevant design storm with minimal risk of blockage.

8. Drainage networks are well defined to ensure there are no hidden flow paths which could reduce their capacity to convey design flows.

9. The design of the minor system takes full account of existing downstream systems.

10. The minor system design allows for the safe passage of vehicles at reduced speed on streets which have been affected by runoff from the relevant design storm.

11. The minor system is accessible and easily maintained.

12. Where a portion of the minor system lies within a site, access is available for maintenance.

13. The selection of materials used for the construction of the minor system is based on their suitability, durability, maintainability and cost-effectiveness.

### Site drainage

14. Subdivision design and layout provides for adequate site drainage.

### Drainage Outlets

15. All stormwater systems shall be designed to discharge appropriate water volume, velocity and quality to an acceptable legal point of discharge.

### Minor System

The design and construction of the minor storm drainage system are in accordance with the requirements of *Australian Rainfall and Runoff* (1987) and Council's "General Specification for the Construction of Road and Drainage Works".

The minor system design outflow is matched to the capacity of any existing downstream system.

The minor system allows for the safe passage of vehicles at reduced speeds on streets which have been affected by runoff from a 20% AEP storm event.

### Site drainage

Where site topography prevents the discharge of stormwater directly to the street gutter or a Council controlled piped system, inter-allotment drainage is provided to accept runoff from all existing or future impervious areas that are likely to be directly connected.

The design and construction of the inter allotment drainage system are in accordance with the requirements of *Australian Rainfall and Runoff* (1987) and Council's "General Specification for the Construction of Road and Drainage Works".

Inter-allotment drainage should preferably not service more than 10 lots.
Figure 5-15: Stormwater drainage
Figure 5-16: Gross pollutant traps
**Element:- Water Quality Management**

**OBJECTIVE**

To provide water quality management systems which:

- ensure that disturbance to natural stream systems is minimised, and
- stormwater discharge to surface and underground receiving waters, both during construction and in developed catchments, does not degrade the quality receiving waters.

**PERFORMANCE CRITERIA**

The objective may be achieved where:

1. Adequate provision is made for measures during construction to ensure that the land form is stabilised and erosion is controlled.
2. The system design optimises the interception, retention and removal of water-borne pollutants through the use of appropriate measures prior to discharge to receiving waters.
3. The system design minimises the environmental impact of urban runoff on surface receiving water quality and on other aspects of the natural environment e.g. vegetation by employing techniques which are appropriate and effective in reducing runoff and pollution travel.
4. Point sources of pollution in the catchment should be identified and their impact minimised until their impact can be eliminated.

**SUGGESTED SOLUTIONS**

The following suggested solutions are ONE WAY of meeting the objective and performance criteria:

An Erosion and Sediment Management Plan is prepared by properly qualified personnel using recognised and locally accepted design methodologies.

The Erosion and Sediment Management Plan is to comply with the Department of Land and Water Conservation's *Urban Erosion and Sediment Control Manual*, and Council's "General Specification for the Construction of Road and Drainage Works" and "Soil Erosion and Sediment Control Guidelines".

Water pollution control ponds or wetlands are developed (where appropriate) for final treatment before discharge to the wider environment and should be sited to minimise impacts on the natural environment.

---

**5.1.7 Streetscape and Lot Layout**

**Element:- Streetscape and landscaping**

**OBJECTIVE**

To provide attractive streetscapes that:

- Reinforce the functions of a street,
- Enhance the amenity of buildings and environs, and
- Are sensitive to the built form, landscape and environmental conditions of the locality.

**PERFORMANCE CRITERIA**

The objective may be achieved where:

1. The street and landscape design achieves:
   - the creation of attractive residential environments with clear character and identity;
   - respect for existing attractive streetscapes in established areas;

**SUGGESTED SOLUTIONS**

The following suggested solutions are ONE WAY of meeting the objective and performance criteria:

A Landscape Plan is submitted that demonstrates how the Performance Criteria are met, showing:
• appropriate streetscapes in areas where desired future urban character has been defined;
• provision for appropriate street tree planting taking into account the natural landscape, the image and role of the street, solar access requirements, soils, selection of appropriate species, and services;
• use of such features as views, vistas, existing vegetation and landmarks.

2. The design of the landscape in public streets:
• defines a theme for new streets, or complements existing streetscapes and integrates with new developments;
• is sensitive to site attributes;
• complements the functions of the street;
• reinforces desired traffic speed and behaviour;
• is of an appropriate scale relative to both the street reserve width existing or expected future building bulk;
• promotes safety and casual street surveillance;

• improves privacy and minimises unwanted overlooking;
• incorporates existing vegetation where possible and desirable;
• promotes the planting of native vegetation in environmentally sensitive areas;
• appropriately accounts for streetscapes and landscapes of heritage significance;
• assists in microclimate management;
• maximises landscaped areas where appropriate;
• integrates and forms linkages with parks, reserves and transport corridors;
• enhances opportunities for pedestrian comfort;
• achieves lines of sight for pedestrians, cyclists and vehicles;
• provides adequate lighting for pedestrian and vehicle safety;
• provides attractive and co-ordinated street furniture and facilities to meet user needs;
• satisfies maintenance and utility requirements and minimises their visual impact of above ground utilities;
• buffers residential areas from non-residential uses e.g. industry, busy roads.

• the street reserve and intended locations of the carriageway, parking bays, footpaths, cycleway systems, speed control devices and, where practicable, driveways, bus stops, street lighting and substations;
• location of existing vegetation to be removed or conserved;
• location, species and general character of tree planting and hard and soft landscape treatment;
• the intended location of buildings.

Landscape is in accordance with Council's "Landscape Guidelines", OR

any approved landscape strategy for the area.

Compliance with this requirement is achieved by submission of a plan meeting the performance criteria and showing:

• boundaries and areas of communal open space including sites for specific recreational uses;
• existing vegetation and proposed general character of landscape treatment;
• general arrangement of hard landscaping elements and major earth cuts, fills and mounding;
• indicative treatment of floodways and drainage lines, along with general information on fencing, access points, furniture, pavement style, and treatment of the verge including any associated parking or drainage requirements;
• landscape plantings in buffers is to be dense to minimise future maintenance.
**Element:- Lot Layout**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide a range and mix of lot sizes to suit a variety of dwellings and household types, with areas and dimensions to meet user requirements.</td>
</tr>
<tr>
<td>To provide lots that are oriented where practicable to enable the application of energy conservation principles.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

**Size**

1. Lots have the appropriate area and dimensions for the siting and construction of a dwelling and ancillary outbuildings, the provision of private outdoor space, convenient vehicle access and parking.

2. Lot size and dimensions take into account the slope of the land and the desirability of minimising earthworks/retaining walls associated with dwelling construction.

3. Lot sizes and dimensions enable dwellings to be sited to:
   - protect natural or cultural features;
   - acknowledge site constraints; including soil erosion and bushfire risk;
   - retain special features such as trees and views.

4. Lot sizes meet the projected requirements of people with different housing needs, and provide housing diversity and choice.

   **Size**
   - Lots are capable of containing a building envelope of 25 x 15 metres. The building envelope is to be shown on development plans.
   - Lots with an area of less than 400m² will be assessed as integrated housing development.
   - Lots with an area less than 300m² are square or rectangular in shape.
   - Lots with an area less than 350m² are located on land with a slope of less than 10%.
   - Smaller lots to be located on flatter areas and on hilltops.
   - Lots on slopes should be larger to reduce the need for building earthworks, compensate for loss of useful open space, potential difficulties with house construction and provision of access. Generally at least 1,000m² where slopes are over 15%.
   - Residential lots on slopes over 20% are not favoured.
   - For lots on land greater than 25% slope provide house plans with the subdivision application, demonstrating that house construction is possible, as is the provision of usable open space, bushfire asset protection zone, driveway access and stormwater management.

   **OR**
   - The developer is to construct houses on the lots and the occupation certificates for the houses are to be issued prior to issue of the subdivision certificate.
User requirements
5. Lot frontages are orientated to streets and open spaces so that personal and property security, deterrence of crime and vandalism, and surveillance of footpaths and open spaces are facilitated.

6. Lot design precludes the need to reverse onto a major or minor distributor road

Orientation and energy
7. Lots are orientated to facilitate the siting of dwellings to take advantage of microclimatic benefits, and have dimensions to allow adequate on-site solar access, taking into account likely dwelling size and the relationship of each lot to the street.

Orientation and energy
Lot design allows for houses to be built with north facing windows which receive maximum winter sun.

Lot design ensures that each lot:
- will not be overshadowed by neighbouring houses to the north.
- can have a sufficiently long north facade to receive winter sun.

Streets are aligned in a north-south or east west direction, where practical.

Minimum Standards and techniques
1. Access to steep lots should have a preferred maximum gradient of 20% and an absolute maximum gradient of 29%, with a maximum change in grade of less than 12.5%.

2. Cut and fill is to be limited to 1.2 metres below or above natural ground level.

3. Direct vehicular access onto arterial roads will be generally denied.

Figure 5-17: Lot orientation and solar access
### 5.1.8 Environmental Protection

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that the development of residential land recognises and protects areas and items of environmental significance.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Natural environment</strong>&lt;br&gt;1. The design identifies and maintains the value of rare, endangered or uncommon flora, fauna and ecosystems.</td>
<td>Land suitable for urban bushland is dedicated to Council.</td>
</tr>
<tr>
<td><strong>Natural landscape</strong>&lt;br&gt;2. The design maintains and improves significant visual landscape elements such as ridgelines, water systems and prominent natural features.</td>
<td></td>
</tr>
<tr>
<td><strong>Cultural heritage</strong>&lt;br&gt;3. The design conserves and enhances buildings, archaeological and other sites of recognised heritage significance.</td>
<td></td>
</tr>
</tbody>
</table>

**Minimum standards and techniques**

1. The design complies with the requirements of State Government and Lismore City Council for the protection of native vegetation.

2. The design complies with the requirements of State Government and Lismore City Council for the protection of environmental and cultural heritage.
5.1.9  **Buffers to Avoid Landuse Conflict**

**OBJECTIVE**
To minimise land use conflicts between residential land and other potentially incompatible land uses through the establishment of appropriate buffers.

**PERFORMANCE CRITERIA**
- The objective may be achieved where:
  1. Buffer areas are provided between residential and other land uses in order to avoid the potential for land use conflict and the creation of public health risks.
  2. Landscape plans are to include the proposed treatment of buffer areas.

**SUGGESTED SOLUTIONS**
- The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:
  - Subdivision of residential land is to be in accordance with Chapter 11 - Buffer Areas.
  - A minimum 50 m. industrial buffer area is to be created between industrial and residential land uses.
  - Buffer areas are to be landscaped in accordance with an approved landscape plan and prior to release of land titles plans.

5.1.10  **Subdivision of Buildings**

**OBJECTIVES**
- To allow separate titles to be created for parts of a development.
- To provide for the effective and efficient management of common or shared facilities.

**PERFORMANCE CRITERIA**
- The objective may be achieved where:
  1. The range and extent of body corporate activities are limited to those legally permitted.
  2. The street and lot layout clearly defines the public, communal and private areas of a development, including the function, ownership and management of open spaces and communal areas.

**SUGGESTED SOLUTIONS**
- The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:
  - Such measures may include:
    - creating separate sites for each dwelling with their own public street frontage;
    - limiting communal land to driveways only;
    - designing dwellings to minimise the need for corporate building management; and
    - ensuring that cost effective management is practicable where communal open space or shared facilities are provided.
Minimum Standards and Techniques

1. The building/s were erected in accordance with a Development Consent issued after 27/2/92 by Lismore City Council under the Lismore Local Environmental Plan, 1992, otherwise development approval is required.

2. The building/s have been completed in accordance with relevant legislation.

3. Separate utility service meters / junctions are provided to each dwelling and if necessary any common area.

4. All private open space areas are to be allocated to a dwelling unit.
5.2 Commercial Subdivision

5.2.1 Minimum Allotment Sizes
This section applies to land in the commercial zones described below. The Plan does not specify minimum lot sizes for subdivision of land in the commercial zones.

Zones: 3(a) - Business Zone; 3(b) - Neighbourhood Business Zone; and 3(f) - Services Business (Flood Liable) Zone.

A minimum frontage of 5 m. and depth of 20 m. is preferred (except for strata subdivision).

This reflects the manner in which the majority of lands in commercial zones are currently developed. Commercial subdivisions will most likely be of a minor nature such as boundary adjustments and strata subdivision of existing buildings or consolidation of existing lots.

5.2.2 Design Elements
The subdivision layout and street design and capacity criteria for commercial areas are mutually interdependent. This plan encourages a design concept for commercial areas reflecting the constraints of particular sites, providing for the land use mix and integration with surrounding commercial areas.

Element: - Area Design

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide secure, convenient and efficient commercial subdivisions that meet the needs of commerce and shoppers and residents.</td>
<td>The objective may be achieved when the phases in the Design Process (refer to section 6) are followed and where:</td>
<td>There are no recommended suggested solutions for this element, as each situation requires an individual approach.</td>
</tr>
<tr>
<td>1. The subdivision responds to site characteristics.</td>
<td>2. The street network provides a high level of internal accessibility and good external connections for vehicles, pedestrians and cyclists.</td>
<td></td>
</tr>
<tr>
<td>3. The street and lot layout minimises infrastructure costs and enables efficient provision of physical services.</td>
<td>4. The street and lot orientation and lot dimensions facilitate the siting and design of energy efficient buildings.</td>
<td></td>
</tr>
</tbody>
</table>

Element: - Area Design
5. The lot design and layout provides a variety of lot sizes to enable commercial and other complementary uses permitted in the zones.

6. The layout retains significant vegetation and habitat areas, incorporates natural features and minimises soil erosion.

7. The layout is integrated with the surrounding urban environment, providing landscaped buffers and street landscaping.

8. The layout provides for personal and property safety and minimises the potential for crime through surveillance by pedestrians and drivers of passing vehicles.

9. A pedestrian and cycleway network is provided that is safe, attractive and efficient running in public space.

10. The layout and ground level height of lots provides an acceptable level of protection from flooding.

Element: Major Movement Networks
The capacity of existing and design of new movement (street) networks in commercial subdivisions should provide for the likely amount and type of traffic generated by future uses.

The network should provide for factors such as:

- type of commercial activities e.g. retail shops, bulk stores, restaurants, cafes, offices etc.;
- size of individual activities;
- amount of commercial related light industrial and complementary activities and
- proximity to public transport

that effect traffic generation.

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide for the economical and efficient construction and maintenance of movement and access systems, with acceptable levels of amenity, safety and convenience, for all street users.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td></td>
</tr>
<tr>
<td>1. The street network meets the local needs of all street users and for the likely traffic in a co-ordinated manner.</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td></td>
<td>The proposal conforms to the Lismore Traffic Study and models developed by Rust PPK, or a Development Control Plan approved by Council which provides for all street users.</td>
</tr>
</tbody>
</table>
2. The existing and proposed arterial road network has the capacity to accommodate the projected traffic movements.

3. The proposed street network efficiently connects with external traffic routes.

OR

A Traffic Study with the proposal provides for an integrated approach to movement systems in a manner specified in this Plan

Provision is to be made for arterial road corridors as specified in Chapter 1 of Part B of this plan.

The development conforms to any adopted Development Control Plan for the area and/or Traffic Study with the proposal showing a road network meeting required service levels.

The street network provides for bus routes and pedestrians and cyclists in accordance with the requirements of this plan.

Road connections within and between the proposed development and the existing road network shall meet the requirements of Councils "General Specification for the Construction of Road and Drainage Works".

Minimum Standards and Techniques

1. Road classification for commercial streets should reflect the Lismore Traffic Study and models by PPK and Tables 5-8, 5-10 and 5-11.

Table 5-8: Classification of Commercial Streets

<table>
<thead>
<tr>
<th>Street level/type and function</th>
<th>Design speed (km/hr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Lane</td>
<td>10</td>
</tr>
<tr>
<td>Local Street</td>
<td>40</td>
</tr>
<tr>
<td>Collector Street</td>
<td>60</td>
</tr>
<tr>
<td>Sub-arterial Road</td>
<td>60</td>
</tr>
</tbody>
</table>
### Element: Local Street Networks

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure existing and new street networks provide for commercial and ancillary usage whilst providing acceptable levels of access, safety and convenience.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Function and structure</strong>&lt;br&gt;1. The proposed street network has a clear structure not exceeding the function of the existing network.&lt;br&gt;2. The network has clear physical distinctions between streets based on function, legibility, convenience, anticipated traffic volume, vehicle speed, safety and amenity.</td>
<td><strong>Function and structure</strong>&lt;br&gt;Proposed streets link with other streets that have capacity to accommodate increased traffic.&lt;br&gt;The street network reflects the characteristics specified in <em>Tables 5-8 and 5-10.</em></td>
</tr>
<tr>
<td><strong>Safety, access and convenience</strong>&lt;br&gt;3. Intersections along commercial streets are spaced to create safe and convenient vehicle movements.</td>
<td><strong>Safety, access and convenience</strong>&lt;br&gt;The location of intersections are to meet Councils &quot;General Specification for the Construction of Road and Drainage Works&quot; and AUSTROADS Guidelines.&lt;br&gt;Streets should intersect only with streets of the same or next classification (Refer to <em>Table 5-8</em>).</td>
</tr>
<tr>
<td><strong>Mode choice</strong>&lt;br&gt;4. There is provision for bus routes.</td>
<td><strong>Mode choice</strong>&lt;br&gt;Public transport routes and stops are provided as set out in Element – Public Transport.</td>
</tr>
<tr>
<td><strong>Design and Character</strong>&lt;br&gt;5. The street network takes account of the topography, vegetation and watercourses.&lt;br&gt;6. The proposed street network takes account of the existing street network and streetscape.&lt;br&gt;7. The street network is orientated, where practical, to promote building energy efficiency.</td>
<td><strong>Design and Character</strong>&lt;br&gt;The street network permits establishment of streetscapes that incorporate the provisions of Element Streetscape and Landscape.</td>
</tr>
<tr>
<td><strong>Environmental Protection</strong>&lt;br&gt;8. Future traffic will be within the acceptable capacity of the existing and proposed streets.</td>
<td><strong>Cost effectiveness</strong>&lt;br&gt;The network caters for the provision of public utility networks including water, gas, sewerage, electricity and telecommunications.</td>
</tr>
<tr>
<td><strong>Cost effectiveness</strong>&lt;br&gt;9. Streets and carriageway widths and street lengths to optimise the cost effectiveness of the street network without comprising street function.&lt;br&gt;10. The network provides for the cost effective provision of public utilities.</td>
<td></td>
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</tbody>
</table>
**Element:- Pedestrian and Cyclist Facilities**

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVE</strong></td>
<td>To encourage walking and cycling between residential, commercial and industrial areas.</td>
</tr>
<tr>
<td><strong>PERFORMANCE CRITERIA</strong></td>
<td><strong>SUGGESTED SOLUTIONS</strong></td>
</tr>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Planning</strong> 1.</td>
<td><strong>Planning</strong> Cycleway facilities are to provided in accordance with the Lismore Cycleway Plan</td>
</tr>
<tr>
<td>The commercial street and path network provides a network of safe pedestrian and cyclist routes with connections to adjoining pedestrian and cyclist routes.</td>
<td>OR</td>
</tr>
<tr>
<td><strong>Location and Design</strong> 2.</td>
<td><strong>Location and Design</strong> Footpaths and cycleways are to be provided in collector streets and in accordance with the Lismore Cycleway Plan.</td>
</tr>
<tr>
<td>The location of footpaths and cycleways in the street is determined by:</td>
<td></td>
</tr>
<tr>
<td>• low vehicle speed;</td>
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</tr>
<tr>
<td>• cyclist and pedestrian safety and comfort;</td>
<td></td>
</tr>
<tr>
<td>• on-street parking;</td>
<td></td>
</tr>
<tr>
<td>• location of infrastructure services;</td>
<td></td>
</tr>
<tr>
<td>• landscaping;</td>
<td></td>
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<tr>
<td>• safety;</td>
<td></td>
</tr>
<tr>
<td>• cost efficiency.</td>
<td></td>
</tr>
<tr>
<td>3. The design of footpaths and cycleways is to:</td>
<td><strong>Safe Crossings</strong> Street crossings are to be provided in accordance with the Lismore Cycleway Plan.</td>
</tr>
<tr>
<td>• permit casual surveillance;</td>
<td></td>
</tr>
<tr>
<td>• be aligned to permit safe and convenient use;</td>
<td></td>
</tr>
<tr>
<td>• permit shared use.</td>
<td></td>
</tr>
<tr>
<td><strong>Safe Crossings</strong> 4.</td>
<td><strong>Construction</strong> Footpaths are to be constructed in accordance with Councils “General Specification for the Construction of Road and Drainage Works”.</td>
</tr>
<tr>
<td>Safe street crossings are to be provided for all street users with safe sight distances, pavement markings, warning signs and safety rails (where appropriate).</td>
<td>Cycleways are to be constructed of an asphalt sealed or equivalent standard pavement.</td>
</tr>
<tr>
<td><strong>Construction</strong> 5.</td>
<td></td>
</tr>
<tr>
<td>Pedestrian and cyclist paths are constructed to provide a stable surface for projected users which is easily maintained</td>
<td></td>
</tr>
</tbody>
</table>

**Minimum standards or techniques**

Refer to Figure 5-4: Provision for Cyclists and Pedestrians
Element: Public Transport

**Objective**
To increase the opportunity for choice in mode of transport to places of employment and shopping and provide convenient and accessible cost effective and energy efficient public transport services.

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Suggested Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are one way of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Planning</strong> 1. The commercial trunk/collector street is to provide for public transport.</td>
<td><strong>Planning</strong> Where a Development Control Plan or other planning instrument exists, routes that conform with that plan</td>
</tr>
<tr>
<td><strong>Route location and design</strong> 2. Convenient connections to adjoining areas and other public transport routes provide for ease of movement of buses.</td>
<td><strong>Route location and design</strong> Routes for bus services are to be designed in accordance with Table 7-2.</td>
</tr>
<tr>
<td>3. Buses are to be able to safely gain access to the area without complicated manoeuvres.</td>
<td></td>
</tr>
<tr>
<td>4. Street alignment and geometry of commercial access streets are to allow for the unimpeded movement of buses, without retracing the route.</td>
<td></td>
</tr>
<tr>
<td><strong>Bus stop location and design</strong> 5. Public transport stop to provide for pedestrian safety, security, comfort and convenience.</td>
<td><strong>Bus stop location and design</strong> The location of bus stops is to relate to the pedestrian network.</td>
</tr>
<tr>
<td>6. Bus stops are designed to prevent vehicles overtaking a stationary bus, or vehicle site distances adequate to ensure safe pedestrian crossings.</td>
<td></td>
</tr>
<tr>
<td>7. Bus stops are located and designed to provide shelter, seats and adequate lighting (where required) and timetable information.</td>
<td></td>
</tr>
</tbody>
</table>

**Minimum Standards and Techniques**

Table 5-9: Minimum requirements for Bus Routes

<table>
<thead>
<tr>
<th>STREET CARRIAGEWAY WIDTHS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>One-way: 6.5 metres</td>
<td></td>
</tr>
<tr>
<td>Two-way: 9.0 metres or 7.5 metres where bus bays are provided with traffic calming and management.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TURNING CIRCLES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum desirable pavement crossfall: 3%</td>
<td></td>
</tr>
<tr>
<td>Maximum desirable longitudinal gradient: 6%</td>
<td></td>
</tr>
<tr>
<td>Absolute maximum gradient: 6%</td>
<td></td>
</tr>
<tr>
<td>Radius 15 metres for single bus</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROUNDABOUTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute maximum gradient: 12%</td>
<td></td>
</tr>
</tbody>
</table>
5.2.3 Physical Infrastructure

Element: Road reserve and carriageways

**OBJECTIVES**

To provide an appropriate street reserve width to accommodate the required carriageway, and to provide for the primarily pedestrian function of the verges.

Carriageway width to be sufficient to enable the street to perform its required traffic and parking functions efficiently, safely and conveniently.

Carriageway construction standards to minimise both capital cost and future maintenance costs.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objectives and performance criteria:</td>
</tr>
<tr>
<td>1. Minimum street reserve width at any point to be not less than the sum of the minimum widths required for the carriageway and verges.</td>
<td>Road reserve and carriageways are provided in accordance with Table 7-4.</td>
</tr>
<tr>
<td>2. Carriageway width providing two lanes for moving traffic (one each way), and a parking lane each side wherever there is frontage to commercial lots.</td>
<td></td>
</tr>
<tr>
<td>3. Lane widths to be appropriate for the movement and parking of service vehicles, and for access to lots with minimum interference to moving traffic.</td>
<td></td>
</tr>
</tbody>
</table>

Minimum Standards and Techniques

![Local Street Diagram](image)

![Collector Street Diagram](image)

Figure 5-18: Commercial Street carriageway widths
### Table 5-10: Characteristics of Commercial Streets (refer Table 7-1).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Service Lane</th>
<th>Local Street</th>
<th>Collector Street</th>
<th>Sub-arterial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Reserve Width metres</td>
<td>18</td>
<td>20</td>
<td>20 Design for intersections &amp; roundabouts etc.</td>
<td>23 Design for intersections &amp; roundabouts etc.</td>
</tr>
<tr>
<td>Carriageway Width (pavement cement stabilised)</td>
<td>Travel 2 x 3.5 Parking 1 x 2.5</td>
<td>Travel 2 x 3.5 Parking 2 x 2.5</td>
<td>Travel 2 x 3.5 Parking 2 x 3</td>
<td>Travel 2 x 3.5 Parking 2 x 3</td>
</tr>
<tr>
<td></td>
<td>Total 9.5 metres</td>
<td>Total 12 metres</td>
<td>Total 13 metres</td>
<td>Total 13 metres</td>
</tr>
<tr>
<td>No. travel lanes</td>
<td>2</td>
<td>2+</td>
<td>2+</td>
<td>2+</td>
</tr>
<tr>
<td>Parking in reserve</td>
<td>Carriageway</td>
<td>Carriageway</td>
<td>Carriageway</td>
<td>Prefer none</td>
</tr>
<tr>
<td>Kerb type</td>
<td>Upright</td>
<td>Upright</td>
<td>Upright</td>
<td>Upright</td>
</tr>
<tr>
<td>Footpath</td>
<td>1 x 3</td>
<td>2 x 3</td>
<td>2 x 3.5</td>
<td>2 x 3.5</td>
</tr>
<tr>
<td>Cycleway</td>
<td>Road</td>
<td>Road</td>
<td>Provided</td>
<td>Provided</td>
</tr>
</tbody>
</table>

#### Element:- Verges

**OBJECTIVE**

To provide an area between the street carriageway and commercial lots sufficient to maintain the functions of safety, amenity and convenience.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Verge widths are to provide adequately for: • safety and visibility; • street amenity e.g. street landscaping, seating, public art and other civic facilities; • new building projects and associated spaces e.g. terraces, plazas, parks etc.; • utility services; • pathways.</td>
<td>Road reserve and carriageways are provided in accordance with Table 5-10.</td>
</tr>
<tr>
<td>2. Verge crossfalls are to be suitable for: • lot access; • pedestrian movement; • drainage.</td>
<td>Additional width may be required where a dual use path (pedestrian and cycleways) are proposed.</td>
</tr>
</tbody>
</table>

Maximum crossfalls in verge 4%.
Element:- Parking

OBJECTIVES

To provide sufficient and convenient parking for shoppers, employees, visitors and commercial vehicles.

To ensure that parked vehicles do not obstruct the passage of vehicles on the carriageway, or create traffic hazards.

PERFORMANCE CRITERIA

The objectives may be achieved where:

1. Provision of a parking lane on the carriageway of all commercial streets, where there is adjacent frontage of commercial lots.

SUGGESTED SOLUTIONS

The following suggested solutions are **ONE WAY** of meeting the objectives and performance criteria:

Parking is to be provided in accordance with Table 5-10.

Element:- Street Construction

OBJECTIVE

To construct streets that support the design and intended use without unnecessary construction and whole of life cycle costs.

PERFORMANCE CRITERIA

The objective may be achieved where:

1. The pavement edging and landscaping support the function of the street.

2. The pavement edge:
   • controls vehicle movements by delineating the carriageway;
   • assists in the control of stormwater.

3. Street pavement surfaces are;
   • well designed and durable enough to carry wheel loads of travelling and parked vehicles;
   • ensure the safe passage of vehicles, pedestrians and cyclists;
   • discharge of rainfall;
   • all-weather access;
   • reasonable travel comfort.

4. Public street construction and whole of life cycle costs are kept low.

SUGGESTED SOLUTIONS

The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

Pavement and landscape materials are used to distinguish different street functions.

Pavement edging in accordance with *Table 5-10*.

Flexible pavement and kerb construction is to be based on the requirements outlined in Councils *"General Specification for the Construction of Road and Drainage Works"*. 
### Element: Utility Services

**OBJECTIVE**

To ensure that commercial areas are adequately serviced with sewerage, water, gas, fire fighting, electricity, street lighting and communication services in a timely, cost effective, co-ordinated and efficient manner.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Design and provision of utility services are cost effective over their life cycle and incorporate provisions to minimise adverse environmental impact.</td>
<td>The design and provision of utility services conforms to:</td>
</tr>
<tr>
<td>2. Compatible public utility services are located in common trenching in order to minimise the land required and the costs for underground services.</td>
<td>Councils:</td>
</tr>
<tr>
<td>3. Public lighting shall be designed to maximise energy efficiency.</td>
<td>• &quot;General Specification for the Construction of Road and Drainage Works&quot;,</td>
</tr>
<tr>
<td>4. Development occurs within locations where there is an adequate water supply for fire fighting.</td>
<td>• &quot;Specification for the Construction of Sewers&quot;, and</td>
</tr>
<tr>
<td>5. Development is staged to ensure that each stage is fully serviced before a new area is released.</td>
<td>• &quot;Specification for the Construction of Water Reticulation&quot;.</td>
</tr>
<tr>
<td>6. Water supply and sewerage networks are accessible, easy to maintain, and cost effective based on life cycle costs.</td>
<td>and the requirements of other relevant supply authorities.</td>
</tr>
</tbody>
</table>

Lot layout to be designed to ensure that effluent from each lot can gravitate into the sewer. This might require a building envelope and minimum floor level.
### 5.2.4 Stormwater Management

**Element: Stormwater Drainage**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
</table>
| To provide major and minor drainage systems which:  
  • adequately protects people and the natural and built environments to an acceptable level of risk and in a cost effective manner in terms of initial cost and on-going maintenance, and  
  • contributes positively to environmental enhancement of catchment areas. | The following suggested solutions are ONE WAY of meeting the objective and performance criteria: |

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>MAJOR SYSTEM</td>
</tr>
</tbody>
</table>

**MAJOR SYSTEM**

1. The major stormwater system has the capacity to safely convey stormwater flows resulting from the relevant design storm events under normal operating conditions.

2. The major system has the capacity to convey safely, but possibly with flooding, stormwater flows resulting from events more extreme than the design storm without significant property damage.

3. Community benefit is maximised through the retention of natural streams and vegetation, wherever practical.

4. The major system is designed to ensure that there are no flow paths which would increase risk to public safety and property.

**MINOR SYSTEM**

5. The minor storm drainage system has the capacity to control stormwater flows under normal operating conditions for the relevant design storm with minimal risk of blockage.

The major system design is undertaken on a Total Catchment Management basis.

The major system design outflow is matched to the capacity of any existing downstream system and where necessary detention basins etc. are provided to retard stormwater flows onto downstream properties.

**MINOR SYSTEM**

The design and construction of minor stormwater drainage systems are in accordance with the requirements of:

- Australian Rainfall and Runoff (1987), and
- Councils, "General Specification for the Construction of Road and Drainage Works".

The following suggested solutions are ONE WAY of meeting the objective and performance criteria:
6. Drainage networks are well defined to ensure there are no hidden flow paths which could reduce their capacity to convey design flows.

7. The design of the minor system takes full account of existing downstream systems.

8. The minor system design allows for the safe passage of vehicles at reduced speed on streets which have been affected by runoff from the relevant design storm.

9. The minor system is accessible and easily maintained.

10. Where a portion of the minor system is within a site, access is available for maintenance.

11. The selection of materials used for the construction of the minor system is based on their suitability, durability, maintainability and cost-effectiveness.

**SITE DRAINAGE**

12. Subdivision design and layout provides for adequate site drainage.

**DRAINAGE OUTLETS**

13. All stormwater systems shall be designed to discharge appropriate water volume, velocity and quality to an acceptable legal point of discharge.

The minor system design outflow is matched to the capacity of any existing downstream system.

The minor system allows for the safe passage of vehicles at reduced speeds on streets which have been affected by runoff from a 1 in 20 year storm event.

**SITE DRAINAGE**

Where site topography prevents the discharge of stormwater directly to the street gutter or a Council controlled piped system, inter-allotment drainage is provided to accept runoff from all existing or future impervious areas that are likely to be directly connected.

The design and construction of inter-allotment stormwater drainage systems are in accordance with the requirements of:

- *Australian Rainfall and Runoff (1987)*, and
- Councils, "General Specification for the Construction of Road and Drainage Works".
**Element: Water Quality Management**

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide water quality management systems which:</td>
<td></td>
</tr>
<tr>
<td>• ensure that disturbance to natural stream systems is minimised, and</td>
<td></td>
</tr>
<tr>
<td>• stormwater discharge to surface and underground receiving waters, both during construction and in developed catchments, does not degrade the quality of water in the receiving waters.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td></td>
<td>An Erosion and Sediment Management Plan is prepared by properly qualified personnel using recognised and locally accepted design methodologies.</td>
</tr>
<tr>
<td>1. Adequate provision is made for measures during construction to ensure that the land form is stabilised and erosion is controlled.</td>
<td>The Erosion and Sediment Management Plan is to comply with the Department of Land and Water Conservation's <em>Urban Erosion and Sediment Control Manual</em>, Council's &quot;<em>General Specification for the Construction of Road and Drainage Works</em>&quot;, and Soil erosion and sediment control guidelines.</td>
</tr>
<tr>
<td>2. The system design optimises the interception, retention and removal of water-borne pollutants through the use of appropriate measures prior to discharge to receiving waters.</td>
<td>Water pollution control ponds or wetlands are developed (where appropriate) for final treatment before discharge to the wider environment and should be sited to minimise impacts on the natural environment.</td>
</tr>
<tr>
<td>3. The system design minimises the environmental impact of urban runoff on surface receiving water quality and on other aspects of the natural environment e.g. vegetation, by employing techniques which are appropriate and effective in reducing runoff and pollution travel.</td>
<td></td>
</tr>
<tr>
<td>4. Point sources of pollution in the catchment should be identified and their impact minimised until their impact can be eliminated.</td>
<td></td>
</tr>
</tbody>
</table>
5.2.5 Streetscape and Lot Layout

Element:- Streetscape and Landscape

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide an attractive commercial streetscape that:</td>
</tr>
<tr>
<td>• reinforces the functions of street network,</td>
</tr>
<tr>
<td>• enhances the amenity of the area generally and future buildings and</td>
</tr>
<tr>
<td>• are sensitive to the landscape and environmental conditions of the locality.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td></td>
</tr>
<tr>
<td>1. The street and landscape design achieves:</td>
<td></td>
</tr>
<tr>
<td>• the creation of commercial environments with character and identity;</td>
<td></td>
</tr>
<tr>
<td>• compliments attractive streetscapes in established areas;</td>
<td></td>
</tr>
<tr>
<td>• provision for street tree planting, taking into account the natural landscape, the image and role of the street, soils, selection of appropriate species and services;</td>
<td></td>
</tr>
<tr>
<td>• use of existing features such as vegetation, landmarks etc.</td>
<td></td>
</tr>
<tr>
<td>2. The design of the landscape in public streets:</td>
<td></td>
</tr>
<tr>
<td>• defines a theme for new streets or complements existing streetscapes;</td>
<td></td>
</tr>
<tr>
<td>• is sensitive to site attributes;</td>
<td></td>
</tr>
<tr>
<td>• complements the function of the street;</td>
<td></td>
</tr>
<tr>
<td>• reinforces desired traffic speed and behaviour;</td>
<td></td>
</tr>
<tr>
<td>• is of an appropriate scale to street width and the likely bulk of buildings;</td>
<td></td>
</tr>
<tr>
<td>• promotes safety and casual street surveillance;</td>
<td></td>
</tr>
<tr>
<td>• incorporate existing vegetation,</td>
<td></td>
</tr>
<tr>
<td>• promotes the planting of native vegetation in environmentally sensitive areas;</td>
<td></td>
</tr>
<tr>
<td>• maximises landscaped areas, where appropriate;</td>
<td></td>
</tr>
<tr>
<td>• enhances pedestrian comfort;</td>
<td></td>
</tr>
<tr>
<td>• achieves effective line of sight for pedestrians, cyclists and motorists, provides adequate lighting;</td>
<td></td>
</tr>
<tr>
<td>• satisfies maintenance and utility requirements and minimises their visual impact of above ground utilities.</td>
<td></td>
</tr>
<tr>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
<td></td>
</tr>
<tr>
<td>The plan conforms to a Development Control Plan or commercial centre strategy approved by Council which provides for landscaping and public facilities.</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>A Landscape Plan is submitted that demonstrates how the Performance Criteria are met showing:</td>
<td></td>
</tr>
<tr>
<td>• the street reserves and indicative locations of the carriageway, parking lanes/bays, cycleways and footpaths, traffic management devices;</td>
<td></td>
</tr>
<tr>
<td>• location of existing vegetation to be removed and/or conserved;</td>
<td></td>
</tr>
<tr>
<td>• location, species and general character of tree planting and hard and soft landscape treatment;</td>
<td></td>
</tr>
<tr>
<td>• indicative location of buildings.</td>
<td></td>
</tr>
<tr>
<td>Landscape is in accordance with Council's &quot;Landscape Guidelines&quot; and any approved landscaping strategy.</td>
<td></td>
</tr>
<tr>
<td>Compliance with the performance criteria is achieved by a Landscape Plan showing:</td>
<td></td>
</tr>
<tr>
<td>• boundaries and areas of open and landscaped space;</td>
<td></td>
</tr>
<tr>
<td>• existing vegetation and proposed character of landscape treatment;</td>
<td></td>
</tr>
<tr>
<td>• general arrangement of hard landscaping elements and major earth works;</td>
<td></td>
</tr>
<tr>
<td>• indicative treatment of floodways and drainage lines;</td>
<td></td>
</tr>
<tr>
<td>• landscape plantings in buffers is to be dense to minimise future maintenance.</td>
<td></td>
</tr>
</tbody>
</table>
**Element:- Lot Layout**

**OBJECTIVES**

- To provide a range and mix of lot sizes to suit a variety of commercial uses with areas and dimensions to meet user requirements.
- To provide lots that are orientated, to minimise energy consumption.

**PERFORMANCE CRITERIA**

<table>
<thead>
<tr>
<th>The objectives may be achieved where:</th>
</tr>
</thead>
</table>

**SUGGESTED SOLUTIONS**

| The following suggested solutions are ONE WAY of meeting the objectives and performance criteria: |

**SIZE**

1. Lots have the appropriate area and dimensions for the siting and construction of a commercial building, the provision of storage space, vehicle access, manoeuvring and parking and landscaping.

**USER REQUIREMENTS**

2. Lot frontages are orientated to streets and open spaces so that personal and property security, deterrence of crime and vandalism, and surveillance of footpaths and open spaces are facilitated.

3. Lot design is to preclude the need to reverse onto the public street and collector and arterial roads in particular.

**ORIENTATION AND ENERGY**

4. Lots are orientated, where possible, to facilitate the siting of buildings to take advantage of micro-climate and on-site solar access.

**Element:- Subdivision of Buildings**

**OBJECTIVES**

- To allow separate titles to be created for parts of a development.
- To provide for the effective and efficient management of common or shared facilities.

**PERFORMANCE CRITERIA**

<table>
<thead>
<tr>
<th>The objectives may be achieved where:</th>
</tr>
</thead>
</table>

**SUGGESTED SOLUTIONS**

| The following suggested solutions are ONE WAY of meeting the objectives and performance criteria: |
1. The range and extent of body corporate activities are limited to those legally permitted.

2. The street and lot layout clearly defines the public, communal and private areas of a development, including the function, ownership and management of landscape and access areas.

<table>
<thead>
<tr>
<th>Such measures may include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• creating separate sites for each commercial space;</td>
</tr>
<tr>
<td>• incorporating car parking facilities in the same strata lot as the shop or office to which they relate or are identified as communal property;</td>
</tr>
<tr>
<td>• designing buildings to minimise the need for corporate building management;</td>
</tr>
<tr>
<td>• ensuring that cost effective management is practicable where communal landscape or shared facilities are provided.</td>
</tr>
</tbody>
</table>

**Minimum Standards and Techniques**

1. The building/s were erected in accordance with a Development Consent issued after 27/2/92 by Lismore City Council under the Lismore Local Environmental Plan, 1992, otherwise development approval is required.

2. The building/s have been completed in accordance with relevant legislation.

3. Separate utility service meters / junctions are provided to each commercial space and if necessary any common area.

**Note:**
Applicants should be aware of the requirements of s37 of the Strata Titles Act, 1973.
5.3 Industrial Subdivision

5.3.1 Minimum Allotment Sizes
This section applies to subdivision of land in the industrial zones of the Lismore Local Environmental Plan 1992, (as amended). The Plan does not specify lot sizes for subdivision of land in the industrial zone. A variety of lot sizes should be provided to meet market demand and requirements of a variety of industrial uses.

In general, this Plan specifies the following minimum lot sizes:

- 1,000 m² with a satisfactory size and shape, and

- an average of 1,500 m² where the proposed subdivision is accompanied by a development plan which demonstrates that the land can be satisfactorily developed for an industrial purpose in accordance with Chapter 3 - Industrial Development.

Note:
The above preferred minimum lot sizes do not apply to industrial strata or community title lots.

5.3.2 Design Elements

The subdivision layout and street design criteria for industrial estates are mutually interdependent. This plan encourages a design concept for industrial estate/parks reflecting the constraints of particular sites and integration with surrounding industrial areas.
**Element:- Estate Design**

**OBJECTIVE**

To provide secure, convenient and efficient industrial subdivisions that meet the needs of industry.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved when the phases in the Design Process (refer to section 6) are followed and where:</td>
<td>There are no recommended suggested solutions for this element, as each situation requires an individual approach.</td>
</tr>
<tr>
<td>1. The subdivision responds to site characteristics.</td>
<td></td>
</tr>
<tr>
<td>2. The street network provides a high level of internal accessibility and good external connections for large vehicles, pedestrians and cyclists.</td>
<td></td>
</tr>
<tr>
<td>3. The street and lot layout minimises infrastructure costs and enables efficient provision of physical services.</td>
<td></td>
</tr>
<tr>
<td>4. The street and lot orientation and lot dimensions facilitate the siting and design of energy efficient buildings</td>
<td></td>
</tr>
<tr>
<td>5. The lot design and layout provides a variety of lot sizes to enable industrial and other complementary uses permitted in the zone.</td>
<td></td>
</tr>
<tr>
<td>6. The layout retains significant vegetation and habitat areas, incorporates natural features and minimises soil erosion.</td>
<td></td>
</tr>
<tr>
<td>7. The layout is integrated with the surrounding urban environment, providing landscaped buffers and street landscaping.</td>
<td></td>
</tr>
<tr>
<td>8. The layout provides for personal and property safety and minimises the potential for crime through surveillance by pedestrians and drivers of passing vehicles.</td>
<td></td>
</tr>
<tr>
<td>9. A pedestrian and cycleway network is provided that is safe, attractive and efficient running in public space and avoiding areas that are not easily observable at night.</td>
<td></td>
</tr>
<tr>
<td>10. The layout and ground level height of lots provides an acceptable level of protection from flooding.</td>
<td></td>
</tr>
</tbody>
</table>

**Element:- Major Movement Networks**

The design of movement (street) networks in industrial subdivisions should provide for the likely amount and type of traffic generated by future uses.
The network should provide for factors that effect traffic generation such as:
- type of industry;
- size of individual industries;
- amount of industry related retailing and complementary activities and
- proximity to public transport.

<p>| OBJECTIVE | To provide for the economical and efficient construction and maintenance of movement and access systems, with acceptable levels of amenity, safety and convenience, for all street users. |</p>
<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The street network meets the local needs of all street users and for the likely traffic in a co-ordinated manner.</td>
<td>The proposal conforms to a Development Control Plan approved by Council which provides for all street users.</td>
</tr>
<tr>
<td>2. The existing and proposed arterial road network has the capacity to accommodate the projected traffic movements.</td>
<td><strong>OR</strong></td>
</tr>
<tr>
<td>3. The proposed street network efficiently connects with external traffic routes.</td>
<td>A Traffic Study submitted with the proposal provides for an integrated approach to movement systems in a manner specified in this Plan.</td>
</tr>
</tbody>
</table>

Provision is to be made for arterial road corridors as specified in Council's Regional City Plan.

The development conforms to any adopted Development Control Plan for the area and/or Traffic Study with the proposal showing a road network meeting required service levels.

The street network provides for bus routes and pedestrians and cyclists in accordance with the requirements of this plan.

Streets are to be designed to restrict the traffic volume on each street to a limit appropriate to the street classification.

Street layout is to exclude unplanned through traffic.

Road connections within and between the proposed development and the existing road network shall meet the requirements of Council's "General Specification for the Construction of Road and Drainage Works".
Minimum Standards and Techniques

Figure 5-19: Road Hierarchy

Table 5-11: Classification of Industrial Streets

<table>
<thead>
<tr>
<th>Street level/type and function</th>
<th>Design speed (km/hr.)</th>
<th>Stopping distances (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Street</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Collector Street</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Sub-arterial Street</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Arterial Road</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Element:- Local Street Networks

**OBJECTIVE**
To create street networks which provide for industrial usage whilst providing acceptable levels of access, safety and convenience.

**PERFORMANCE CRITERIA**
The objective may be achieved where:

**Function and structure**
1. The proposed street network has a clear structure not exceeding the function of the existing network.

2. The network has clear physical distinctions between streets based on function, legibility, convenience, anticipated traffic volume, vehicle speed, safety and amenity.

**Safety, access and convenience**
3. Intersections along industrial streets are spaced to create safe and convenient vehicle movements.

**SUGGESTED SOLUTIONS**
The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

**Function and structure**
Proposed streets link with other streets that have capacity to accommodate increased traffic.

The street network reflects the characteristics specified in *Tables 5-1, 5-2, 5-3 and 5-4.*

**Safety, access and convenience**
Intersections are spaced as set out in *Table 5-2.*
**Mode choice**  
4. There is provision for bus routes within Sub-arterial Streets.

**Design and Character**  
5. The street network takes account of the topography, vegetation and watercourses.

6. The proposed street network takes account of the existing street network and streetscape.

7. The street network is orientated, where practical, to promote building energy efficiency.

**Environmental Protection**  
8. Future traffic will be within the acceptable capacity of the existing and proposed streets.

**Cost effectiveness**  
9. Streets and carriageway widths and street lengths should optimise the cost effectiveness of the street network without comprising street function.

10. The network provides for the cost effective provision of public utilities.

The locations of intersections are to meet Council’s “General Specification for the Construction of Road and Drainage Works”.

Total number of intersections should be minimised.

Streets should intersect only with streets of the same or next classification (refer to Table 8-1).

**Mode choice**  
Public transport routes and stops are provided as set out in Element 6.11.6.

**Design and Character**

The street network permits establishment of streetscapes that incorporate the provisions of Element Estate Design.

**Cost effectiveness**

The network caters for the provision of public utility networks including water, sewerage, electricity and telecommunications.

**Minimum Standards and Techniques**

Table 5-12: Desirable Minimum Intersection Spacing - Industrial Streets

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Same side of street (metres)</th>
<th>Opposite side of the street (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Street</td>
<td></td>
<td>Left/right Right/left</td>
</tr>
<tr>
<td>Collector Street</td>
<td>Austroads</td>
<td>Pt. 5</td>
</tr>
<tr>
<td>Sub-arterial Street</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Element: Pedestrian and Cyclist Facilities**

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

**Planning**

1. The industrial street and path network provides a network of safe pedestrian and cyclist routes with connections to adjoining pedestrian and cyclist routes.

**Location and Design**

2. The location of footpaths and cycleways in the street is determined by:
   - low vehicle speed,
   - cyclist and pedestrian safety and comfort,
   - on-street parking,
   - location of infrastructure services including postal services,
   - landscaping,
   - safety, and
   - cost efficiency.

3. The design of footpaths and cycleways is to:
   - permit casual surveillance,
   - be aligned to permit safe and convenient use,
   - permit shared use.

4. Access streets are to be designed to permit cyclist use of the street pavement.

**Safe Crossings**

5. Safe street crossings are to provide for all street users with safe sight distances, pavement markings, warning signs and safety rails (where appropriate).

**Construction**

6. Pedestrian and cyclist paths are constructed to provide a stable surface for projected users which is easily maintained.

**Planning**

Cycleway facilities are to provided in accordance with the Lismore Cycleway Plan

**Location and Design**

Footpaths and cycleways are to be provided in Collector Streets and in accordance with the Lismore Cycleway Plan.

**Safe Crossings**

Street crossings are to be provided in accordance with the Lismore Cycleway Plan.

**Construction**

Footpaths are to be constructed in accordance with Councils "General Specification for the Construction of Road and Drainage Works".

Cycleways may be constructed of an asphalt sealed pavement or equivalent standard concrete pavement.
**Element:- Public Transport**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase the opportunity for choice in mode of transport to places of employment and provide convenient and accessible cost effective and energy efficient public transport services.</td>
<td></td>
</tr>
</tbody>
</table>

| PERFORMANCE CRITERIA | SUGGESTED SOLUTIONS |  |
|----------------------|--|  |
| The objective may be achieved where: | The following suggested solutions are ONE WAY of meeting the objective and performance criteria: |  |
| **Planning** | **Planning** |  |
| 1. The industrial Collector Street is to provide for public transport. | Where a Development Control Plan or other planning instrument exists, routes conform with that plan |  |
| **Route location and design** | **Route location and design** |  |
| 2. Convenient connections to adjoining areas and other public transport routes provide for ease of movement of buses. | Routes for bus services are to be designed in accordance with *Table 5-13*. |  |
| 3. Buses are to be able to safely gain access to the area without complicated manoeuvres. |  |  |
| 4. Street alignment and geometry of collector streets are to allow for the unimpeded movement of buses. |  |  |
| **Bus stop location and design** | **Bus stop location and design** |  |
| 5. Public transport stops to provide for pedestrian safety, security, comfort and convenience. | The location of bus stops is to relate to the pedestrian network. |  |
| 6. Bus stops are designed to prevent vehicles overtaking a stationary bus, or vehicle site distances adequate to ensure safe pedestrian crossings. |  |  |
| 7. Bus stops are located and designed to provide shelter, seats and adequate lighting (where required) and timetable information. |  |  |

**Minimum Standards and Techniques**

Refer to *Table 5-4: Minimum requirements for Bus Routes*
**Element:- Flooding**

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure the subdivision of flood prone land for industrial purposes provides for future development appropriate for the land.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Industrial subdivision is not permitted in floodways or on land not suited to the proposed use.</td>
<td>Subdivision and development of industrial land is to be in accordance with Chapter 8 - Flood Prone Lands.</td>
</tr>
<tr>
<td>2. Finished ground levels which provide for floor levels to be constructed at or above the 1 in 20 flood event.</td>
<td><strong>OR</strong></td>
</tr>
<tr>
<td></td>
<td>A Flood Study prepared on behalf of Council and/or other Council approved hydraulic consultants substantiate the proposed use of the land.</td>
</tr>
<tr>
<td></td>
<td>No filling is permitted in floodways, other than to return landform to its original state.</td>
</tr>
</tbody>
</table>

**Element:- Buffers to Avoid Land Use Conflicts**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To minimise land use conflicts between industrial land and other potentially incompatible land uses through the establishment of appropriate buffers.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Buffer areas provided between industrial and residential land uses.</td>
<td>Subdivision of industrial land is to be in accordance with Chapter 3 - Industrial Development and Chapter 11 - Buffer Areas.</td>
</tr>
<tr>
<td>2. Landscape plans are to include the proposed treatment of buffer areas.</td>
<td><strong>OR</strong></td>
</tr>
<tr>
<td></td>
<td>A minimum 50 m. industrial buffer area is to be created between industrial and residential land uses.</td>
</tr>
<tr>
<td></td>
<td>Buffer areas are to be landscaped in accordance with an approved landscape plan and prior to release of land titles plans.</td>
</tr>
</tbody>
</table>
5.3.4 Physical Infrastructure - Street Design

Element:- Road Reserve and Carriageways

OBJECTIVES

To provide an appropriate street reserve width to accommodate the required carriageway, and to provide for the function of the verges.

Carriageway width to be sufficient to enable the street to perform its required traffic and parking functions efficiently, safely and conveniently, but in the interests of economy to be no greater than necessary for these purposes.

Carriageway construction standards to minimise both capital cost and future maintenance costs.

PERFORMANCE CRITERIA

The objectives may be achieved where:

1. Minimum street reserve width at any point to be not less than the sum of the minimum widths required for the carriageway and verges.

2. Carriageway width providing two lanes for moving traffic (one each way), and a parking lane each side wherever there is frontage to industrial lots.

3. Lane widths to be appropriate for the movement and parking of heavy vehicles, and for access to lots with minimum interference to moving traffic.

SUGGESTED SOLUTIONS

The following suggested solutions are ONE WAY of meeting the objectives and performance criteria:

Road reserve and carriageways are provided in accordance with Table 5-14.

Cul-de-sacs should generally be avoided in industrial estates.

Minimum Standards and Techniques

![Figure 5-20: Carriageway Widths](image)

Figure 5-20: Carriageway Widths
Table 5-14: Characteristics of Industrial Streets (refer Tables 5-11 and 5-12)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Local Street</th>
<th>Collector Street</th>
<th>Sub-arterial Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Reserve Width (Metres)</td>
<td>20</td>
<td>20</td>
<td>20 Design for intersections &amp; roundabouts etc.</td>
</tr>
<tr>
<td>Street Width Carriageway (pavement cement stabilised)</td>
<td>Travel 2 x 3.5 Parking 2 x 2.5 Total 12 metres</td>
<td>Travel 2 x 3.5 Parking 2 x 2.5 Total 12 metres</td>
<td>Travel 2 x 3.5 Parking 2 x 3 Total 13 metres</td>
</tr>
<tr>
<td>Cul-de-sac bulb Metres</td>
<td>15 m. radius</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. travel lanes</td>
<td>2+</td>
<td>2+</td>
<td>2+</td>
</tr>
<tr>
<td>Parking in reserve</td>
<td>Carriageway</td>
<td>Carriageway</td>
<td>Carriageway</td>
</tr>
<tr>
<td>Kerb type</td>
<td>Upright</td>
<td>Upright</td>
<td>Upright</td>
</tr>
<tr>
<td>Footpath</td>
<td>Nil</td>
<td>Nil</td>
<td>1 x 1.2 m. in verge</td>
</tr>
<tr>
<td>Cycleway</td>
<td>Road</td>
<td>Road</td>
<td>Good visibility with footpath 1 x 3.5 m.</td>
</tr>
<tr>
<td>Verge width Metres</td>
<td>2 x 4</td>
<td>2 x 4</td>
<td>2 x 4</td>
</tr>
</tbody>
</table>

**Element:- Verges**

**OBJECTIVE**

To provide a buffer area between the street carriageway and industrial lots sufficient to maintain the functions of safety, amenity and convenience, but in the interests of economy not providing a width more than necessary.

**PERFORMANCE CRITERIA**

The objective may be achieved where:

1. Verge widths provide adequately for:
   - safety and visibility;
   - amenity,
   - utility services;
   - cycleways and pathways

2. Verge crossfalls are suitable for:
   - lot access;
   - pedestrian movement;
   - drainage.

**SUGGESTED SOLUTIONS**

The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

Road reserve and carriageways are provided in accordance with *Table 5-14*. Additional width may be required where a dual use path (pedestrian and cycleways) is proposed in a Trunk/Collector street. Maximum crossfalls in verge 4%.
Element: Road Design Speeds, Alignment and Geometry

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The provision of a street environment which allows all street users to travel, park and access allotments with safety and convenience.</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria: Road design, alignment and geometry be in accordance with Council's &quot;General Specification for the Construction of Road and Drainage Works&quot;. Street speed, alignment and geometry provided in accordance with Table 5-11, where appropriate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Street speed, alignment and geometry are based on an appropriate design minimum speed.</td>
<td>Road design, alignment and geometry be in accordance with Council's &quot;General Specification for the Construction of Road and Drainage Works&quot;. Street speed, alignment and geometry provided in accordance with Table 5-11, where appropriate.</td>
</tr>
</tbody>
</table>

Element: Parking

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide sufficient and convenient parking for employees, visitors and commercial vehicles.</td>
<td>The following suggested solutions are ONE WAY of meeting the objectives and performance criteria:</td>
</tr>
<tr>
<td>To ensure that parked vehicles do not obstruct the passage of vehicles on the carriageway, or create traffic hazards.</td>
<td>Parking is to be provided in accordance with Table 5-14. Provision of on-street parking is to be one (1) car space per 12 metres of lot frontage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives may be achieved by:</td>
<td>The following suggested solutions are ONE WAY of meeting the objectives and performance criteria:</td>
</tr>
<tr>
<td>1. Provision of a parking lane on the carriageway of all industrial streets, where there is adjacent frontage of industrial lots.</td>
<td>Parking is to be provided in accordance with Table 5-14. Provision of on-street parking is to be one (1) car space per 12 metres of lot frontage.</td>
</tr>
</tbody>
</table>
### Element:- Street Construction

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To construct streets that support the design and intended use without unnecessary construction and whole of life cycle costs.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

1. The pavement edging and landscaping support the function of the street. 

2. The pavement edge:
   - controls vehicle movements by delineating the carriageway;
   - assists in the control of stormwater. 

3. Street pavement surfaces are:
   - well designed and durable enough to carry wheel loads of travelling and parked vehicles;
   - ensure the safe passage of vehicles, pedestrians and cyclists;
   - discharge of rainfall;
   - all-weather access;
   - reasonable travel comfort. 

4. Public street construction and whole of life cycle costs are kept low. 

Pavement and landscape materials are used to distinguish different street functions. 

Pavement edging in accordance with Table 5-14. 

Flexible pavement and kerb construction is to be based on the requirements outlined in Councils "General Specification for the Construction of Road and Drainage Works". 

### Element:- Utility Services

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that industrial areas are adequately serviced with sewerage, water, fire fighting, electricity, street lighting and communication services in a timely, cost effective, co-ordinated and efficient manner.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

1. Design and provision of utility services are cost effective over their life cycle and incorporate provisions to minimise adverse environmental impact. 

2. Compatible public utility services are located in common trenching in order to minimise the land required and the costs for underground services. 

3. Public lighting shall be designed to maximise energy efficiency. 

The design and provision of utility services conforms to: Council's;
3. Development occurs within locations where there is an adequate water supply for fire fighting and the demand of industry.

4. Development is staged to ensure that each stage is fully serviced before a new area is released.

5. Water supply and sewerage networks are accessible, easy to maintain, and cost effective based on life cycle costs.

- "General Specification for the Construction of Road and Drainage Works",
- "Specification for the Construction of Sewers", and
- "Specification for the Construction of Water Reticulation".

The requirements of other relevant supply authorities.

Minimum Standards or Techniques

Refer to Figure 5-14: Typical Shared Trenching

5.3.5 Stormwater Management

Element:- Stormwater Drainage

OBJECTIVES

To provide major and minor drainage systems which:

- adequately protects people and the natural and built environments to an acceptable level of risk and in a cost effective manner in terms of initial cost and on-going maintenance, and
- contributes positively to environmental enhancement of catchment areas.

PERFORMANCE CRITERIA

The objective may be achieved where:

**MAJOR SYSTEM**

1. The major stormwater system has the capacity to safely convey stormwater flows resulting from the relevant design storm events under normal operating conditions.

2. The major system has the capacity to convey safely, but possibly with some flooding, stormwater flows resulting from events more extreme than the design storm without significant property damage.

3. Community benefit is maximised through the retention of natural streams and vegetation, wherever practical.

SUGGESTED SOLUTIONS

The following suggested solutions are ONE WAY of meeting the objective and performance criteria:

**MAJOR SYSTEM**

The design and construction of major stormwater drainage systems are in accordance with the requirements of:

- Australian Rainfall and Runoff (1987), and
- Council's, "General Specification for the Construction of Road and Drainage Works".

The major system design is undertaken on a Total Catchment Management basis.

The major system design outflow is matched to the capacity of any existing downstream system and where necessary detention basins etc. are provided to retard stormwater flows onto downstream properties.
4. The major system is designed to ensure that there are no flow paths which would increase risk to public safety and property.

**MINOR SYSTEM**
5. The minor storm drainage system has the capacity to control stormwater flows under normal operating conditions for the relevant design storm with minimal risk of blockage.

6. Drainage networks are well defined to ensure there are no hidden flow paths which could reduce their capacity to convey design flows.

7. The design of the minor system takes full account of existing downstream systems.

8. The minor system design allows for the safe passage of vehicles at reduced speed on streets which have been affected by runoff from the relevant design storm.

9. The minor system is accessible and easily maintained.

10. Where a portion of the minor system is within a site, access is available for maintenance.

11. The selection of materials used for the construction of the minor system is based on their suitability, durability, maintainability and cost-effectiveness.

**SITE DRAINAGE**
12. Subdivision design and layout provides for adequate site drainage.

**DRAINAGE OUTLETS**
13. All stormwater systems shall be designed to discharge appropriate water volumes, velocity and quality to an acceptable legal point of discharge.

**MINOR SYSTEM**
The design and construction of minor stormwater drainage systems are in accordance with the requirements of:

- *Australian Rainfall and Runoff (1987)*
- *Council's, "General Specification for the Construction of Road and Drainage Works".*

The minor system design outflow is matched to the capacity of any existing downstream system.

The minor system allows for the safe passage of vehicles at reduced speeds on streets which have been affected by runoff from a 1 in 20 year storm event.

**SITE DRAINAGE**
Where site topography prevents the discharge of stormwater directly to the street gutter or a Council controlled piped system, inter-allotment drainage is provided to accept runoff from all existing or future impervious areas that are likely to be directly connected.

The design and construction of inter-allotment stormwater drainage systems are in accordance with the requirements of:

- *Australian Rainfall and Runoff (1987)*
- *Council's, "General Specification for the Construction of Road and Drainage Works".*
### Element: Water Quality Management

**OBJECTIVE**

To provide water quality management systems which:

- ensure that disturbance to natural stream systems is minimised, and
- ensures stormwater discharge to surface and underground receiving waters, both during construction and in developed catchments, does not degrade the quality of water in the receiving waters.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Adequate provision is made during construction to ensure that the land form is stabilised and erosion is controlled.</td>
<td>An Erosion and Sediment Management Plan is prepared by properly qualified personnel using recognised and locally accepted design methodologies.</td>
</tr>
<tr>
<td>2. The system design optimises the interception, retention and removal of water-borne pollutants through the use of appropriate measures prior to discharge to receiving waters.</td>
<td>The Erosion and Sediment Management Plan is to comply with the Department of Land and Water Conservation's <em>Urban Erosion and Sediment Control Manual</em>, Council's &quot;General Specification for the Construction of Road and Drainage Works&quot; and &quot;Soil Erosion and Sediment Control Guidelines&quot;.</td>
</tr>
<tr>
<td>3. The system design minimises the environmental impact of urban runoff on the surface receiving water quality and on other aspects of the natural environment by employing techniques which are appropriate and effective in reducing runoff and pollution travel.</td>
<td>Water pollution control ponds or wetlands are developed (where appropriate) for final treatment before discharge to the wider environment and should be sited to minimise impact on the natural environment.</td>
</tr>
<tr>
<td>4. Point sources of pollution in the catchment should be identified and their impact minimised until their impact can be eliminated.</td>
<td></td>
</tr>
</tbody>
</table>

### 5.3.6 Streetscape and Lot Layout

**Element: Streetscape and Landscaping**

**OBJECTIVE**

To provide an attractive industrial streetscape that:

- reinforces the functions of the street network,
- enhances the amenity of the area generally and future buildings and
- are sensitive to the landscape and environmental conditions of the locality.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The street and landscape design achieves:</td>
<td>A Landscape Plan is submitted that demonstrates how the Performance Criteria are met showing:</td>
</tr>
<tr>
<td>• the creation of industrial environments with character and identity;</td>
<td></td>
</tr>
<tr>
<td>• compliment any attractive streetscapes in established areas;</td>
<td></td>
</tr>
</tbody>
</table>
2. The design of the landscape in public streets:
- defines a theme for new streets or complements existing streetscapes;
- is sensitive to site attributes;
- complements the function of the street;
- reinforces desired traffic speed and behaviour;
- is of an appropriate scale to street width and the likely bulk of buildings;
- promotes safety and casual street surveillance;
- incorporates existing vegetation;
- promotes the planting of native vegetation in environmentally sensitive areas;
- maximises landscaped areas, where appropriate;
- enhances pedestrian comfort;
- achieves effective line of sight for pedestrians, cyclists and motorists, provides adequate lighting;
- satisfies maintenance and utility requirements and minimises their visual impact of above ground utilities.

Landscape is in accordance with Council's "Landscape Guidelines" and any approved landscaping strategy.

Compliance with the performance criteria is achieved by a Landscape Plan showing:
- boundaries and areas of open and landscaped space;
- existing vegetation and proposed character of landscape treatment;
- general arrangement of hard landscaping elements and major earth works;
- indicative treatment of floodways and drainage lines;
- landscape plantings in buffers is to be dense to minimise future maintenance.

---

**Element:- Lot Layout**

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide a range and mix of lot sizes to suit a variety of industrial uses with areas and dimensions to meet user requirements.</td>
</tr>
<tr>
<td>To provide lots that are orientated, where practical that minimises energy consumption.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
</table>

The objectives may be achieved where:

**SIZE**

1. Lots have the appropriate area and dimensions for the siting and construction of an industrial building, the provision of storage space, vehicle access, manoeuvring and parking and landscaping.

The following suggested solutions are **ONE WAY** of meeting the objectives and performance criteria:

**SIZE**

Lots should have a minimum area of 2,000m². A lot size of 1,500m² may be considered where the subdivision plan is accompanied by a development plan that shows the land can be developed in accordance with Chapter 3 - Industrial Development.
**USER REQUIREMENTS**

2. Lot frontages are orientated to streets and open spaces so that personal and property security, deterrence of crime and vandalism, and surveillance of footpaths and open spaces are facilitated.

3. Lot design is to preclude the need to reverse onto the public street and collector arterial roads in particular.

**ORIENTATION AND ENERGY**

4. Lots are orientated, where possible, to facilitate the siting of buildings to take advantage of micro-climate and on-site solar access.

A variety of lot sizes should be provided to meet market demand.

Lots should be regular and rectangular in shape.

Lot shape and area should be sufficient to permit easy access to the rear of the lot and allow trucks to manoeuvre on-site without reversing onto or off the lot.

Generally a frontage to depth ratio between 1:2 and 1:3 is considered satisfactory.

---

**Element: - Subdivision of Buildings**

**OBJECTIVES**

To allow separate titles to be created for parts of a development.

To provide for the effective and efficient management of common or shared facilities.

**PERFORMANCE CRITERIA**

The objectives may be achieved where:

1. The range and extent of body corporate activities are limited to those legally permissible.

2. The street and lot layout clearly defines the public, communal and private areas of a development, including the function, ownership and management of landscape and communal areas.

**SUGGESTED SOLUTIONS**

The following suggested solutions are **ONE WAY** of meeting the objectives and performance criteria:

Such measures may include:

- limiting communal land to driveways only;
- designing buildings to minimise the need for corporate building management; and
- ensuring that cost effective management is practicable where communal landscaping or shared facilities are provided.

---

**Minimum Standards and Techniques**

1. The building/s have been completed in accordance with relevant legislation.

2. Separate utility service meters / junctions are provided to each unit and if necessary any common area.

**Updated: 26/2/08**
Chapter 6

Subdivision and Infrastructure

Village and Rural Subdivision
6 Subdivision and Infrastructure – Village and Rural

This chapter is divided into two sections, as follows:

6.1 Village Subdivisions
6.2 Rural Residential Subdivisions

6.1 Village Subdivision

6.1.1 Minimum Allotment Sizes

Lismore Local Environmental Plan 2000, (as amended) does not specify a minimum lot size in the 2(v) Village Zone.

The preferred lot sizes of this plan are:
- an average of 1,000 m\(^2\) where reticulated/common effluent disposal is available and
- 2,000 m\(^2\) where no reticulated sewerage system is available.

The Lismore Village Development Strategy proposes that in order to retain a small village character the ultimate population size of the existing villages should be kept below 1,000 persons.

Refer to specific Chapters in Part B of this DCP for more information.

6.1.3 Neighbourhood Planning

This plan encourages a concept of residential design which retains the character of the existing villages. To reinforce and create (where applicable) distinctive, identifiable and relatively self contained villages based on the following design principles:

- a maximum population threshold of 1,000 persons;
- residential densities and larger lot sizes to reinforce an open village character and atmosphere, providing peace and quiet and a sense of community;
- a rural outlook;
- increasing local self sufficiency;
- providing high levels of accessibility, including the use of public transport, and smooth travel speed and flow within the villages and to Lismore;
- lot orientation to minimise building energy use; and
- high levels of public safety.

6.1.4 Design Elements

Element:- Village Design

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide safe, convenient and attractive villages that meet the diverse and changing needs of the community by:</td>
</tr>
<tr>
<td>• Offering a wide choice in good quality housing and associated community facilities;</td>
</tr>
<tr>
<td>• Encouraging walking and cycling;</td>
</tr>
<tr>
<td>• Minimising energy consumption; and</td>
</tr>
<tr>
<td>• Promoting a sense of place by providing linkages with existing village focal points and the maintenance of a distinctive identity which recognises the structure of the existing village and preserves the natural environment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives may be achieved when the Phases in the Design Process (refer section 6) are followed and where:</td>
</tr>
<tr>
<td>1. The subdivision layout responds to site characteristics, setting, landmarks and rural views through street and open space networks.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no recommended Suggested Solutions for this Element, as each situation requires an individual approach.</td>
</tr>
</tbody>
</table>
2. Village identity is reinforced by locating community facilities at focal points within convenient walking distance for residents.

3. The street network provides a high level of internal accessibility and good external connections for local vehicle, pedestrian and cycle movements, with traffic management to restrain vehicle speed, deter through traffic and create safe conditions for all road users.

4. The street layout and lot density minimise fuel use by reducing travel distances, providing for public transport effectiveness, and encouraging walking and cycling.

5. The street and lot layout enables efficient provision of physical services.

6. The street and lot orientation and lot dimensions facilitate the siting and design of energy efficient dwellings.

7. The lot design and layout provides a variety of lot sizes and enables a variety of housing types and other compatible land uses.

8. The lot design and layout provide for higher densities in areas adequately serviced and located in a manner which does not detract from the village character.

9. The layout provides well distributed public open spaces that contribute to the character of the village and development, provide for a range of uses, are cost effective to maintain, and contribute to stormwater management and environmental care.

10. The layout retains significant vegetation and habitat areas, particularly koala habitat.

11. The layout is integrated with the existing village, complements existing attractive streetscapes and landscapes, and provides for shared use of public facilities.

12. The layout enhances personal safety, and minimises potential for crime through surveillance by pedestrians and drivers of passing vehicles.

13. The pedestrian network is safe, attractive and efficient, running largely along public spaces fronted by houses, and avoiding areas that generate major breaks in surveillance on routes used at night.
14. The layout of residential development provides:
   • protection from bushfire;
   • incorporates natural and cultural features;
   • minimises soil erosion;
   • provides sufficient buffers between agricultural land and land uses;
   • avoids development on flood prone and hazardous i.e. unstable lands;
   • avoids contaminated areas e.g. cattle tick dip sites and former banana plantations.

---

**Element:- Major Movement Networks**

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide movement networks for vehicles, public transport, pedestrians and cyclists that are integrated, cost effective, environmentally acceptable, and minimise the impact of traffic on the village.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The street network meets local needs and allows for the provision of public transport, for pedestrians and cyclists, and for expected vehicle traffic in a co-ordinated manner. <em>(Table 9-1 &amp; Figure 9-2)</em></td>
<td>The plan conforms to a Development Control Plan approved by Council which provides for public transport, pedestrians and cycleways.</td>
</tr>
<tr>
<td>2. The arterial road network has the capability to accommodate public transport services and has capacity to safely and efficiently accommodate projected movements.</td>
<td>OR</td>
</tr>
<tr>
<td>3. The street network connects with external traffic routes in a manner which maximises movement efficiency on the traffic routes.</td>
<td>A Traffic Study submitted with the proposal provides for an integrated approach to movement systems in a manner satisfying this Plan.</td>
</tr>
<tr>
<td></td>
<td>The arterial road servicing the village to Lismore is capable of meeting increased traffic.</td>
</tr>
<tr>
<td></td>
<td>The street network conforms to a Development Control Plan for the area and/or Traffic Study with the proposal showing an existing and proposed major road network which satisfies projected local travel and integrates with the arterial road network.</td>
</tr>
<tr>
<td></td>
<td>The street network provides for pedestrians and cyclists in accordance with the requirements of this plan.</td>
</tr>
</tbody>
</table>
4. Corridor traffic routes are more convenient for through traffic than streets within residential areas.

5. Village streets do not operate as through traffic routes for externally generated traffic (other than for pedestrians, cyclists & public transport).

6. Safe and efficient connections between transport corridors and village development are provided.

7. Safe and convenient links are provided for pedestrians and cyclists across transport corridors and to the existing village.

8. The spacing of intersections between street networks in the village and road networks in corridors protects the performance of the road corridors and preserves the quality of the street networks in the village.

9. Access arrangements for housing along an arterial road do not impede the traffic performance of the road.

The street network conforms to a Development Control Plan for the area, showing an existing and proposed road network which satisfies projected district travel.

Through traffic with projected traffic volumes exceeding those specified in Table 6-1 is not preferred in village streets.

Connections between residential streets and arterial roads are in accordance with the requirements of Table 6-3.

Intersections between the external roads and the internal road network are located so as to minimise restriction of movement on the roads, and to avoid traffic volumes in excess of 1,500 vpd on local collector streets.

Proposed housing development along a movement corridor does not have direct vehicle access to an arterial road unless there are no suitable alternatives, in which case provision must be made for vehicular access to and from the road to be in a forward direction.

Minimum Standards and Techniques

Figure 6-1: Village Road Hierarchy / classification
Table 6-1: Village Street Types

<table>
<thead>
<tr>
<th>Street</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Laneway (including right of way)</td>
<td>is an access street to be held in private ownership. These streets provide a shared carriageway for use by pedestrians, cyclists and vehicular traffic. No provision for parking is made within the laneway. The laneway services less than 5 dwellings where the majority of those dwellings do not utilise the lane as the sole means of access. Where the laneway is the sole means of access the number of lots it services is to be less than 3.</td>
</tr>
<tr>
<td>Privately owned right of way or access easement under Community Title.</td>
<td></td>
</tr>
<tr>
<td>Village Access Place (small cul-de-sac)</td>
<td>is a street in which the residential environment is dominant. These streets provide a shared carriageway for use by pedestrians, cyclists and vehicular traffic. Footpaths not required. There is only one entry and exit point. Generally, the number of dwellings does not exceed 5. Traffic volume, less than 50 veh/day.</td>
</tr>
<tr>
<td>Village Local Street</td>
<td>is a street in which the residential environment coexists with vehicular traffic pedestrians and cyclists. Footpaths required where the street connects to a Collector Street. Traffic volume, less than 500 veh/day.</td>
</tr>
<tr>
<td>Village Collector Street</td>
<td>is a street in which the residential environment coexists with vehicular traffic, pedestrians and cyclists. Pedestrian movements are facilitated by paths on the verge. Vehicular parking partly on the verge and carriageway. Footpaths provided on one side of the street only. The street caters for up to 50 dwellings and distributes traffic to higher volume streets. Traffic volume, less than 1,500 veh/day.</td>
</tr>
<tr>
<td>Village Sub-arterial Street</td>
<td>typically collects traffic from lower volume streets and may provide bus routes within residential neighbourhoods. Separate provision to be made for cyclists and pedestrians which provide district connections. On-street parking is provided in the carriageway. Traffic volume, more than 1,500 veh/day. Sub-arterial streets provide the highest order of road linkages between the village roads and arterial roads to Lismore.</td>
</tr>
<tr>
<td>Arterial Road</td>
<td>refer to Rural Roads Policy</td>
</tr>
</tbody>
</table>

Element:- Local Street Networks

<table>
<thead>
<tr>
<th>OBJECTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To create street networks in which the function of each street is clearly defined, providing acceptable levels of access, safety and convenience for all users.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Street</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>Function and structure</td>
<td>Function and structure</td>
</tr>
<tr>
<td>1. The street network has a clear structure and component streets conform to their function in the network.</td>
<td>Streets link with other streets that are no more than two levels higher or lower in the hierarchy.</td>
</tr>
<tr>
<td>2. The network has clear physical distinctions between each type of street. These distinctions are based on function, legibility, convenience, traffic volumes, vehicle speeds, public safety and amenity.</td>
<td>The street network reflects the characteristics specified in Table 6-1, 6-2, 6-3, 6-4 and 6-5.</td>
</tr>
</tbody>
</table>
3. The design features of each type of residential street encourage driver behaviour appropriate to the primary function of the street.

**Safety, access and convenience**
4. Intersections along residential streets are spaced to create safe and convenient vehicle movements.
5. The street network creates convenient movement for residents between their homes and higher order roads.

**Mode choice**
6. There is provision for efficient bus routes which are direct and safely accessible by foot from the majority of dwellings and activity centres.
7. The alignment and geometry of streets carrying bus routes provide for ease of movement of buses without retracing the route, complicated turning manoeuvres and without facilitating high traffic speeds.
8. The street network facilitates walking and cycling within the village.

**Village design and character**
9. The street network takes account of the topography and vegetation, respects any existing or potential site assets, and takes advantage of opportunities for views and breezes.
10. The street network takes account of the streetscapes that may be created or that already exist.
11. The street network is oriented, where practical, to promote efficient solar access for dwellings.
12. The street network takes account of natural drainage and open space systems.

**Environmental protection**
13. Traffic generated by a development is within the acceptable capacity of the roads.
14. Streets do not operate as through traffic routes for externally generated traffic, while limiting the length of time local drivers need to spend in a low speed environment.

**Safety, access and convenience**
Intersections are spaced as set out in Table 6-2.

The driving distance from any dwelling to the nearest collector (or higher-order) road is minimised.

Turning movements at intersections are to be minimised in order to travel from any home to the most convenient collector street or higher order road.

**Mode choice**
Public transport routes and stops are provided as set out in Element - Public Transport.

Streets provide a safe, convenient and legible network for pedestrians and cyclists in accordance with Element Pedestrian and Cyclist Facilities.

**Village design and character**

The street network permits the establishment of streetscapes that incorporate the provisions of Element Street Design and On-street Parking.

The streets are aligned in east-west or north-south direction, wherever possible.

**Environmental protection**
15. The street network is designed to reduce traffic speeds and volumes to acceptable levels, with most dwellings fronting streets with low volumes.

16. The impact of measures intended to restrain traffic speeds and/or volumes takes account of the needs of other street users and adjoining dwellings, by avoiding:
   • stop start conditions;
   • unacceptable traffic noise to adjoining dwellings;
   • devices which reduce convenience or safety levels for cyclists and public transport.

17. Streets and lots are located so that dwellings are not subject to unacceptable levels of traffic noise.

**Cost effectiveness**

18. Streets and carriageway widths and street lengths optimise the cost effectiveness of the street network.

19. The network provides for the cost effective provision of public utilities.

Intersections within the street network are either roundabouts or other appropriate traffic management treatments to slow and control traffic.

Traffic speeds and volumes are restrained through measures such as:

• limiting street length;
• introducing bends; and
• introducing slow points

Traffic noise in residential streets should not exceed 55 dB(A) $L_{10}$ at the facade of dwellings.

**Cost effectiveness**

Major collectors are less than 150 m. long, except where the topography or the location of major traffic routes makes a longer distance unavoidable.

The network caters for the provision of public utility networks including water, sewerage (where required), electricity and telecommunications.

---

**Minimum Standards and Techniques**

**Table 6-2: Classification of Village Streets**

<table>
<thead>
<tr>
<th>Street level/type and function</th>
<th>Design speed (km/hr.)</th>
<th>Indicative traffic vol. (vpd)</th>
<th>Stopping sight dist. (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Laneway or Right of Way</td>
<td>10</td>
<td>&lt; 50</td>
<td></td>
</tr>
<tr>
<td>Village Access Place</td>
<td>40</td>
<td>&lt; 50</td>
<td></td>
</tr>
<tr>
<td>Village Local Street</td>
<td>40</td>
<td>&lt; 500</td>
<td>40</td>
</tr>
<tr>
<td>Village Collector Street</td>
<td>40</td>
<td>&lt; 1,500</td>
<td>40</td>
</tr>
<tr>
<td>Village Sub-arterial Street</td>
<td>60</td>
<td>1,500+</td>
<td>70</td>
</tr>
</tbody>
</table>

**Table 6-3: Desirable Minimum Intersection Spacing**

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Same side of street (metres)</th>
<th>Opposite side of the street from centreline (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Access Place</td>
<td>40</td>
<td>See Austroads Pt. 5.</td>
</tr>
<tr>
<td>Village Local Street</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Village Collector Street</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Village Sub-arterial Street</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Figure 6-2: Minimise turning movements from the lot to collector streets

**Element:- Pedestrian and Cyclist Facilities**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To encourage walking and cycling by providing safe and convenient movement networks to points of attraction within the development and village.</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Planning</td>
</tr>
<tr>
<td>1. The residential streets and paths provide a network of pedestrian and cyclist routes, with connections to adjoining streets, open spaces and activity centres.</td>
<td>Where a Development Control Plan, Traffic Study with a proposal or an approved Pedestrian and Cyclist Plan exists, pedestrian and cyclist paths are to be provided in accordance with that plan.</td>
</tr>
<tr>
<td>2. A network of footpaths and cycle routes is provided that accounts for:</td>
<td>Footpaths and cycleways are provided in accordance with <strong>Table 6-3 and 6-4</strong>.</td>
</tr>
<tr>
<td>• the need to encourage walking and cycling; • likely users (e.g. school children, parents with prams, the aged and people with disabilities, and recreational cyclists); • opportunities to link open space networks and community facilities, including public transport, local activity centres and schools; • topography; • cyclist and pedestrian safety.</td>
<td>Location and design</td>
</tr>
<tr>
<td>Location and design</td>
<td>Location and design</td>
</tr>
<tr>
<td>3. The location of footpaths and cycleways in a street reservation is determined by:</td>
<td>Footpaths are provided on one side of streets with traffic volumes greater than 150 vpd. No footpaths are required on streets with a traffic volume &lt;150 vpd as pedestrians can share with vehicles in a low speed environment.</td>
</tr>
<tr>
<td>• whether vehicle speeds and volumes are low and the use of the street pavement by cyclists does not affect the comfort and safety of pedestrians; • whether pedestrians and cyclists are protected from parked vehicles and vehicles moving along the street and on driveways; • whether postal delivery will be significantly inconvenienced;</td>
<td>OR</td>
</tr>
</tbody>
</table>

**Table 6-3 and 6-4**
• the location of physical services;
• cross falls;
• landscaping;
• whether there is any development fronting that part of the street;
• cyclist and pedestrian safety;
• cost effective construction.

4. The alignment of paths allows safe and convenient use by pedestrians and cyclists and is varied to preserve trees and other significant features. A focus on vistas and landmarks add visual interest where they exist.

5. Footpaths and cycleways are well lit and located where there is casual surveillance.

6. Footpaths or shared paths are designed and constructed of appropriate width, longitudinal gradient and sight distance to cater for the number of projected pedestrians and cyclists, and user types (e.g. the aged, the very young, people with prams and people with disabilities).

7. Design of streets accommodates pedestrian and cyclist use of street pavements in access places, and cyclist use of street pavements in access streets and collector streets.

8. Provision is made for the location of seats in appropriate places.

9. There is adequate provision for passing with paths widened at potential conflict points or junctions on high use facilities to allow for passing of pedestrians/cyclists.

Safe Crossings
10. Safe street crossings are provided for all street users with safe sight distances and adequate pavement markings, warning signs and safety rails (where appropriate for cyclists).

Construction
11. Pedestrian and cyclist paths are constructed to provide a stable surface for projected users, which are easily maintained.

Collector streets on which there is access to lots or where there is a planned pedestrian or cyclist path are provided with a separate path on one side clear of the carriageway pavement.

A pedestrian (only) footpath, where required, is 1.2 metres wide and has a maximum grade of 15%.

Footpaths are widened to 1.5 metres minimum in the vicinity of meeting points, schools, shops and other activity centres and along Trunk Collector streets.

Cycle paths and shared paths have widths in accordance with Figure 6.5.

Maximum longitudinal gradient of cycle paths to be no greater than that at any adjacent street pavement.

Paths are widened at potential conflict points or junctions in areas of high use, such as schools, corner stores etc.

Construction
Footpaths are to be constructed in accordance with Council's “General Specification for the Construction of Road and Drainage Works”.

Cycleways may be constructed of an asphalt sealed pavement or equivalent standard concrete pavement.
Minimum Standards and Techniques

Segregated path dimensions

Desirable minimum shared path

cyclist envelopes

Desirable minimum bicycle path

Source: AMCORD

Figure 6-3: Protection for cyclists and pedestrians
Figure 6-4: Designing for cyclists at vehicle slow points
### Element: Public Transport

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase opportunities for choice in mode of transport and provide cost effective and energy efficient public transport services that are accessible and convenient to the village community.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td><strong>Planning</strong></td>
</tr>
<tr>
<td>1. Village densities provide for and encourage the economic provision of regular public transport services.</td>
<td>Where a Development Control Plan or other planning instrument exists, routes, neighbourhood and net residential densities conform with that plan.</td>
</tr>
<tr>
<td>2. A public transport route is provided that takes account of:</td>
<td>The majority of lots are within 400 metres safe walking distance from an existing or potential bus route.</td>
</tr>
<tr>
<td>• projected travel demand;</td>
<td></td>
</tr>
<tr>
<td>• distribution of likely demand;</td>
<td></td>
</tr>
<tr>
<td>• scale and time of demand;</td>
<td></td>
</tr>
<tr>
<td>• characteristics of travellers;</td>
<td></td>
</tr>
<tr>
<td>• travel time;</td>
<td></td>
</tr>
<tr>
<td>• operating characteristics;</td>
<td></td>
</tr>
<tr>
<td>• cost of providing the service; and</td>
<td></td>
</tr>
<tr>
<td>• route location and design.</td>
<td></td>
</tr>
<tr>
<td><strong>Route location and design</strong></td>
<td><strong>Route location and design</strong></td>
</tr>
<tr>
<td>3. Convenient connections to adjoining areas provide for ease of movement of buses within the village and onto arterial roads.</td>
<td>Routes for regular bus services are designed in accordance with Table 6-4 and 6-5.</td>
</tr>
<tr>
<td>4. Buses are able to safely gain access to the development without complicated turning manoeuvres.</td>
<td></td>
</tr>
<tr>
<td>5. The alignment and geometry of the streets that form the bus route allow for the efficient, circular and unimpeded movement of buses without facilitating high traffic speeds.</td>
<td><strong>Bus stop location and design</strong></td>
</tr>
<tr>
<td>6. Public transport stops provide for pedestrian safety, security, comfort and convenience.</td>
<td>Bus stops are, or are planned for, 400 metre spacings where the route serves residential development.</td>
</tr>
<tr>
<td>7. Bus stops are designed to prevent vehicles from overtaking a stationary bus, or vehicle speeds are reduced to ensure safe pedestrian crossing.</td>
<td>The siting of bus stops is related to the pedestrian path network.</td>
</tr>
<tr>
<td>8. Bus stops are located and designed to provide shelter, seats, adequate lighting and timetable information, are overlooked from nearby buildings, and are located to minimise adverse impact on the amenity of nearby dwellings.</td>
<td>Bus shelters are provided at key locations.</td>
</tr>
</tbody>
</table>
Minimum Standards and Techniques

Table 6-4: Minimum requirements for Bus Routes

<table>
<thead>
<tr>
<th>STREET CARRIAGEWAY WIDTHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-way: 6.5 metres</td>
</tr>
<tr>
<td>Two-way: 9.0 metres or 7.5 metres where bus bays are provided with a traffic calming and management.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TURNING CIRCLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 12.5 metres + 1 m. gravel shoulder for single bus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROUNDABOUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum desirable pavement crossfall: 3%</td>
</tr>
<tr>
<td>Maximum desirable longitudinal gradient: 6%</td>
</tr>
<tr>
<td>Absolute maximum gradient: 12%</td>
</tr>
</tbody>
</table>

Figure 6-5: Traffic control for buses
**Element:- Public Open Space**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide, where appropriate, public open space that meets user requirements for outdoor recreational and social activities and for landscaping that contributes to the identity and environmental health of the community.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The multi functional role of public open space, and its use as a community facility is recognised and promoted.</td>
<td>Public open space is provided in accordance with an approved open space strategy or Development Control Plan.</td>
</tr>
<tr>
<td>2. Public open space provides:</td>
<td>Submission of a plan and documentation showing:</td>
</tr>
<tr>
<td>• a range of recreation settings, corridors for community paths, and attractive village settings and focal points;</td>
<td>• the adjacent street reserves, carriageways, parking bays, footpaths, cycleways and street and park lighting;</td>
</tr>
<tr>
<td>• adequate facilities to meet the needs of the community as reflected by indicators such as population density and demographic structure;</td>
<td>• existing vegetation and proposed general character of tree planting and landscaping (including proposed species);</td>
</tr>
<tr>
<td>• accessibility to users in conjunction with existing facilities;</td>
<td>• existing rare or significant vegetation, natural habitats and features (e.g. creeks) which are retained, enhanced or otherwise affected;</td>
</tr>
<tr>
<td>• opportunities for the incorporation of existing trees, rocks, streams and other sites of natural or cultural value, and linkage of habitats and wildlife corridors;</td>
<td>• general arrangement of hard landscaping elements and major earth cuts, fills and mounding;</td>
</tr>
<tr>
<td>• opportunities to link public open spaces into a legible network;</td>
<td>• indicative treatment of any drainage systems, along with general information on fencing, access points and furniture;</td>
</tr>
<tr>
<td>• public safety and reasonable amenity of adjoining land users in the design of facilities and associated engineering works;</td>
<td>• proposed recreation facilities; and</td>
</tr>
<tr>
<td>• for future maintenance requirements;</td>
<td>• the age groups of intended user targets and the facilities to be provided to service the user group;</td>
</tr>
<tr>
<td>• a clear relationship between public open space and adjoining land uses, established by appropriate treatment including alignment fencing, landscaping, and issues of security and surveillance;</td>
<td>• the distances from the furtherest lot in the development.</td>
</tr>
<tr>
<td>• avoidance of continual lengths of solid fencing along open space areas for security, surveillance, aesthetic and maintenance reasons.</td>
<td>Parks include provision for lighting where appropriate in accordance with <strong>Australian Standard 1158.1</strong> (1986).</td>
</tr>
</tbody>
</table>

Parks are located so that at least 50% of their perimeter length has a direct frontage to a public road and near facilities such as community facilities, sports fields shops etc.

Parks should have a minimum area of 5,000m², except where there function is primarily to provide cyclist / pedestrian connection or habitat linkages.
A variety of recreation settings should be provided.

It is important to provide sufficient space around water features and detention ponds to maximise the land area available for recreation use and to create a quality setting for major elements.

In this residential estate, the primary function of the detention basin is recreation. A development of this quality should qualify as open space rather than 'drainsage' reserve.

Figure 6-6: Designing for open space
Physical Infrastructure

Element: Street Design and On Street Parking

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
</table>
| To provide for streets that:  
  - fulfil their designated functions within the street network,  
  - accommodate public utility services,  
  - accommodate drainage systems, and  
  - create a safe and attractive environment. |

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td></td>
</tr>
</tbody>
</table>
| Function and width  
1. The design features of each type of residential street convey its primary function.  
2. The street reserve width is sufficient to cater for all street functions, including:  
  - safe and efficient movement of all users;  
  - provision for parked vehicles;  
  - provision of landscaping;  
  - location, construction and maintenance of public utilities.  
3. The verge width is sufficient to provide for special site conditions and future requirements. |
| Function and width  
The following street components for each type of street are as specified in Table 6-5:  
  - street reserve widths;  
  - carriageway widths;  
  - verge widths;  
  - parking within street reserve;  
  - kerb type;  
  - pedestrian and cyclist facilities;  
  - number of desired lots the road is to service. |
| Designing for safety  
4. The design facilitates safe use by pedestrians, particularly people with disabilities, the aged and children, by:  
  - providing a carriageway width which allows vehicles to proceed safely at the operating speed intended for that level of street;  
  - making allowances for restrictions caused by on street parking;  
  - providing a horizontal and vertical alignment which is not conducive to excessive speeds;  
  - promoting the safety of pedestrians at bus stops and other crossing points;  
  - promoting the safety of cyclists in streets and at crossing points.  
5. Speed reduction techniques are used to achieve desired speeds, as part of a design for the whole street environment, and include the following principles: |
| Designing for safety  
The verge width is increased where necessary to allow space for larger scale landscaping, indented parking, future carriageway widening, retaining walls, cycle paths or overland flow paths.  
Traffic speeds and volumes are restrained through one or more of the following measures: |
• slow points including either horizontal or vertical deflection are designed to slow traffic to design speeds;
• slow points and carriageway narrowing are designed to take into account the needs of cyclists, by ensuring speed compatibility, adequate space for concurrent passage, or off street diversions;
• landscape design, on street parking and streetscape design are used to complement speed restriction measures;
• speed restriction techniques and devices are not used in isolation;
• the verge provides safe sight distances, taking into account expected vehicle speeds and pedestrian and cyclist movements.

6. Safe sight distances, based on vehicle travel speeds, exist at property access points, pedestrian and cyclist crossings and at junctions and intersections.

**Driveway Access**

7. The carriageway and verge width allows for unobstructed access to individual lots, even when a car is parked on the opposite side of the street.

Driveway egress movements do not create a safety hazard.

(i) **Limiting street length**
Where street ‘leg’ length is limited to control vehicle speed, the lengths between slow points are designed to restrict operating speeds.

(ii) **Introducing bends**
Where bends are introduced to control speeds to 20 km/h or less, the deflection angle in the change of the alignment of a street or pavement is at least the angle determined from Table 6-7.

(iii) **Introducing slow points**
Where slow points are used to allow speeds greater than 20 km/h, the length of street between two bends or slow points complies with the distances specified in Table 6-6.

Speed reduction devices are part of a design for the total street environment.

Where speed restriction devices are used in isolation, they include:

• full horizontal displacement of the vehicle path;
• swept vehicle paths to have a 20 m. radius;
• constriction on exit rather than on entry (otherwise there is a risk that the device may be short cut);
• additional pavement treatment behind the kerb for a large vehicles;
• line marking and signposting

**Driveway Access**

Motorists can enter or reverse from a lot in a single movement.

Lot design enables driveways on major collector streets and streets which carry more than 1,500 vpd to be designed to promote forward movement of vehicles across the verge.
8. Bus routes have a carriageway width that:

- allows for the movement of buses;
- unimpeded by parked cars;
- safely accommodates cyclists;
- avoids cars overtaking parked buses.

9. The horizontal and vertical alignments satisfy safety criteria and reflect physical land characteristics and major drainage functions.

10. Geometric design for intersections, roundabouts and slow points is consistent with the vehicle speed intended for each street.

11. Kerb radii at intersections and junctions are kept to a minimum, subject to:

- satisfying required turning manoeuvres;
- keeping pedestrian crossing distances to a minimum;
- controlling the speed of vehicles.

12. Siting conditions on land abutting major and minor distributor roads ensure that all vehicles can enter or leave the street in a forward direction.

**On street parking**

13. Carparking is provided in accordance with projected needs which are determined by:

- the number and size of probable future dwellings;
- the carparking requirements of likely future residents;

**Geometric Design**

The geometry of streets identified as bus routes provides suitable turning, stopping sight distance, grade and parking for buses (as determined from appropriate design documents), and has maximum carriageway widths within the ranges specified in Table 6-4.

Longitudinal gradients do not exceed the gradients specified in Table 6-4.

Curve super elevation does not exceed 6%.

For downgrades of 5-10% street design should be based on an increase of the maximum speed of 5 km/h. For downgrades >10%, this maximum speed should be increased by 10 km/h.

Crossfall on street pavement is to be 3%.

Design complies with AUSTROADS Guidelines.

Sufficient area is provided at the head of cul-de-sacs for waste disposal vehicles to make a 3 point turn.

Kerb radii do not exceed 8 m.

Turning vehicles are accommodated using turning templates, to enable the following turns to be made in a single forward movement:

- between collector and access streets, the design heavy rigid vehicle (turning path radius 15 m.) using any part of the pavement.
- between access streets, the 99% design car (turning path radius 7.5m), using the correct side of the pavement only.

**On street parking**

One on street parking space is to be provided for every two dwellings. These are to be located against the kerb or in parking bays constructed within the verge, located within 60 m. of each allotment.
• availability of public transport;
• likely future on-site parking provisions;
• locations of non residential uses such as schools and shops;
• the occasional need for overflow parking.

14. Carparking is designed and located to:

• conveniently and safety serve users, including pedestrians, cyclists and vehicles;
• enable efficient use of car spaces and accessways including adequate manoeuvrability between the street and lots;
• fit in with any adopted street network and hierarchy objectives, and any related traffic management plans;
• be cost effective;
• achieve relevant streetscape objectives.
Minimum Standards and techniques

Figure 6-7: Carriageway widths
Table 6-5: Village Street Characteristics (refer Tables 6-1, 6-2 & 6-3)

<table>
<thead>
<tr>
<th>Element</th>
<th>Laneway Private or Community Title only</th>
<th>Access Place</th>
<th>Local Street</th>
<th>Collector Street</th>
<th>Sub-arterial Street</th>
<th>Access Place (if lots less than 2000m²)</th>
<th>Local Street (if lots less than 2000m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Reserve Width (m)</td>
<td>Variable</td>
<td>16</td>
<td>18</td>
<td>18</td>
<td>20</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Carriageway Width (Pavement Cement Stabilised) metres</td>
<td>1 lot 3 m seal 2 lots 4m seal 2x0.5m gravel shoulders</td>
<td>5 m seal 2 x 1m gravel shoulders</td>
<td>6m seal 2 x 1m gravel shoulder 5.5m seal with designed traffic mgmt &amp; parking</td>
<td>9m seal (incl. bus route) 2x1m gravel shoulder 7m seal, with designed traffic mgmt &amp; parking</td>
<td>13m seal 2x1m gravel shoulder 11m seal with designed traffic mgmt &amp; parking</td>
<td>6m seal 5.5m seal with designed traffic mgmt &amp; parking</td>
<td>7m seal 5.5m seal with designed traffic mgmt &amp; parking</td>
</tr>
<tr>
<td>Max. longitudinal gradients</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>10%</td>
<td>10%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>No. travel lanes</td>
<td>1</td>
<td>2</td>
<td>2+</td>
<td>2+</td>
<td>2+</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Parking in reserve</td>
<td>None</td>
<td>Verge.</td>
<td>Verge + indent parking @ 1 / 1 lot if pavement &lt; 7m.</td>
<td>Carriageway</td>
<td>Carriageway</td>
<td>Verge + indent parking @ 1 / 1 lot if pavement &lt; 5.5m.</td>
<td>Verge + indent parking @ 1 / 1 lot if pavement &lt; 5.5m.</td>
</tr>
<tr>
<td>Kerb type Note 1</td>
<td>Layback or grass swale</td>
<td>Layback or grass swale</td>
<td>Layback or grass swale</td>
<td>Layback</td>
<td>Upright</td>
<td>Layback</td>
<td>Layback</td>
</tr>
<tr>
<td>Footpath Built &amp; concrete</td>
<td>Nil, road</td>
<td>Nil, road</td>
<td>Nil, road</td>
<td>1 x 1.2 m. in verge</td>
<td>1 x 1.5 m. in verge</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Cycleway</td>
<td>Road</td>
<td>Road</td>
<td>Road</td>
<td>Road</td>
<td>Good visibility 1 x 3.5 m. on carriageway</td>
<td>Road</td>
<td>Road</td>
</tr>
<tr>
<td>Verge width metres</td>
<td>variable</td>
<td>2 x 4</td>
<td>2 x 4.75</td>
<td>2 x 4.5</td>
<td>2 x 3.5</td>
<td>2x5</td>
<td>2x5.5</td>
</tr>
<tr>
<td>No. of lots to be serviced</td>
<td>&lt; 3</td>
<td>5 and less</td>
<td>&lt;50</td>
<td>50 - 150</td>
<td>&gt; 150</td>
<td>5 and less</td>
<td>&lt; 50</td>
</tr>
</tbody>
</table>

Note 1: Scouring of grass swales is likely to occur in grades exceeding 7%. Where gradients in excess of 12% occur, kerb and gutter must be provided on all roads.
Table 6-6: Village Street leg length and travel speed.

<table>
<thead>
<tr>
<th>Street type</th>
<th>target travel speed (km/hr)</th>
<th>Max. leg length between slow points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Access Place</td>
<td>30</td>
<td>75-100</td>
</tr>
<tr>
<td>Village Local Street</td>
<td>40</td>
<td>100-140</td>
</tr>
<tr>
<td>Village Collector Streets</td>
<td>40</td>
<td>120-150</td>
</tr>
</tbody>
</table>

Figure 6-9: Measures to control vehicle speed
Table 6-7: Minimum deflection angles for traffic control devices (20 km/hr).

<table>
<thead>
<tr>
<th>Bend type</th>
<th>Street pavement width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.0 - 6.0 metres</td>
</tr>
<tr>
<td></td>
<td>7.0 - 7.5 metres</td>
</tr>
<tr>
<td>Single bend</td>
<td>70°</td>
</tr>
<tr>
<td></td>
<td>90°</td>
</tr>
<tr>
<td>Chicane (two reverse single bends)</td>
<td>45° - 45°</td>
</tr>
<tr>
<td></td>
<td>60° - 60°</td>
</tr>
</tbody>
</table>

Figure 6-10: Examples of verge and on street parking treatment

*Element:* Street Construction

**OBJECTIVE**
To construct streets that support the design intentions without unnecessary construction and whole of life cycle costs.

**PERFORMANCE CRITERIA**
The objective may be achieved where:

1. The pavement edging and landscaping support the specified functions and amenity of the street.

**SUGGESTED SOLUTIONS**
The following suggested solutions are ONE WAY of meeting the objective and performance criteria:

Pavement and landscape materials are used, where appropriate, to distinguish different street functions.
2. The pavement edge:
   - controls vehicle movements by delineating the carriageway for all users;
   - assists in controlling stormwater runoff;
   - provides for people with disabilities, by allowing safe passage of wheelchairs and other mobility aids.

3. Street pavement surfaces are well designed and durable enough to carry wheel loads of travelling and parked vehicles; ensure the safe passage of vehicles, pedestrians and cyclists; the discharge of rainfall, and the preservation of all-weather access; and allow for reasonable travel comfort.

4. Consistent with Performance Criteria 3, public street construction and whole of life cycle costs are kept low.

Pavement edges at pedestrian crossings are constructed for wheelchair and pram access and to assist sight-impaired people in accordance with AS1428 Pt I and Pt 4.

Element:- Utility Services

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that residential areas are adequately serviced with sewerage (where applicable), water, fire fighting, electricity, street lighting and communication services in a timely, cost effective, co-ordinated and efficient manner that supports sustainable development practices.</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

The design and provision of utility services conforms to Council's:
- “General Specification for the Construction of Road and Drainage Works”,
- “Specification for the Construction of Sewers”, and
- “Specification for the Construction of Water Reticulation”.

The requirements of other relevant supply authorities.

Lot layout to be designed to ensure that effluent from each lot can gravitate into the sewer. This might require a building envelope and a minimum floor level. |

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td></td>
</tr>
</tbody>
</table>

1. Design and provision of utility services, including sewerage, water, electricity, street lighting, and communication services, are cost effective over their life cycle and incorporate provisions to minimise adverse environmental impact in the short and long term.

2. Compatible public utility services are located in common trenching in order to minimise the land required and the costs for underground services.

3. Cables for cable television should be underground where electricity service is underground.

4. Development occurs within locations where there is an adequate water supply for domestic and fire fighting purposes.

5. Development is staged to ensure that each stage is fully serviced before a new area is released. | |
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Water supply and sewerage networks are accessible, easy to maintain, and cost effective based on life cycle costs.</td>
</tr>
<tr>
<td>7.</td>
<td>The selection of materials used for water supply and sewerage works is determined by suitability, durability, ease of maintenance and whole of life cost effectiveness, achieving beneficial environmental impacts/energy savings etc. from new materials and technologies.</td>
</tr>
<tr>
<td>8.</td>
<td>Adequate buffers are maintained between utilities and houses to protect residential amenity and health.</td>
</tr>
<tr>
<td>9.</td>
<td>Public lighting shall be designed to maximise energy efficiency.</td>
</tr>
</tbody>
</table>

- Public lighting is designed in accordance with:
  - Australian Standard AS/NZS 1158 “Lighting for Roads and Public Spaces”;
  - The NSW Public Lighting Code; and
  - Any relevant street lighting service agreements between council and the service provider.
- The efficiency of public lighting lamps is no less than 60 lumens/watt. (Note that mercury vapour lamps do not meet this criterion)
- Public lighting lamps are shielded so that no light is emitted above the horizontal thus minimising wasted light.
Minimum Standards and techniques

Figure 6-11: Utilities and typical joint trenching

STANDARD CROSS SECTION WATER MAIN WITH TELECOM

REF No. STD 590
### Element:- Effluent Disposal

**OBJECTIVE**

To ensure that residential areas are adequately serviced with on-site sewerage systems (where the area is not sewered) in a cost effective, co-ordinated and efficient manner that supports sustainable development practices.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The objective may be achieved where:</strong></td>
<td><strong>The following suggested solution is <strong>ONE WAY</strong> of meeting the objective and performance criteria:</strong></td>
</tr>
<tr>
<td><strong>1.</strong> No risk to public health occurs.</td>
<td>The design and provision of wastewater systems conforms to Council’s current On-Site Sewage &amp; Wastewater Management Strategy.</td>
</tr>
<tr>
<td><strong>2.</strong> Land quality deterioration through chemical or biological contamination, or degradation of soil structure does not occur.</td>
<td><strong>OR</strong> A decentralised wastewater management system (packaged treatment plant), including appropriate management and maintenance systems, is provided.</td>
</tr>
<tr>
<td><strong>3.</strong> There is no contamination of surface waters emanating from the site, including first-flush rainfall runoff, contaminated surface or sub-surface flow or contaminated groundwater.</td>
<td></td>
</tr>
<tr>
<td><strong>4.</strong> Groundwater is not contaminated.</td>
<td></td>
</tr>
<tr>
<td><strong>5.</strong> Useful resources in domestic wastewater (e.g. nutrients, organic matter and water) are identified and utilised to the maximum.</td>
<td></td>
</tr>
<tr>
<td><strong>6.</strong> Unreasonable interference and nuisance to the public from odour, dust, insects and noise above background levels is to be avoided.</td>
<td></td>
</tr>
<tr>
<td><strong>7.</strong> On-site wastewater management systems are preferably of a low technology design.</td>
<td></td>
</tr>
</tbody>
</table>

### 6.1.5 Stormwater Management

**Element:- Stormwater Drainage**

**OBJECTIVES**

To provide major and minor drainage systems which:

- Adequately protect people and the natural and built environments to an acceptable level of risk and in a cost effective manner, in terms of initial cost and maintenance, and
- Contribute positively to environmental enhancement of catchment areas.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The objectives may be achieved where:</strong></td>
<td><strong>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objectives and performance criteria:</strong></td>
</tr>
<tr>
<td><strong>Major system</strong> 1. The major stormwater drainage system has the capacity to safely convey stormwater flows resulting from the relevant design storm under normal operating conditions, taking partial minor system blockage into account.</td>
<td><strong>Major system</strong> The design and construction of the major storm drainage systems are in accordance with the requirements of Australian Rainfall and Runoff (1987) and Council’s “General Specification for the Construction of Road and Drainage Works”.</td>
</tr>
</tbody>
</table>

---

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2. The major system has the capacity to convey safely, but possibly with flooding, stormwater flows resulting from events more extreme than the design storm without significant property damage.

3. Ground floor levels of all buildings are located above the design flood level to provide protection to property in accordance with the accepted level of risk.

4. Floodways are developed for storms greater than pipe capacity and which ensure that there is a low risk of property damage.

5. Community benefit is maximised through the retention of natural streams and vegetation wherever practicable and safe, the incorporation of sports grounds and other less flood sensitive land uses into the drainage corridor and the placement of detention basins where necessary to control stormwater.

6. The major system is designed to ensure that there are no flow paths which would increase risk to public safety and property.

**Minor System**

7. The minor storm drainage system has the capacity to control stormwater flows under normal operating conditions for the relevant design storm with minimal risk of blockage.

8. Drainage networks are well defined to ensure there are no hidden flow paths which could reduce their capacity to convey design flows.

9. The design of the minor system takes full account of existing downstream systems.

10. The minor system design allows for the safe passage of vehicles at reduced speed on streets which have been affected by runoff from the relevant design storm.

11. The minor system is accessible and easily maintained.

12. Where a portion of the minor system lies within a site, access is available for maintenance.

13. The selection of materials used for the construction of the minor system is based on their suitability, durability, maintainability and cost-effectiveness.

The major system design is undertaken on a Total Catchment Management basis.

The major system design outflow is matched to the capacity of any existing downstream system and where necessary detention basins etc. are provided to retard stormwater flows onto downstream properties.

**Minor System**

The design and construction of the minor storm drainage system are in accordance with the requirements of *Australian Rainfall and Runoff (1987)* and Council's "General Specification for the Construction of Road and Drainage Works".

The minor system design outflow is matched to the capacity of any existing downstream system.

The minor system allows for the safe passage of vehicles at reduced speeds on streets which have been affected by runoff from a 10% AEP storm event.
14. Subdivision design and layout provides for:

- on-site stormwater detention and retention and
- on-site infiltration.

**DRAINAGE OUTLETS**

15. All stormwater systems shall be designed to discharge appropriate water volume, velocity and quality to an acceptable legal point of discharge.

Where soil and site geological conditions permit, on-site retention in storage tanks, soak trenches or other arrangements are provided.

OR

Where site topography prevents the discharge of stormwater directly to the street gutter or a Council controlled piped system, inter-allotment drainage is provided to accept runoff from all existing or future impervious areas that are likely to be directly connected.

The design of drainage systems is undertaken by a suitably qualified person. The design and construction of the inter-allotment drainage system are in accordance with the requirements of *Australian Rainfall and Runoff (1987)* and Council's "General Specification for the Construction of Road and Drainage Works".

Inter-allotment drainage should preferably not service more than 10 lots.

---

**Figure 6-12: Stormwater drainage**

[Diagram showing stormwater drainage systems and design considerations]
Figure 6-13: Pollutant traps and wetland filters

Source: AMCORD

Source: NSW EPA
### Element:- Water Quality Management

**OBJECTIVE**

To provide water quality management systems which:
- ensure that disturbance to natural stream systems is minimised, and
- stormwater discharge to surface and underground receiving waters, both during construction and in developed catchments, does not degrade the quality of receiving waters.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Adequate provision is made for measures during construction to ensure that the land form is stabilised and erosion is controlled.</td>
<td>An Erosion and Sediment Management Plan is prepared by properly qualified personnel using recognised and locally accepted design methodologies.</td>
</tr>
<tr>
<td>2. The system design optimises the interception, retention and removal of water-borne pollutants through the use of appropriate measures prior to discharge to receiving waters.</td>
<td>The Erosion and Sediment Management Plan is to comply with the Department of Land and Water Conservation's &quot;Urban Erosion and Sediment Control Manual&quot;, and Council's &quot;General Specification for the Construction of Road and Drainage Works&quot;. and &quot;Soil Erosion and Sediment Control Guidelines&quot;.</td>
</tr>
<tr>
<td>3. The system design minimises the environmental impact of urban runoff on the surface receiving water quality and on other aspects of the natural environment, by employing techniques which are appropriate and effective in reducing runoff and pollution travel.</td>
<td>Water pollution control ponds or wetlands are developed (where appropriate) for final treatment before discharge to the wider environment. Should be sited to minimise impacts on the natural environment.</td>
</tr>
<tr>
<td>4. Point sources of pollution in the catchment should be identified and their impact minimised until their impact can be eliminated.</td>
<td></td>
</tr>
</tbody>
</table>

---

6.1.6 **Streetscape and Lot Layout**

**Element:- Streetscape and Landscaping**

**OBJECTIVE**

To provide attractive streetscapes that:
- Reinforce the functions of a street,
- Enhance the amenity of buildings, and
- Are sensitive to the built form, landscape and environmental conditions of the village.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The street and landscape design achieves:</td>
<td>A Landscape Plan is submitted that demonstrates how the Performance Criteria are met, showing:</td>
</tr>
<tr>
<td>• the creation of attractive residential environments with clear character and identity;</td>
<td></td>
</tr>
</tbody>
</table>
• respect for local topography;
• habitat protection;
• respect for existing attractive streetscapes in established areas;
• appropriate streetscapes in areas where desired future urban character has been defined;

• provision for appropriate street tree planting taking into account the natural landscape, the image and role of the street, solar access requirements, soils, selection of appropriate species, and services;
• use of such features as views, vistas, existing vegetation and landmarks.

2. The design of the landscape in public streets:
• defines a theme for new streets, or complements existing streetscapes and integrates with new developments;
• is sensitive to site attributes;
• complements the functions of the street;
• reinforces desired traffic speed and behaviour;
• is of an appropriate scale relative to both the street reserve width existing or expected future building bulk;

• promotes safety and casual street surveillance;
• improves privacy and minimises unwanted overlooking;
• incorporates existing vegetation where possible and desirable;
• promotes the planting of native vegetation in environmentally sensitive areas;
• appropriately accounts for streetscapes and landscapes of heritage significance;
• assists in microclimate management;
• maximises landscaped areas where appropriate;
• integrates and forms linkages with parks, reserves and transport corridors;
• enhances opportunities for pedestrian comfort;
• achieves lines of sight for pedestrians, cyclists and vehicles;
• provides adequate lighting for pedestrian and vehicle safety;
• provides attractive and co-ordinated street furniture and facilities to meet user needs;
• satisfies maintenance and utility requirements and minimises the visual impact of above ground utilities.

• the street reserve and indicative locations of the carriageway, parking bays, footpaths, cycleway systems, speed control devices and, where practicable, driveways, bus stops, street lighting and substations;

• location of existing vegetation to be removed or conserved;
• location, species and general character of tree planting and hard and soft landscape treatment.

Landscape is in accordance with Council's "Landscape Guidelines",

OR

any approved landscape strategy for the area.

Compliance with this requirement is achieved by submission of a plan meeting the performance criteria and showing:

• boundaries and areas of communal open space including sites for specific recreational uses;
• existing vegetation and proposed general character of landscape treatment;
• general arrangement of hard landscaping elements and major earthcuts, fills and mounding;
• indicative treatment of floodways and drainage lines, along with general information on fencing, access points, furniture, pavement style, and treatment of the verge including any associated parking or drainage requirements;
• landscape plantings in buffers is to be dense to minimise future maintenance.
**Element: Lot Layout**

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide a range and mix of lot sizes to suit a variety of dwellings and household types, with areas and dimensions to meet user requirements.</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objectives and performance criteria:</td>
</tr>
<tr>
<td>To provide lots that are oriented where practicable to enable the application of energy conservation principles.</td>
<td><strong>Size</strong></td>
</tr>
<tr>
<td>To encourage a lot layout which will provides and reinforces existing areas and facilities providing community focus and interaction.</td>
<td>Lots are capable of containing a building envelope of 18 x 10 or 15 x 12 metres.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives may be achieved where:</td>
<td><strong>Size</strong></td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Lots sizes between 1,000 and 2,000 m² are preferred.</td>
</tr>
<tr>
<td>1. Lots have the appropriate area and dimensions for the siting and construction of a dwelling, ancillary outbuildings and area for services, the provision of private outdoor space, rural views, convenient vehicle access and parking.</td>
<td>An absolute minimum lot size of 800 m², with an average of 1,000 m² where reticulated / common effluent disposal is available and 2,000 m² where no reticulated sewerage system is available.</td>
</tr>
<tr>
<td>2. Lot size and dimensions take into account the slope of the land and the desirability of minimising earthworks, retaining walls etc. associated with dwelling construction.</td>
<td>Lots with an area less than 2,000m² are square or rectangular in shape.</td>
</tr>
<tr>
<td>3. Lot sizes and dimensions enable dwellings to be sited to:</td>
<td>Lots with an area less than 2,000m² are located on land with a slope of less than 10%.</td>
</tr>
<tr>
<td>• protect natural or cultural features;</td>
<td>Smaller lots to be located near the village centre.</td>
</tr>
<tr>
<td>• acknowledge site constraints including soil erosion and bushfire risk;</td>
<td>Lots on slopes should be larger to reduce the need for building earthworks, compensate for loss of useful open space, potential difficulties with house construction and provision of access and where applicable, wastewater treatment and disposal. Generally at least 1,000 m² where slopes are over 15 %.</td>
</tr>
<tr>
<td>• retain special features such as trees and views.</td>
<td>All lots should have an area capable of accommodating a building envelope on slopes less than 20%.</td>
</tr>
<tr>
<td>4. Lot sizes meet the projected requirements of people with different housing needs, and provide housing diversity and choice.</td>
<td></td>
</tr>
</tbody>
</table>

Size:
- Lots are capable of containing a building envelope of 18 x 10 or 15 x 12 metres.
- Lots sizes between 1,000 and 2,000 m² are preferred.
- An absolute minimum lot size of 800 m², with an average of 1,000 m² where reticulated / common effluent disposal is available and 2,000 m² where no reticulated sewerage system is available.
- Lots with an area less than 2,000m² are square or rectangular in shape.
- Lots with an area less than 2,000m² are located on land with a slope of less than 10%.
- Smaller lots to be located near the village centre.
- Lots on slopes should be larger to reduce the need for building earthworks, compensate for loss of useful open space, potential difficulties with house construction and provision of access and where applicable, wastewater treatment and disposal. Generally at least 1,000 m² where slopes are over 15 %.
- All lots should have an area capable of accommodating a building envelope on slopes less than 20%.
**User requirements**

5. Lot frontages are orientated to streets and open spaces so that personal and property security, deterrence of crime and vandalism, and surveillance of footpaths and open spaces are facilitated.

**Orientation and energy**

6. Lots are orientated to facilitate the siting of dwellings to take advantage of microclimatic benefits, and have dimensions to allow adequate on-site solar access, taking into account likely dwelling size and the relationship of each lot to the street.

Lot design allows for houses to be built with north facing windows which receive maximum winter sun.

Lot design ensures that each lot:

- will not be overshadowed by neighbouring houses to the north.
- can have a sufficiently long north facade to receive winter sun.

Streets are aligned in a north-south or east west direction, where practical.

**Minimum Standards and techniques**

1. Access to steep lots should have a gradient of no greater than 29%, with a maximum change in grade of less than 13%.

2. Cut and fill is to be limited to 1.2 metres below or above natural ground level.

---

Figure 6-14: Lot orientation and solar access
Element: Environmental Protection

**OBJECTIVE**
To ensure that the development of residential land recognises and protects areas and items of environmental significance.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>
| **Natural environment**  
1. The design identifies and maintains the value of rare, endangered or uncommon flora, fauna and ecosystems. | Land suitable for urban bushland is dedicated to Council. |
| **Natural landscape**  
2. The design maintains and improves significant visual landscape elements such as ridgelines, water systems and prominent natural features. | |
| **Cultural heritage**  
3. The design conserves and enhances buildings, archaeological and other sites of recognised heritage significance. | |

**Minimum Standards and Techniques**

1. The design complies with the requirements of State Government and Lismore City Council for the protection of native vegetation.

2. The design complies with the requirements of State Government and Lismore City Council for the protection of environmental and cultural heritage.
Element:- Subdivision of Buildings

**OBJECTIVES**

To allow separate titles to be created for parts of a development.

To provide for the effective and efficient management of common or shared facilities.

**PERFORMANCE CRITERIA**

The objectives may be achieved where:

1. The range and extent of body corporate activities are limited to those legally permitted.

2. The street and lot layout clearly defines the public, communal and private areas of a development, including the function, ownership and management of open spaces and communal areas.

**SUGGESTED SOLUTIONS**

The following suggested solutions are ONE WAY of meeting the objectives and performance criteria:

Such measures may include:

- creating separate sites for each dwelling with their own public street frontage;
- limiting communal land to driveways only;
- designing dwellings to minimise the need for corporate building management;
- ensuring that cost effective management is practicable where communal open space or shared facilities are provided.

**Minimum Standards and Techniques**

1. The building/s were erected in accordance with a Development Consent issued after 27/2/92 by Lismore City Council under the Lismore Local Environmental Plan, 1992, otherwise development approval is required.

2. The building/s have been completed in accordance with relevant legislation.

3. Separate utility service meters / junctions are provided to each dwelling and if necessary any common area.

4. All private open space areas are to be allocated to a dwelling unit.
## Element:- Village Commercial and Industrial Subdivision

### OBJECTIVE
To enable the development and use of village land for commercial and retail purposes.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The lot has a shape and area that adequately provides for the proposed use.</td>
<td>The shape and size of lots provides for:</td>
</tr>
<tr>
<td></td>
<td>• siting and construction of any buildings and works;</td>
</tr>
<tr>
<td></td>
<td>• the parking of vehicles;</td>
</tr>
<tr>
<td></td>
<td>• provision of loading and servicing facilities;</td>
</tr>
<tr>
<td></td>
<td>• landscaping;</td>
</tr>
<tr>
<td></td>
<td>• the provision of utility services (water effluent disposal, electricity etc.).</td>
</tr>
</tbody>
</table>

**OR**

The subdivision plan is accompanied by a development plan showing how the above matters can be achieved.

### Notes:
1. Chapter 6 (Nimbin Village) of Part B of this DCP designates areas for industrial subdivision and development.

2. In other villages an amendment to the applicable Chapter may be required, otherwise subdivision and development of land in the village may occur for light industrial purposes only.
6.2 Rural Residential Subdivision

The Department of Planning’s, ‘Guidelines for Rural Settlement on the North Coast of NSW’, introduces a catchment approach to rural settlement in the North Coast region of NSW and the implementation of planning principles to ensure a comprehensive planned approach.

Those planning principles involve:

1. Defining the framework for a planning catchment based on physical, social and service features and networks;
2. Consideration of patterns of settlement by defining a rural settlement hierarchy to identify preferred areas for rural residential settlement;
3. Identifying the following key planning and design elements; environmental protection, social/people needs, compatible land use and character, servicing and self-reliance and community resource management to be considered in development design;
4. Providing opportunities for participation in location, design, development and management of settlements.

Best practice notes provide information and guidelines as a means of achieving the objectives of the catchment approach and satisfy major issues which typically arise in relation to rural residential development.

Consideration of the following, at a site level and co-ordinated at a local and district level is suggested for:

1. Resource management of the environment, land, utilities and infrastructure and community facilities; and
2. Development of a theme that fits the proposal into the preferred settlement pattern to establish the aims and functions, linking the development suitability with land capability, and compatibility with surrounding land use and local character. Several models are shown as examples.

The Guidelines are implemented through:

1. The North Coast Regional Environment Plan requiring that any local environment plan permitting rural residential development be based on a local government strategy, approved by State Government; and
2. The North Coast Urban Planning Strategy outlines matters to be addressed by Council wishing to enable rural residential development.

Council rural settlement strategies have to be approved by the Dept. of Planning prior to introduction and commencement of planning mechanisms to enable the form of subdivision. Lismore City Council has a Rural Settlement Strategy (Lismore Rural Housing Strategy) which has been endorsed by the Dept. of Planning.

All rural residential development should satisfactorily address relevant requirements of the guidelines, the Rural Housing Strategy, applicable Locality Development Strategies and Precinct Plans. This is to be demonstrated in the Development Context and Site Analysis Plan (Property Development Plan) with the proposal.
6.2.1 Minimum Allotment Sizes
Lismore Local Environmental Plan, 2000 (as amended) specifies the following minimum lot size in the rural residential zones:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Minimum lot size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(c) - Rural Residential Zone</td>
<td>2,000 m², with an average of all lots to be created not less than 5,000m²</td>
</tr>
</tbody>
</table>

6.2.2 Locality Planning

**Element:- Design in Local Context**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
</table>
| To locate rural settlements in a manner that reinforces existing rural settlement patterns and meets the diverse and changing needs of the community by:  
• providing for the needs of existing and future people;  
• protecting the environment;  
• ensuring compatible land use and character;  
• efficient provision of services and self reliance; and  
• community resource management. |
The objective may be achieved when the Phases in the Design Process (refer section 6) are followed and where:

1. The proposal is located either in an area preferred for rural residential settlement, as identified in the Councils Rural Settlement Strategy. *(Refer to Figure 6-14 and Table 6-8)*

2. The subdivision layout responds to topography, site characteristics, setting, landmarks and views, through road networks and protection of the environment.

3. Local identity is reinforced by locating community facilities at focal points for residents.

4. The road network provides a high level of accessibility and good external connections for local vehicle, pedestrian and cycle movements, with traffic management to restrain vehicle speed, deter through traffic and create safe conditions for all road users.

5. The road and lot layout enables efficient provision of physical services.

6. The road and lot orientation and lot dimensions facilitate the siting and design of energy efficient dwellings.

7. The lot design and layout provide a variety of lot sizes and enable a variety of housing types and other compatible land uses.

8. The layout provides well distributed rural open spaces that contribute to the character of the development, provide for a range of uses, are cost effective to maintain, and contribute to stormwater management and environmental care.

9. The layout retains significant vegetation and habitat areas, particularly koala habitat.

10. The layout is integrated with the surrounding rural environment, complements existing attractive rural landscapes, and provides for shared use of public facilities.

11. The layout enhances personal safety, and minimises potential for crime through surveillance by pedestrians and drivers of passing vehicles.

12. The layout and management of rural residential development provides for:

The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

The proposed development is located in an area and meets the requirements of the Lismore Rural Housing Strategy.
Environmental and land management through:
- protection and management of natural habitat and vegetation;
- reforestation and tree planting;
- protection of water courses and water quality;
- control of weeds and feral animals;
- agricultural use of the land;
- buffer areas between potentially conflicting land uses;
- protection from bushfire;
- minimises soil erosion;
- avoids development on flood prone and hazardous i.e. unstable land;
- avoids contaminated areas e.g. cattle tick dip sites.

Effective utility and infrastructure services including:
- road and road easement maintenance;
- potable water collection and reticulation systems;
- sewage treatment and effluent disposal;
- firefighting equipment and training;
- boundary fencing.

Provision or up-grade of community facilities including where required:
- open space areas and passive recreation;
- active recreation;
- community centres, fire brigade sheds etc.

<table>
<thead>
<tr>
<th>Form of settlement</th>
<th>Approximate size people [households]</th>
<th>Description and function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large village</td>
<td>400 - 1,000 [130 - 330]</td>
<td>A settlement providing a focus and services for smaller villages and hamlets. It may include a central school, post office, police station, churches, hotel, local or district sports facilities, a reticulated water service, small business centre and bus service to Lismore.</td>
</tr>
<tr>
<td>Small village</td>
<td>100 - 400 [30 - 130]</td>
<td>A settlement providing local focus and services. It may include a convenience store and other localised services (garage/mechanic), church and community hall, bus services</td>
</tr>
<tr>
<td>Hamlet</td>
<td>30 - 100 [10 - 30]</td>
<td>May comprise either rural residential development or an existing small settlement. It can be a group of small holdings or organised development or subdivision. It may be based on rural community level of services e.g. school, school bus, hall. Development is clustered to achieve community or common facilities and services (roads, waste disposal).</td>
</tr>
<tr>
<td>Dispersed dwellings on individual lots</td>
<td>single dwelling</td>
<td>Associated with either agricultural use (farming or grazing), retreat/hobby bush blocks or previously created isolated concessional lots. Self contained, school bus links with villages and/or Lismore.</td>
</tr>
</tbody>
</table>

Examples:
Large village: Nimbin
Small village: Wyrallah
Figure 6-14: Rural Settlement Hierarchy
**Element:- Major Movement Networks**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide movement networks for vehicles, public transport, pedestrians</td>
</tr>
<tr>
<td>and cyclists that are integrated, cost effective, environmentally</td>
</tr>
<tr>
<td>acceptable, and minimise the impact of traffic on the rural road network.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td></td>
</tr>
</tbody>
</table>

1. The road network meets local existing and future needs generated by the proposal and allows for the provision of public transport, for pedestrians and cyclists in a co-ordinated manner.

2. The rural road network has the capability to accommodate public transport services and has capacity to safely and efficiently accommodate projected traffic movements.

3. The road network connects with external traffic routes in a manner which maximises movement efficiency on the traffic routes.

4. Development roads do not operate as through traffic routes for externally generated traffic (other than for public transport).

The following suggested solutions are ONE WAY of meeting the objective and performance criteria:

A road network is, or can be provided, in accordance with a Council approved Rural Roads Strategy or Development Control Plan, which provides for private and public transport.

OR

A Traffic Study submitted with the proposal which provides for an integrated approach to movement systems in a manner satisfying this Plan.

The rural roads servicing the proposal to Lismore and/or nearby large villages are capable of meeting increased traffic.

The road network conforms to Council's Rural Roads Strategy, Development Control Plan for the area and/or Traffic Study submitted with the proposal showing an existing and proposed major road network, which satisfies projected local travel and integrates with the arterial road network.

The road network provides for pedestrians and cyclists in accordance with the requirements of this plan.

Through traffic with projected traffic volumes exceeding those specified in Table 6-9 is not preferred on rural residential roads.

**Minimum Standards and Techniques**

1. Subdivision creating lots with direct vehicular access onto either the Bruxner Highway or Bangalow Road is prohibited.

2. Subdivision creating lots with direct vehicular access onto regional roads is not preferred, except by way of shared access.
Table 6-9: Rural Settlement Road Types

<table>
<thead>
<tr>
<th>Street</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Residential Laneway (including right of way)</td>
<td>is an minor access road to be held in private ownership. These roads provide a shared carriageway for use by pedestrians, cyclists and vehicular traffic. Where the laneway is the sole means of access the number of lots it services is to be less than 5.</td>
</tr>
<tr>
<td>Rural Settlement Local Road</td>
<td>is a road in which the rural residential environment coexists with vehicular traffic pedestrians and cyclists. Footpaths not required, parking partly on the verge and carriageway. Generally, the number of dwellings does not exceed 10. Traffic volume, less than 100 veh/day.</td>
</tr>
<tr>
<td>Rural Settlement Collector Road</td>
<td>is a street in which the rural residential environment coexists with vehicular traffic pedestrians and cyclists. Vehicular parking partly on the verge and carriageway. Footpaths not required. The street caters for up to 20 dwellings and distributes traffic to higher volume streets. Traffic volume, less than 300 veh/day.</td>
</tr>
<tr>
<td>Rural Settlement Sub-arterial Road</td>
<td>typically collects traffic from lower volume roads and may provide bus routes. Intermittent on-street parking is provided in the carriageway. Traffic volume, more than 300 veh/day. Sub-arterial roads provide the highest order of road linkages between the proposal roads and the Arterial rural road network to Lismore and/or the nearest large village.</td>
</tr>
<tr>
<td>Rural Settlement Arterial Road</td>
<td>refer to Rural Roads Policy</td>
</tr>
</tbody>
</table>

**Element:- Local Road Networks**

**OBJECTIVE**

To create local road networks in which the function of each road is clearly defined, providing acceptable levels of access, safety and convenience for all users.

**PERFORMANCE CRITERIA**

The objective may be achieved where:

*Function and structure*

1. The road network has a clear structure and component roads conform to their function in the network.
2. The network has clear physical distinctions between each type of road. These distinctions are based on function, legibility, convenience, traffic volumes, vehicle speeds, public safety and amenity.
3. The design features of each type of rural residential road encourage driver behaviour appropriate to the primary function of the road.

*Safety, access and convenience*

4. Intersections along rural residential roads are spaced to create safe and convenient vehicle movements.

**SUGGESTED SOLUTIONS**

The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

*Function and structure*

Roads link with other roads that are no more than two levels higher or lower in the hierarchy.

The road network reflects the characteristics specified in Table 6-9, 6-10, 6-11 and 6-12.

*Safety, access and convenience*


5. The road network creates convenient movement for residents between their homes and higher order roads.

6. Street lighting is provided at road intersections.

**Mode choice**

7. There is provision for efficient bus routes which are direct and safely accessible by foot from most dwellings and activity centres.

8. The alignment and geometry of roads carrying bus routes provide for ease of movement of buses without complicated turning manoeuvres and without facilitating high traffic speeds.

9. The road network facilitates walking and cycling.

**Rural residential design and character**

10. The road network takes account of the topography and vegetation, respects any existing or potential site assets, and takes advantage of opportunities for views and breezes.

11. The road network takes account of the rural landscape that may be created or that already exist.

12. The road network is oriented, where practical, to promote efficient solar access for dwellings.

13. The road network takes account of natural drainage and environmentally sensitive systems.

**Environmental protection**

14. Traffic generated by a development is within the acceptable capacity of the roads.

15. Roads do not operate as through traffic routes for externally generated traffic, while limiting the length of time local drivers need to spend in a low speed environment.

16. The road network is designed to reduce traffic speeds and volumes to acceptable levels, with most dwellings fronting roads with low volumes.

The driving distance from any dwelling to the nearest Collector (or higher-order) road is minimised.

Turning movements at intersections are to be minimised in order to travel from any home to the most convenient Collector or higher order road.

**Mode choice**

Public transport routes and stops are provided as set out in Element – Public Transport.

Roads provide a safe, convenient and legible network for pedestrians and cyclists in accordance with Element – Pedestrian, Cyclist and Non-vehicular facilities.

**Rural residential design and character**

The road network permits the establishment of landscapes that incorporate the provisions of Element – Rural Landscape and Landscaping.

The roads are aligned in east-west or north-south direction, wherever possible.

**Environmental protection**

Intersections within the road network have appropriate traffic management treatments to slow and control traffic.
17. The impact of measures intended to restrain traffic speeds and/or volumes takes account of the needs of other street users and adjoining dwellings, by avoiding:

- stop start conditions;
- unacceptable traffic noise to adjoining dwellings.

18. Roads and lots are located so that dwellings are not subject to unacceptable levels of traffic noise.

Cost effectiveness
19. Roads and carriageway widths and road lengths optimise the cost effectiveness of the road network, without compromising road standards.

20. The network provides for the community cost effective provision of public utilities.

Traffic speeds and volumes are restrained through measures such as:

- limiting street length;
- introducing bends;
- introducing slow points

Traffic noise in roads should not exceed 55 dB(A) L10 at the facade of dwellings.

Cost effectiveness
The length of Sub-arterial Roads is minimised, except where the topography or the location of major traffic routes makes a longer distance unavoidable.

The network caters for the provision of public utility networks including water, electricity and telecommunications.

Minimum Standards and Techniques
Table 6-10: Classification of Closer Rural Settlement Roads

<table>
<thead>
<tr>
<th>Road level/type and function</th>
<th>Design speed (km/hr.)</th>
<th>Indicative traffic vol. (vpd)</th>
<th>Stopping sight dist. (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laneway or Right of Way</td>
<td>10</td>
<td>&lt;50</td>
<td></td>
</tr>
<tr>
<td>Local Road</td>
<td>40</td>
<td>&lt;100</td>
<td>40</td>
</tr>
<tr>
<td>Collector Road</td>
<td>40</td>
<td>&lt;300</td>
<td>40</td>
</tr>
<tr>
<td>Sub-arterial Road</td>
<td>60</td>
<td>300+</td>
<td>70</td>
</tr>
</tbody>
</table>

Element:- Pedestrian, Cyclist and Non-vehicular facilities

OBJECTIVE
To encourage walking, cycling and horse riding and the like, by providing sufficient area in the road reserve within the development.

PERFORMANCE CRITERIA
The objective may be achieved when the Phases in the Design Process (refer section 5) are followed and where:

1. The road network provides sufficient area for pedestrian, cyclist and pony trails (separate from pedestrians), with possible connections to adjoining roads, open spaces.

SUGGESTED SOLUTIONS
There are no recommended Suggested Solutions for this Element, as each situation requires an individual approach.
Element:- Public Transport

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase opportunities for choice in mode of transport and provide for cost effective and energy efficient public transport services that are accessible and convenient to the resident community.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

**Planning**

1. A public transport route is provided that takes account of:
   - projected travel demand;
   - distribution of likely demand;
   - scale and time of demand;
   - characteristics of travellers;
   - travel time;
   - operating characteristics;
   - cost of providing the service; and
   - route location and design.

**Route location and design**

2. Convenient connections to adjoining areas provide for ease of movement of buses within the rural residential area and onto arterial roads.

3. Buses are able to safely gain access to the development without complicated turning manoeuvres.

4. The alignment and geometry of the roads that form the bus route allow for the efficient and unimpeded movement of buses without facilitating high traffic speeds.

**Bus stop location and design**

5. Public transport stops provide for pedestrian safety, security, comfort and convenience.

6. Bus stops are designed allow safe passing of stationary buses, or vehicle speeds are reduced to ensure safe pedestrian crossing.

**Planning**

Where a Council approved strategy, Development Control Plan or other planning instrument exists, routes conform with that plan.

**Route location and design**

Routes for regular bus services are designed in accordance with Table 6-11 and 6-12.

**Bus stop location and design**

Minimum Standards and Techniques

Table 6-11: Minimum requirements for Bus Routes

<table>
<thead>
<tr>
<th>STREET CARRIAGEWAY WIDTHS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>One-way: 6.5 metres</td>
<td></td>
</tr>
<tr>
<td>Two-way: 9.0 metres or 7.5 metres where bus bays are provided with a traffic calming and management.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TURNING CIRCLE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R 12.5 metres + 1 m. gravel shoulder for single bus</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROUNDABOUTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum desirable pavement crossfall: 3%</td>
<td></td>
</tr>
<tr>
<td>Maximum desirable longitudinal gradient: 6%</td>
<td></td>
</tr>
<tr>
<td>Absolute maximum gradient: 12%</td>
<td></td>
</tr>
</tbody>
</table>
6.2.3 Physical Infrastructure

**Element:- Road Design**

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
</table>
| **OBJECTIVE** | To provide for roads that:
| • fulfil their designated functions within the road network;
| • accommodate public utility services;
| • accommodate drainage systems; and
| • create a safe and attractive environment. |

<table>
<thead>
<tr>
<th>Function and width</th>
<th>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The design features of each type of rural residential road convey its primary function.</td>
<td></td>
</tr>
<tr>
<td>2. The road reserve width is sufficient to cater for all street functions, including:</td>
<td></td>
</tr>
<tr>
<td>• safe and efficient movement of all users;</td>
<td></td>
</tr>
<tr>
<td>• retention of existing trees;</td>
<td></td>
</tr>
<tr>
<td>• contributing to a rural residential character by providing increased widths between boundaries and/or dwelling sites;</td>
<td></td>
</tr>
<tr>
<td>• provision of landscaping;</td>
<td></td>
</tr>
<tr>
<td>• location, construction and maintenance of public utilities.</td>
<td></td>
</tr>
<tr>
<td>3. The verge width is sufficient to provide for special site conditions and future requirements.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Designing for safety</th>
<th>The following road components for each type of roads are as specified in Table 6-12:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. The design facilitates safe use by vehicles and non-vehicles users by:</td>
<td></td>
</tr>
<tr>
<td>• providing a carriageway width which allows vehicles to proceed safely at the operating speed intended for that level of street;</td>
<td></td>
</tr>
<tr>
<td>• providing a horizontal and vertical alignment which is not conducive to excessive speeds;</td>
<td></td>
</tr>
<tr>
<td>• promoting the safety of pedestrians at bus stops and other crossing points;</td>
<td></td>
</tr>
<tr>
<td>• promoting the safety of cyclists in streets and at crossing points.</td>
<td></td>
</tr>
<tr>
<td>5. Speed reduction techniques are used to achieve desired speeds, as part of a design for the whole road environment, and include the following principles:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Designing for safety</th>
<th>Traffic speeds and volumes are restrained through one or more of the following measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The verge width is increased where necessary to allow space for larger scale landscaping, protection of trees, future carriageway widening, retaining walls, pedestrian, cycle or horse paths or overland stormwater flow paths.</td>
<td></td>
</tr>
</tbody>
</table>
slow points including either horizontal or vertical deflection are designed to slow traffic to design speeds;
landscape and streetscape design are used to complement speed restriction measures;
speed restriction techniques and devices are not used in isolation;
the verge provides safe sight distances, taking into account expected vehicle speeds.

6. Safe sight distances, based on vehicle travel speeds, exist at property access points and at junctions and intersections.

Driveway Access
7. The carriageway and verge width allows for unobstructed access to individual lots, even when a car is parked on the opposite side of the road.

Driveway egress movements do not create a safety hazard.

Geometric Design
8. Bus routes have a carriageway width that:
   - allows for the movement of buses;
   - is unimpeded by parked cars;
   - avoids cars overtaking parked buses.

9. The horizontal and vertical alignments satisfy safety criteria and reflect physical land characteristics and major drainage functions.

(i) Limiting street length
Where road 'leg' length is limited to control vehicle speed, the lengths between slow points are designed to restrict operating speeds.

(ii) Introducing bends
Bends are introduced to control speeds to 40 km/h in rural access places

(iii) Introducing slow points
Slow points are used to restrict speeds to 30 km/h, the length of road between two bends or slow points is minimised.

Where speed restriction devices are used in isolation, they include:
   - full horizontal displacement of the vehicle path;
   - swept vehicle paths to have a 20 m. radius;
   - construction on exit rather than on entry (otherwise there is a risk that the device may be short cut);
   - additional pavement treatment behind the kerb for large vehicle;
   - line marking and signposting

Driveway Access
Motorists can enter or reverse from a lot in a single movement.

Lot design enables driveways on major collector roads and roads which carry more than 300 vpd to be designed to promote forward movement of vehicles across the verge.

Geometric Design
The geometry of roads identified as bus routes provides suitable turning, stopping sight distance, grade and parking for buses (as determined from appropriate design documents), and has maximum carriageway widths within the ranges specified in Table 6-12.
<table>
<thead>
<tr>
<th>10. Geometric design for intersections, roundabouts and slow points is consistent with the vehicle speed intended for each street.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Siting conditions on land abutting major and minor distributor roads ensure that all vehicles can enter or leave the street in a forward direction.</td>
</tr>
<tr>
<td>Longitudinal gradients do not exceed the gradients specified in <em>Table 6-12</em>.</td>
</tr>
<tr>
<td>Curve super elevation does not exceed 6%.</td>
</tr>
<tr>
<td>For downgrades of 5-10% the street design should be based on an increase of the maximum speed of 5 km/h. For downgrades &gt;10%, this maximum speed should be increased by 10 km/h.</td>
</tr>
<tr>
<td>Crossfall on street pavement is to be 3%.</td>
</tr>
<tr>
<td>Design complies with AUSTROADS Guidelines.</td>
</tr>
<tr>
<td>Sufficient area is provided at the head of cul-de-sacs for waste disposal vehicles to make a 3 point turn.</td>
</tr>
</tbody>
</table>
Minimum Standards and Techniques

Figure 6-15: Carriageway widths
Table 6-12: Rural Settlement Road Characteristics
(refer Tables 6-9 and 6-11)

<table>
<thead>
<tr>
<th>Element</th>
<th>Private Laneway Community Title development only</th>
<th>Local Road</th>
<th>Collector Road</th>
<th>Sub-arterial Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Reserve Width</td>
<td>Variable</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>metres</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carriageway Width (Sealed) metres</td>
<td>1 lot - 3m&lt;br&gt;&gt;1 lot - 4m</td>
<td>6</td>
<td>6</td>
<td>7 with designed traffic mgmt</td>
</tr>
<tr>
<td>Cement Stabilised Gravel Road Formation Width metres</td>
<td>1 lot - 4m&lt;br&gt;&gt;1 lot - 5m</td>
<td>8</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Max. longitudinal gradients</td>
<td>25%</td>
<td>20%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>No. travel lanes</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2+</td>
</tr>
<tr>
<td>Parking in reserve</td>
<td>None</td>
<td>None</td>
<td>Verge</td>
<td>Verge</td>
</tr>
<tr>
<td>Kerb type</td>
<td>(See note 1)</td>
<td>(See note 2)</td>
<td>(See note 2)</td>
<td>(See note 2)</td>
</tr>
<tr>
<td>Footpath Built &amp; concrete</td>
<td>Grass in verge</td>
<td>Grass in verge</td>
<td>Grass in verge</td>
<td>Grass in verge</td>
</tr>
<tr>
<td>Cycleway</td>
<td>Road</td>
<td>Road</td>
<td>Road</td>
<td>Road</td>
</tr>
<tr>
<td>Verge width metres</td>
<td>variable</td>
<td>Variable, min. 3.5 m.</td>
<td>Variable, min. 3.5 m.</td>
<td></td>
</tr>
<tr>
<td>No. of lots to be serviced</td>
<td>&lt; 5</td>
<td>&lt; 10</td>
<td>10 - 20</td>
<td>&gt; 30</td>
</tr>
</tbody>
</table>

Notes:
1. Road pavement:
   Scouring is likely to occur on typical gravel rural roads exceeding 7%.
   Slopes in excess of 12 % must be sealed and table drains lined.
2. Scouring of table drains is likely to occur in grades exceeding 7%.
   Where slopes in excess of 12% exist, kerb and gutter must be provided on all roads.
3. Type of pavement will be influenced by factors such as topography, potential for further subdivision, length of roads, existing and predicted traffic numbers.
**Element:- Road Construction**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To construct roads that support the design intentions without unnecessary construction and whole of life cycle costs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td></td>
<td>Pavement and landscape materials are used, where appropriate, to distinguish different road functions.</td>
</tr>
<tr>
<td>1. The pavement edging and landscaping support the specified functions and amenity of the road.</td>
<td>Constructed drainage is to be provided where the gradient of roads exceeds 10% or soil conditions require.</td>
</tr>
<tr>
<td>2. The pavement edge:</td>
<td></td>
</tr>
<tr>
<td>• controls vehicle movements by delineating the carriageway for all users;</td>
<td></td>
</tr>
<tr>
<td>• assists in controlling stormwater runoff e.g. concrete kerbs on steep slopes.</td>
<td>Pavement construction and kerb and gutter profiles are based on the requirements contained in Council's &quot;General Specification for the Construction of Road and Drainage Works&quot;.</td>
</tr>
<tr>
<td>3. Road pavement surfaces are well designed and durable enough to carry: wheel loads of travelling and parked vehicles; ensure the safe passage of vehicles; the discharge of rainfall; the preservation of all-weather access; and allow for reasonable travel comfort.</td>
<td></td>
</tr>
<tr>
<td>4. Consistent with Performance Criteria 3, public street construction and whole of life cycle costs are kept low.</td>
<td></td>
</tr>
</tbody>
</table>

**Element:- Utility Services**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that rural residential areas are adequately serviced with sewerage (where applicable), water, fire fighting, electricity, street lighting and communication services in a timely, cost effective, co-ordinated and efficient manner that supports sustainable development practices.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td></td>
<td>The design and provision of utility services conforms to Council's;</td>
</tr>
<tr>
<td>1. Design and provision of utility services, including sewerage, water, electricity, street lighting, and communication services, are cost effective over their life cycle and incorporate provisions to minimise adverse environmental impact in the short and long term.</td>
<td>• &quot;General Specification for the Construction of Road and Drainage Works&quot;;</td>
</tr>
<tr>
<td></td>
<td>• &quot;Specification for the Construction of Sewers&quot;, and</td>
</tr>
</tbody>
</table>
2. Compatible public utility services are located in common trenching in order to minimise the costs for underground services.

3. Cables for cable television should be underground where electricity service is underground.

4. Development is staged to ensure that each stage is fully serviced before a new area is released.

5. Water supply and sewerage networks are accessible, easy to maintain, and cost effective based on life cycle costs.

6. Rural residential development is to be water self sufficient, without drawing water from existing permanent watercourses.

7. The selection of materials used for water supply and sewerage works is determined by suitability, durability, ease of maintenance and whole of life cost effectiveness, achieving beneficial environmental impacts/energy savings etc. from new materials and technologies.

8. Adequate buffers are maintained between utilities and houses to protect residential amenity and health.

9. Public lighting shall be designed to maximise energy efficiency.

- "Specification for the Construction of Water Reticulation".

The treatment and disposal of waste water is undertaken in a manner which satisfies Council, Dept of Environment and Conservation and NSW Health.

The requirements of other relevant supply authorities.

Lot layout to be designed to ensure that effluent from each lot can gravitate into the sewer. This might require a building envelope and a minimum floor level.

Water supply may comprise either:
- service from Rous Water, or Lismore City Council;
- dam, spring or licensed groundwater supply;
- provision of a minimum 45,000 litres potable supply at the time at construction of a dwelling and access to another stored supply, or 90,000 litres if a dam, spring or licensed groundwater supply is not available.

- Public lighting is designed in accordance with:
  - Australian Standard AS/NZS 1158 “Lighting for Roads and Public Spaces”;
  - The NSW Public Lighting Code; and
  - Any relevant street lighting service agreements between council and the service provider.

- The efficiency of public lighting lamps is no less than 60 lumens/watt. (Note that mercury vapour lamps do not meet this criterion)
- Public lighting lamps are shielded so that no light is emitted above the horizontal thus minimising wasted light.

**Element:- Effluent Disposal**

**OBJECTIVE**

To ensure that rural residential areas are adequately serviced with on-site waste water disposal systems (where the area is not sewered) in a cost effective, co-ordinated and efficient manner that supports sustainable development practices.
<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solution is <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. No risk to public health occurs.</td>
<td>The design and provision of wastewater systems conforms to Council’s current On-Site Sewage &amp; Wastewater Management Strategy. <strong>OR</strong> A decentralised wastewater management system (packaged treatment plant), including appropriate management and maintenance systems, is provided.</td>
</tr>
<tr>
<td>2. Land quality deterioration through chemical or biological contamination, or degradation of soil structure does not occur.</td>
<td></td>
</tr>
<tr>
<td>3. There is no contamination of surface waters emanating from the site, including first-flush rainfall runoff, contaminated surface or sub-surface flow or contaminated groundwater.</td>
<td></td>
</tr>
<tr>
<td>4. Groundwater is not contaminated.</td>
<td></td>
</tr>
<tr>
<td>5. Useful resources in domestic wastewater (e.g. nutrients, organic matter and water) are identified and utilised to the maximum, within the thresholds of other performance criteria.</td>
<td></td>
</tr>
<tr>
<td>6. Unreasonable interference and nuisance to the public from odour, dust, insects and noise above background levels is to be avoided.</td>
<td></td>
</tr>
<tr>
<td>7. On-site wastewater management systems are preferably of a low technology design.</td>
<td></td>
</tr>
</tbody>
</table>

### 6.2.4 Stormwater Management

**Element:- Stormwater Drainage**

**OBJECTIVE**

To provide major and minor drainage systems which:

- Adequately protect people and the natural and built environments to an acceptable level of risk and in a cost effective manner, in terms of initial cost and maintenance, and
- Contribute positively to environmental enhancement of catchment areas.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td><strong>Major system</strong> 1. The major stormwater drainage system has the capacity to safely convey stormwater flows resulting from the relevant design storm under normal operating conditions, taking partial minor system blockage into account.</td>
<td><strong>Major system</strong> The design and construction of the major storm drainage system are in accordance with the requirements of <em>Australian Rainfall and Runoff (1987)</em> and Council’s &quot;General Specification for the Construction of Road and Drainage Works&quot;.</td>
</tr>
</tbody>
</table>
2. Overland flow paths are developed which ensure that there is a low risk of property damage.

3. Community benefit is maximised through the retention of natural streams and vegetation wherever practicable and safe, the incorporation of environmentally sensitive areas and other less flood sensitive land uses into the drainage corridor and the placement of detention basins where necessary to control stormwater.

4. The major system is designed to ensure that there are no flow paths which would increase risk to public safety and property.

**Minor System**

5. The minor storm drainage system has the capacity to control stormwater flows under normal operating conditions for the relevant design storm with minimal risk of blockage.

6. Drainage networks are well defined to ensure there are no hidden flow paths which could reduce their capacity to convey design flows.

7. The design of the minor system takes full account of existing downstream systems.

8. The minor system design allows for the safe passage of vehicles at reduced speed on roads which have been affected by runoff from the relevant design storm.

9. The minor system is accessible and easily maintained.

10. Where a portion of the minor system lies within a site, access is available for maintenance.

11. The selection of materials used for the construction of the minor system is based on their suitability, durability, maintainability and cost-effectiveness.

**Site drainage**

12. Subdivision design and layout provides for:
   - on-site stormwater detention and retention;
   - on-site infiltration.

**Drainage Outlets**

13. All stormwater systems shall be designed to discharge appropriate water volume, velocity and quality to an acceptable legal point of discharge.

The major system design is undertaken on a Total Catchment Management basis.

The major system design outflow is matched to the capacity of any existing downstream system and where necessary detention basins etc. are provided to retard stormwater flows onto downstream properties.

**Minor System**

The design and construction of the minor storm drainage system are in accordance with the requirements of *Australian Rainfall and Runoff (1987)* and Council's "General Specification for the Construction of Road and Drainage Works".

The minor system design outflow is matched to the capacity of any existing downstream system.

The minor system allows for the safe passage of vehicles at reduced speeds on streets which have been affected by runoff from a 20% AEP storm event.

**Site drainage**

Where soil and site geological conditions permit, on-site retention in storage tanks, soak trenches or other arrangements are provided.

The design of drainage systems is undertaken by a qualified person. The design and construction of the inter allotment drainage system are in accordance with the requirements of *Australian Rainfall and Runoff (1987)* and Council's "General Specification for the Construction of Road and Drainage Works".
Minimum Standards and Techniques

Figure 6-16: Stormwater drainage

The type of detention basin chosen should be based on a range of functional requirements and site conditions.

Source: AMOORD

Drop structures, energy dissipaters and other flow control structures should be made of natural materials.
Figure 6-17: Gross Pollutant traps

Sedimentation basins enable the collection of sediment from eroded or disturbed areas before it reaches waterways. They are generally replaced by more permanent wetlands upon completion of major construction.

Source: AMCORD

The adverse impact of large gross pollutant traps (GPT's) on the amenity of an area can be overcome with good design to integrate the facility with its surroundings.
Element: Water Quality Management

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide water quality management systems which:</td>
</tr>
<tr>
<td>• ensure that disturbance to natural stream systems is minimised, and</td>
</tr>
<tr>
<td>• stormwater discharge to surface and underground receiving waters, both during construction and</td>
</tr>
<tr>
<td>in developed catchments, does not degrade the quality receiving waters.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Adequate provision is made for measures during construction to ensure that the land form is stabilised and erosion is controlled.</td>
<td>An Erosion and Sediment Management Plan is prepared by properly qualified personnel using recognised and locally accepted design methodologies.</td>
</tr>
<tr>
<td>2. The system design optimises the interception, retention and removal of water-borne pollutants through the use of appropriate measures prior to discharge to receiving waters.</td>
<td>The Erosion and Sediment Management Plan is to comply with the Department of Land and Water Conservation's &quot;Urban Erosion and Sediment Control Manual&quot;.</td>
</tr>
<tr>
<td>3. The system design minimises the environmental impact of runoff on the surface receiving water quality and on other aspects of the natural environment by employing techniques which are appropriate and effective in reducing runoff and pollution travel.</td>
<td>Water pollution control ponds or wetlands are developed (where appropriate) for final treatment before discharge to the wider environment and should be sited to minimise impacts on the natural environment.</td>
</tr>
<tr>
<td>4. Point sources of pollution in the catchment should be identified and their impact minimised until their impact can be eliminated.</td>
<td></td>
</tr>
</tbody>
</table>
**Element:- Flooding**

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Rural residential subdivision is not permitted on land with the following flood characteristics:</td>
<td></td>
</tr>
<tr>
<td>• floodways;</td>
<td>Subdivision and development of rural residential land is to be in accordance with Chapter 8 - Flood Prone Lands</td>
</tr>
<tr>
<td>• deep backwaters;</td>
<td><strong>OR</strong></td>
</tr>
<tr>
<td>• land subject to isolation;</td>
<td>A Flood Study prepared by Council's and/or other Council approved hydraulic consultants substantiates the proposed use of the land.</td>
</tr>
<tr>
<td>• or on land not suited to the proposed use.</td>
<td>Where applicable, dwelling floor levels shall be 500 mm. above the 1 in 100 year flood event preferably on a mound minimum 3 m. wider, in all directions, than the dwelling, with batters of 1 in 4 or flatter.</td>
</tr>
<tr>
<td></td>
<td>No filling is permitted in floodways, other than to return landform to its original state.</td>
</tr>
</tbody>
</table>

2. Major cross road drainage structures designed for an acceptable level of safety, convenience and cost.

---

**Diagram:**

- **Source:** Wollondilly DCP

---

Lismore Development Control Plan - Part A

Chapter 6 – Page 61
### 6.2.5 Lot Layout

**Element:- Rural Landscape and Landscaping**

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

1. The road and landscape design achieves:
   - the creation of attractive rural residential environments with clear character and identity;
   - respect for existing attractive landscapes in the area;
   - protection of environmentally sensitive such as habitat areas, steep slopes and watercourses;
   - provision for appropriate roadside tree plantings taking into account the natural landscape, the image and role of the development, solar access requirements, soils, selection of appropriate species, and services;
   - use of such features as views, vistas, existing vegetation and landmarks.

2. The design of the landscape in public roads:
   - defines a theme for new roads, or complements the existing rural landscape character;
   - is sensitive to site attributes;
   - complements the functions of the road;
   - reinforces desired traffic speed and behaviour;
   - is of an appropriate scale relative to both the street reserve width;
   - existing or expected future building bulk;
   - promotes safety and casual street surveillance;

Compliance with this requirement is achieved by submission of a plan meeting the performance criteria and showing:

- boundaries and areas of communal open space including sites for specific agricultural, recreational and other uses;
- existing vegetation and proposed general character of landscape treatment;
- general arrangement of hard landscaping elements and major earthcuts, fills and mounding;
• improves privacy and minimises unwanted overlooking;
• incorporates existing vegetation where possible and desirable;
• promotes the planting of native vegetation in environmentally sensitive areas;
• appropriately accounts for rural landscapes of heritage significance
• assists in microclimate management;
• maximises landscaped areas where appropriate;
• integrates and forms linkages with environmental areas, reserves and transport corridors;
• achieves lines of sight for pedestrians, cyclists and vehicles;
• provides adequate lighting for pedestrian and vehicle safety;
• satisfies maintenance and utility requirements and minimises their visual impact of above ground utilities;
• provides additional buffer areas, where appropriate.

• indicative treatment of floodways and drainage lines, along with general information on fencing, access points, and treatment of the verge including any drainage requirements;
• landscape plantings in buffers is to be dense to minimise future maintenance.
• bonds may be required to ensure maintenance of landscaping.
### Element:- Lot Layout

#### OBJECTIVES

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide a range and mix of lot sizes to suit a variety of dwellings and household types, with areas and dimensions to meet user and servicing requirements.</td>
<td></td>
</tr>
<tr>
<td>To provide lots that are oriented where practicable to enable the application of energy conservation principles.</td>
<td></td>
</tr>
<tr>
<td>To encourage a lot layout which will reinforce existing areas and facilities providing community focus and interaction.</td>
<td></td>
</tr>
</tbody>
</table>

#### PERFORMANCE CRITERIA

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives may be achieved where:</td>
<td></td>
</tr>
</tbody>
</table>

##### Size

1. Lots have the appropriate area and dimensions for the siting and construction of a dwelling and ancillary buildings, the provision of private outdoor space, rural views, convenient vehicle access and parking.

2. Lot size and dimensions take into account the slope of the land and the desirability of minimising earthworks, retaining walls etc. associated with dwelling construction.

3. Lot sizes and dimensions enable dwellings to be sited to:
   - protect natural or cultural features;
   - acknowledge site constraints including soil erosion and bushfire risk;
   - retain special features such as trees and views.

4. A future Building Envelope and access road/driveway is to be identified in each lot.

Siting of building envelopes is to minimise the impact of the future dwellings on the rural landscape.

#### SUGGESTED SOLUTIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The following suggested solutions are ONE WAY of meeting the objectives and performance criteria:</td>
<td></td>
</tr>
</tbody>
</table>

##### Size

Lots sizes not less than 10,000 m² are preferred, unless the subdivision is connected to a common effluent system or Council is satisfied that the lots adequately provide for wastewater treatment and disposal.

Lots on slopes should be larger to reduce the need for building earthworks, compensate for loss of useful open space, potential difficulties with house construction and provision of access and services e.g. wastewater treatment.

Maximum cut and/or fill shall be no more than 1.2 metres above or below natural ground level.

Shape of lots should be regular with boundaries related to physical features of the land such as ridges slopes and watercourses.

Lots are capable of containing a building envelope of minimum dimensions 32 x 16 or 25 x 20 metres, with a minimum area of 500 m².

The building envelope is not to be located on ridgelines, steep slopes, or poorly drained land.

The slope of building envelopes is to be less than 20% (1 in 5).

**User requirements**

5. Lot frontages are orientated to roads so that personal and property security, deterrence of crime and vandalism are facilitated.
**Orientation and energy**

6. Lots are orientated to facilitate the siting of dwellings to take advantage of microclimatic benefits, and have dimensions to allow adequate on-site solar access, taking into account likely dwelling size and the relationship of each lot to the road.

Lot design allows for houses to be built with north facing windows which receive maximum winter sun. Streets are aligned in a north-south or east west direction, where practical.

---

**Element:- Bushfire**

**OBJECTIVE**

To reduce the level of fire risk associated with building in bushfire-prone areas by adopting suitable passive and active protection measures relating to siting, layout, design and construction techniques, and landscaping.

**PERFORMANCE CRITERIA**

The objective may be achieved where:

1. Each dwelling site is provided with a safe and secure water supply for fire fighting and protection.
2. Subdivision is prevented in high-risk bushfire areas.
3. Subdivision is designed to provide for a fuel-reduced buffer area and the creation of building sites that minimise risk of fire.
4. The road layout, design and construction takes account of the needs of emergency vehicles and possible evacuation.

**SUGGESTED SOLUTIONS**

The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

Buildings comply with the Building Code of Australia for construction in bushfire prone areas, and with Council requirements.

Subdivision and building envelopes meet relevant requirements described in "Planning for Bushfire Protection".
### Element:- Buffers to Avoid Land Use Conflicts

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th>To minimise land use conflicts between agricultural and industrial land uses and potentially incompatible land uses through the establishment and maintenance of appropriate buffers.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERFORMANCE CRITERIA</strong></td>
<td><strong>SUGGESTED SOLUTIONS</strong></td>
</tr>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Buffer areas are provided between agricultural, industrial, extractive and infrastructure services and rural residential land uses.</td>
<td>Subdivision of industrial land is to be in accordance with Chapter 14 - Buffer Areas.</td>
</tr>
<tr>
<td>2. Landscape plans are to include the proposed treatment, ownership and maintenance of buffer areas.</td>
<td>Buffer areas are to be landscaped in accordance with an approved landscape plan and prior to release of linen plans.</td>
</tr>
<tr>
<td></td>
<td>Lodging of a bond may be required to ensure maintenance of landscaping.</td>
</tr>
</tbody>
</table>

### Element:- Prime Agricultural Land

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th>To retain and enhance prime agricultural lands.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERFORMANCE CRITERIA</strong></td>
<td><strong>SUGGESTED SOLUTIONS</strong></td>
</tr>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Reducing the potential for rural land use conflicts.</td>
<td>An agricultural land capability and suitability assessment is undertaken by a suitably qualified person.</td>
</tr>
<tr>
<td>2. Ensuring the subdivision design is compatible with the agricultural capability of the land.</td>
<td>Lands having an Agricultural Land Classification of 1, 2, 3 or Specialist classes are not to be developed for rural residential purposes.</td>
</tr>
<tr>
<td>3. Ensuring land to be potentially used for intensive agricultural uses has:</td>
<td>A pattern of subdivision is proposed which clusters residential lots, retaining land suitable for agricultural uses.</td>
</tr>
<tr>
<td>• minimal detrimental impacts on water quality of receiving waters;</td>
<td></td>
</tr>
<tr>
<td>• minimal adverse impacts on the amenity of the surrounding area by reason of noise, odour and visual issues;</td>
<td></td>
</tr>
<tr>
<td>• embraced the concept of total catchment management.</td>
<td></td>
</tr>
<tr>
<td>4. Encourage agricultural use of high class agricultural land.</td>
<td></td>
</tr>
</tbody>
</table>
### Element:- Village and Urban Expansion

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To retain lands identified as having a potential for future urban, village and other uses.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>There are no recommended Suggested Solutions for this Element, as each situation requires an individual approach.</td>
</tr>
<tr>
<td>1. The proposed subdivision conforms to the appropriate Development Strategy for the locality.</td>
<td></td>
</tr>
</tbody>
</table>
6.3 Rural and Rural Special Use Subdivision

6.3.1 Minimum Allotment Sizes

General Rural Subdivision Provisions.

Lismore Local Environmental Plan, 2000 (as amended) specifies the following minimum lot sizes in rural zones for the purposes of agriculture, forestry or a dwelling:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Minimum lot size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(a) - General Rural Zone</td>
<td>40 ha.</td>
</tr>
<tr>
<td>1(b) - Agricultural Zone</td>
<td>20 ha.</td>
</tr>
<tr>
<td>1(d) - Investigation Zone</td>
<td>40 ha.</td>
</tr>
<tr>
<td>1(r) - Riverlands Zone</td>
<td>40 ha.</td>
</tr>
</tbody>
</table>

Subdivision for Intensive Horticulture and Agriculture.

The plan permits, subject to the provision of a satisfactory plan of management, financial feasibility report and the support of DPI, subdivision of land in the 1(b) Zone to create a lot not less than 13 ha.
### 6.3.2 Design Elements

**Element:- Design in Context**

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th></th>
</tr>
</thead>
</table>
| To encourage rural and rural special purpose lots located in a manner that reinforces existing rural settlement patterns and the needs of the use by:  
• providing for the needs of the proposed use;  
• protecting the environment;  
• encouraging compatible land use and character;  
• efficient provision of services, self reliance and resource management. |  |

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
</table>
| The objective may be achieved when the Phases in the Design Process (refer Chapter 5) are followed and where:  
1. The subdivision layout responds to site characteristics, setting and protection of the environment.  
2. The road network provides a high level of accessibility and good external connections for local vehicle, movements to create safe conditions for all road users.  
3. The layout retains significant vegetation and habitat areas, particularly koala habitat.  
4. The layout is integrated with the surrounding rural environment and complements existing attractive rural landscapes.  
5. The layout provides for: Environmental and land management through:  
• protection and management of natural habitat and vegetation;  
• reforestation and tree planting;  
• protection of water courses and water quality;  
• control of weeds and feral animals;  
• agricultural or approved use of the land;  
• buffer areas between potentially conflicting land uses;  
• protection from bushfire;  
• minimises soil erosion;  
• avoiding development on flood prone and hazardous i.e. unstable land;  
• avoids contaminated areas e.g. cattle tick dip sites.  
   Effective utility and infrastructure services including:  
• road and road easement maintenance;  
• potable water collection;  
• sewage treatment and effluent disposal;  
• firefighting equipment and training;  
• boundary fencing. | There are no recommended Suggested Solutions for this Element, as each situation requires an individual approach. |
Provision or up-grade of community facilities including, where required:
- active recreation;
- community centres, fire brigade sheds, SES etc.

Table 6-13 Rural and Closer Rural Settlement Hierarchy / Classification

<table>
<thead>
<tr>
<th>Form of settlement</th>
<th>Approximate size people [households]</th>
<th>Description and function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large village</td>
<td>400 - 1,000 [130 - 330]</td>
<td>A settlement providing a focus and services for smaller villages and hamlets. It may include a central school, post office, police station, churches, hotel, local or district sports facilities, a reticulated water service, small business centre and bus service to Lismore.</td>
</tr>
<tr>
<td>Small village</td>
<td>100 - 400 [30 - 130]</td>
<td>A settlement providing local focus and services. It may include a convenience store and other localised services (garage/mechanic), church and community hall</td>
</tr>
<tr>
<td>Hamlet</td>
<td>30 - 100 [10 - 30]</td>
<td>May comprise either rural residential development or an existing small settlement. It can be a group of small holdings or organised development or subdivision. It may be based on rural community level of services e.g. school, hall. Development is clustered to achieve community or common facilities and services (roads, waste disposal).</td>
</tr>
<tr>
<td>Dispersed dwellings</td>
<td>single dwelling</td>
<td>Associated with either agricultural use (farming or grazing), retreat/hobby bush blocks or previously created isolated concessional lots. Self-contained, school bus links with villages and/or Lismore.</td>
</tr>
</tbody>
</table>

Element:- Major Movement Networks

**OBJECTIVE**
To provide movement networks for vehicles and public transport that are integrated, cost effective, environmentally acceptable, and minimise the impact of traffic on the rural road network.

**PERFORMANCE CRITERIA**

The objective may be achieved where:

1. The road network meets local existing and future needs generated by the proposal and allows for the provision of public transport in a co-ordinated manner.

2. The rural road network has the capability to accommodate public transport services and has capacity to safely and efficiently accommodate projected traffic movements.

3. The road network connects with external traffic routes in a manner which maximises movement efficiency on the traffic routes.

**SUGGESTED SOLUTIONS**

The following suggested solutions are **ONE WAY** of meeting the objective and performance criteria:

- A road network exists, or can be provided in accordance with an approved Rural Roads Strategy.

- The rural roads servicing the proposal to Lismore are capable of meeting increased traffic.
Table 6-14: Rural Road Types

<table>
<thead>
<tr>
<th>Street</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privately owned e.g. right of way</td>
<td>Is a minor access road to be held in private ownership. These roads provide a minimum shared single carriageway for use by vehicular traffic. Where the laneway is the sole means of access the number of lots it services is to be less than 3.</td>
</tr>
<tr>
<td>Rural Laneway</td>
<td>Is a minor gravel access road. These roads provide a shared carriageway for use by vehicular traffic. Where the laneway is the sole means of access the number of lots it services is to be less than 3.</td>
</tr>
<tr>
<td>Rural Access Place (cul-de-sac)</td>
<td>These roads provide a shared carriageway for use by vehicular and other traffic. The preferred road construction and pavement type is bitumen seal, however this issue will be assessed in the context of the existing network. Generally, the number of lots the road services does not exceed 10. Traffic volume, less than 100 veh/day.</td>
</tr>
<tr>
<td>Rural Local Road</td>
<td>These roads provide a shared carriageway for use by vehicular and other traffic. The preferred road construction and pavement type is bitumen seal, however this issue will be assessed in the context of the existing network. The road caters for up to 30 lots and distributes traffic to higher volume roads. Traffic volume, approximately 300 veh/day with some local through traffic.</td>
</tr>
<tr>
<td>Rural Collector Road</td>
<td>These roads provide a carriageway for use by vehicular traffic. The preferred road construction and pavement type is bitumen seal. The road caters for up to 30+ lots and distributes traffic to higher volume roads. Traffic volume, 300 + veh/day with through traffic.</td>
</tr>
<tr>
<td>Rural Sub-arterial Road</td>
<td>These roads provide a sealed carriageway for use by vehicular traffic. Typically collects traffic from lower volume roads and may provide bus routes. Road construction and pavement type is bitumen seal.</td>
</tr>
<tr>
<td>Rural Arterial Road</td>
<td>refer to Rural Roads Policy</td>
</tr>
</tbody>
</table>

**Rural Arterial Roads**

All major rural roads to Lismore have been classified as Rural Arterial Roads and are listed below:

- Bruxner Highway (SH 16), which becomes Ballina Road (SH16) east of Lismore
- Kyogle Road (MR 544)
- Route along Nimbin Road and Blue Knob (MR 142)
- Dunoon Road (MR 306)
- Bangalow Road (MR 65)
- Eltham Road (Mr 146)
- Rous Road (MR 555)
- Wyrallah Road (MR 147)

**Rural Sub-Arterial**

The following rural roads have been classified as Sub-Arterial Roads:

- Caniaba Road (Caniaba)
- Rock Valley Road, between Kyogle Road (MR 544) and Quilty Road at Thorne Bridge
- Route along Boggumbil Road and Jiggi Road (east of Boggumbil Road to Nimbin Road)
- Rosehill Road, between Rock Valley Road and Nimbin Road
- Stony Chute Road (MR 141A)
- Route along Koonorigan Road and The Channon Road
- Route along Duncan Road, Lockton Road (between Duncan Road and Corndale Road) to Bangalow Road (MR 65)
- Route along Hunters Hill Road, Corndale Road (between Hunters Hill Road and James Gibson Road) and James Gibson Road
- Richmond Hill Road (Richmond Hill)
- Route along Cowlong Road and Pearson Road
- Alphadale Road (Tregeagle)
- Tregeagle Road
- Robson Road
- Route along Gundurimba Road (south of Trevans Road) and River Bank Road
- Coraki Road (MR 148)
- Swan Bay Road (MR 149)
- Wyrallah Ferry Road (Wyrallah)

**Rural Collector Roads**
The following roads have been classified as Collector Roads:

- Route along Rock Valley Road (north of Thorne Bridge) and Cawongla Road (south of Lindsay Road)
- Route along Jiggi Road (north of Boggumbil Road), MountainTop Road, and Whitney Road
- Route along Pinchin Road, Keerrong Bridge Road, and Keerrong Road (south, to Nimbin Road)
- Route along Tuntable Creek Road and Tuntable Falls Road (to Blue Knob Road)
- Whian Whian Road, between Dunoon Road and Leeson Road
- Route along Woodlawn Road and Numulgi Road
- Cusack Road
- Corndale Road
- Dorroughby Road
- Rosebank Road
- Route along Boatharbour Road and McKenzie Road
- Tucki Tucki Road, between Robson Road and Marom Creek Road
- Route along Dungarubba Road and Stibbard Lane
- Tuckean Island Road, between Dungarubba Road and Hoare Lane
- Broadwater Road
- Bagotville Road
- Tuckurimba Road
- Tatham Road
- Rogerson Road, between Aukram Road and Coraki (MR 148)
- Flood Reserve Road
- Frame Road

**Rural Local Roads**
All other rural streets not previously listed have been classified as Local Roads.

*Source: Lismore Citywide Road Study, PPK Environment and Infrastructure Pty Ltd - August 1998*

**Element:- Local Road Networks**

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>To create local road networks in which the function of each road is clearly defined, providing acceptable levels of access, safety and convenience for all users.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

1. The road network has a clear structure and component roads conform to their function in the network.
2. The network has clear physical distinctions between each type of road. These distinctions are based on function, legibility, convenience, traffic volumes, vehicle speeds, public safety and amenity.

3. The design features of each type of rural road encourage driver behaviour appropriate to the primary function of the road.

4. There is provision for efficient bus routes.

5. The alignment and geometry of roads carrying bus routes provide for ease of movement of buses, bus pull over areas and safe and convenient shelter.

6. The road network facilitates walking, horse riding and cycling.

7. New roads take account of the topography and vegetation and respects any existing or potential site assets.

8. The road network takes account of natural drainage and environmentally sensitive systems.

9. Traffic generated by a development is within the acceptable capacity of the roads.

10. Access roads do not operate as through traffic routes for externally generated traffic.

11. Roads and carriageway widths and road lengths optimise the cost effectiveness of the road network.

12. The network provides for the cost effective provision of required public utilities.

The driving distance from any lot to the nearest collector (or higher-order Main or Regional) road is minimised.

The road network reflects the characteristics specified in *Tables 6-13, 6-14 and 6-15.*

---

### Minimum Standards and Techniques

**Table 6-15: Classification of Rural Roads**

<table>
<thead>
<tr>
<th>Road level/type and function</th>
<th>Design speed (km/hr.)</th>
<th>Indicative traffic vol. (vpd)</th>
<th>Stopping sight dist. (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laneway or Right of Way</td>
<td>10</td>
<td>&lt;20</td>
<td></td>
</tr>
<tr>
<td>Rural Access Place</td>
<td>40</td>
<td>&lt;100</td>
<td></td>
</tr>
<tr>
<td>Rural Local Road</td>
<td>40</td>
<td>&lt; 300</td>
<td>40</td>
</tr>
<tr>
<td>Rural Collector Road</td>
<td>80</td>
<td>300 +</td>
<td>40</td>
</tr>
<tr>
<td>Rural Sub-arterial Road</td>
<td>80</td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>Rural Arterial</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 6.3.3. Physical Infrastructure

#### Element:- Road Design

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide for roads that: • fulfil their designated functions within the road network; • accommodate public utility services; • accommodate drainage systems; and create a safe environment.</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria, otherwise each situation requires its own approach:</td>
</tr>
</tbody>
</table>

#### PERFORMANCE CRITERIA

**Function and width**

1. The design features of each type of rural road convey its primary function.

2. The road reserve width is sufficient to cater for all road functions, including:
   - safe and efficient movement of all users;
   - retention of existing trees;
   - contributing to a rural character by providing increased widths between boundaries and/or dwelling sites;
   - provision of landscaping, where relevant to uses other than agriculture or forestry;
   - location, construction and maintenance of public utilities;
   - the potential for higher order rural and other subdivision and development use.

3. The verge width is sufficient to provide for special site conditions and future requirements.

**Designing for safety**

4. The design facilitates safe use by vehicles by:
   - providing a carriageway width which allows vehicles to proceed safely at the operating speed intended for that level of road;
   - providing a horizontal and vertical alignment which is not conducive to excessive speeds.

**Driveway Access**

5. The carriageway and verge width allows for unobstructed access to individual lots.

Driveway egress movements do not create a safety hazard.

**Geometric Design**

6. Bus routes have a carriageway width that allows for the movement of buses; and avoids cars overtaking parked buses.

The following road components for each type of roads are as specified in Table 6-16.

- road reserve widths;
- carriageway widths;
- verge widths;
- number of desired lots the road is to service.

The verge width is increased where necessary to allow space for larger scale landscaping and environmental repair, protection of trees, future carriageway widening, retaining walls, pedestrian, cycle or horse paths or overland stormwater flow paths.
7. The horizontal and vertical alignments satisfy safety criteria and reflect physical land characteristics and major drainage functions.

8. Siting conditions on land abutting major and minor collector roads ensure that all vehicles can enter or leave the street in a forward direction.

Longitudinal gradients do not exceed the gradients specified in Table 6-15.

Curve super elevation does not exceed 6%.

Crossfall on road pavement is to be minimum 3% for paved and 4% for unpaved surfaces.

Design complies with AUSTROADS Guidelines.

Minimum Standards and Techniques

Table 6-16: Rural Road Characteristics (refer Tables 6-13 and 6-14)

<table>
<thead>
<tr>
<th>Element</th>
<th>Private Right of Way</th>
<th>Rural Laneway</th>
<th>Rural Access Place</th>
<th>Rural Local Road</th>
<th>Rural Collector Road</th>
<th>Rural Sub-arterial Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Reserve Width metres</td>
<td>10 min.</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Carriageway Width (sealed) metres (refer notes)</td>
<td>1 lot 3m &gt;1 lot 4m</td>
<td>5 m. gravel or sealed</td>
<td>5 m. gravel or sealed</td>
<td>6 m. sealed</td>
<td>6 m. sealed</td>
<td>7 m. sealed</td>
</tr>
<tr>
<td>Cement Stabilised Gravel Formation Width metres</td>
<td>1 lot 4m &gt;1 lot 5m</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Max. longitudinal gradients</td>
<td>25%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>No. travel lanes</td>
<td>1 with passing bays</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2+</td>
<td></td>
</tr>
<tr>
<td>No. of lots to be serviced</td>
<td>&lt; 3</td>
<td>&lt; 5</td>
<td>&lt; 10</td>
<td>&lt; 30</td>
<td>30+</td>
<td>Varies</td>
</tr>
</tbody>
</table>

Notes:

1. **Road pavement:**
   Slopes in excess of 12% must be sealed and drains concrete lined.
   Type influenced by factors such as topography, potential for further subdivision, length of roads, existing and predicted traffic numbers.

2. **Number of lots serviced:**
   The number of lots serviced may also be expressed as equivalent tenements, in order to provide guidance on estimating traffic generation rates. Refer to the Rural Roads Contributions Plan.

3. **New roads:**
   The above table applies primarily to new rural roads. Applicants should consult early with Council's Infrastructure Services to obtain direction in respect of any existing road up-grading that may be required to service a proposed rural or rural residential subdivision.
Figure 6-18: Rural Road Carriageway Widths
### Element:- Road Construction

**OBJECTIVE**
To construct roads that support the design intentions without unnecessary construction and whole of life cycle costs.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. The pavement, edging and vegetation support the specified functions and amenity of the road.</td>
<td>Pavement construction and kerb and gutter profiles, where required, are based on the requirements contained in Council's &quot;General Specification for the Construction of Road and Drainage Works&quot;.</td>
</tr>
<tr>
<td>2. The pavement edge:</td>
<td></td>
</tr>
<tr>
<td>• controls vehicle movements by delineating the carriageway for all users;</td>
<td></td>
</tr>
<tr>
<td>• assists in controlling stormwater runoff.</td>
<td></td>
</tr>
<tr>
<td>3. Road pavement surfaces are well designed and durable enough to carry wheel loads of travelling vehicles; ensure the safe passage of vehicles; the discharge of rainfall; the preservation of all-weather access; and allow for reasonable travel comfort.</td>
<td></td>
</tr>
<tr>
<td>4. Consistent with Performance Criteria 3, public street construction and whole of life cycle costs, including maintenance, are kept low.</td>
<td></td>
</tr>
</tbody>
</table>

### Element:- Utility Services

**OBJECTIVE**
To ensure that rural areas are adequately serviced with sewerage (where required), water, fire fighting, electricity and communication services in a timely, cost effective, co-ordinated and efficient manner that supports sustainable development practices.

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Design and provision of utility services, including sewerage (where appropriate), water, electricity and communication services, are cost effective over their life cycle and incorporate provisions to minimise adverse environmental impact in the short and long term.</td>
<td>The design and provision of utility services conforms to Council's:</td>
</tr>
<tr>
<td>2. Rural dwellings are to be water self sufficient, without drawing water from existing permanent watercourses.</td>
<td>• &quot;General Specification for the Construction of Road and Drainage Works&quot;,</td>
</tr>
<tr>
<td>3. Adequate buffers are maintained between utilities and houses to protect residential amenity and health.</td>
<td>• &quot;Specification for the Construction of Water Reticulation&quot;.</td>
</tr>
<tr>
<td></td>
<td>The treatment and disposal of waste water is undertaken in a manner which satisfies Council.</td>
</tr>
<tr>
<td></td>
<td>The requirements of other relevant supply authorities are met.</td>
</tr>
</tbody>
</table>
### 6.3.4 Flooding

**Element:- Flooding**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure the most appropriate development for flood prone land in rural areas.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Subdivision and development of rural land is to be in accordance with Chapter 9 - Flood Prone Lands.</td>
<td>Where applicable, dwelling floor levels shall be 500 mm. above the 1 in 100 year flood event. Either on a mound minimum 3 m. wider, in all directions, than the dwelling with batters of 1 in 4 (or flatter) or elevated on foundation designed to withstand afflux loadings.</td>
</tr>
<tr>
<td>2. Major cross road drainage structures are designed for an acceptable level of safety, convenience and cost.</td>
<td></td>
</tr>
</tbody>
</table>

### 6.3.5 Lot Layout

**Element:- Rural Landscape**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide attractive landscapes that are sensitive to the built form, rural landscape, native vegetation and environmental conditions of the site and locality.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>There are no recommended Suggested Solutions for this Element, as each situation requires an individual approach.</td>
</tr>
<tr>
<td>1. The road and landscape design achieves:</td>
<td></td>
</tr>
<tr>
<td>• the creation of attractive rural environments with clear character and identity;</td>
<td></td>
</tr>
<tr>
<td>• respect for existing attractive landscapes in the area;</td>
<td></td>
</tr>
<tr>
<td>• provision for appropriate roadside tree plantings taking into account the natural landscape, soils, selection of appropriate species, and services;</td>
<td></td>
</tr>
<tr>
<td>• use of such features as views, vistas, existing vegetation and landmarks;</td>
<td></td>
</tr>
<tr>
<td>• the use of land for the purposes of environmental repair, provision of wildlife and habitat corridors and rural open space.</td>
<td></td>
</tr>
</tbody>
</table>
**Element:- Lot Layout**

<table>
<thead>
<tr>
<th><strong>OBJECTIVE</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide a range and mix of lot sizes to suit agriculture and uses permitted in the respective zone, with areas and dimensions to meet user and servicing requirements.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERFORMANCE CRITERIA</strong></th>
<th><strong>SUGGESTED SOLUTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Lots have an appropriate area and dimensions for the siting and construction of a dwelling and ancillary and farm outbuildings, buildings or works associated with a permitted use.</td>
<td>Shape of lots should be regular with boundaries related to physical features of the land such as land classes, ridges slopes and watercourses.</td>
</tr>
<tr>
<td>2. Lot size and dimensions take into account overall farm design and viability by recognising issues such as:</td>
<td>Long narrow lots are to be avoided as this makes it difficult to provide separation distances and buffers.</td>
</tr>
<tr>
<td>• the slope of the land;</td>
<td>All lots are to have adequate access to a public road.</td>
</tr>
<tr>
<td>• natural boundaries;</td>
<td></td>
</tr>
<tr>
<td>• existing fencing and paddock structure;</td>
<td></td>
</tr>
<tr>
<td>• the balance of agricultural land classes to allow flexibility in farm management;</td>
<td></td>
</tr>
<tr>
<td>• regard to the potential future use of the land.</td>
<td></td>
</tr>
<tr>
<td>3. Lot sizes and dimensions enable dwellings to be sited to:</td>
<td></td>
</tr>
<tr>
<td>• protect natural or cultural features;</td>
<td>A future Building Envelope, showing proposed means of access and effluent disposal areas is to be identified in each lot.</td>
</tr>
<tr>
<td>• acknowledge site constraints including soil erosion and bushfire risk;</td>
<td>Siting of building envelopes is to minimise the impact of the future dwelling on the rural landscape and rural (or other approved) usage of the land.</td>
</tr>
<tr>
<td>• retain special features such as trees and views.</td>
<td>Building envelopes are to maximise the opportunities for solar orientation.</td>
</tr>
<tr>
<td>4. The site meets requirements for septic effluent disposal area, slope, etc.</td>
<td></td>
</tr>
</tbody>
</table>
**Element:- Bushfire**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To reduce the level of fire risk associated with building in bushfire-prone areas by adopting suitable passive and active protection measures relating to siting, layout, design and construction techniques, and landscaping.</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>Buildings comply with the <em>Building Code of Australia</em> for construction in bushfire prone areas, and with Council requirements.</td>
</tr>
</tbody>
</table>

1. Each dwelling site is provided with a safe and secure water supply for fire fighting and protection. |

2. The subdivision is designed to provide for a fuel-reduced buffer area and the creation of building sites that minimise risk of fire. |

3. The road layout, design and construction takes account of the needs of emergency vehicles and possible evacuation. |

Subdivision and building envelopes meet relevant requirements described in "Planning for Bushfire Protection".

No through roads, and cul-de-sac are not preferred unless alternative escape access is provided.

---

**Figure 6-19: Bushfire Protection**

Source: NSW Bushfire Service
Element:- Buffers to Avoid Land Use Conflicts

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To minimise land use conflicts between agricultural and industrial land uses and potentially incompatible land uses through the establishment of appropriate buffers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SUGGESTED SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are ONE WAY of meeting the objective and performance criteria:</td>
</tr>
</tbody>
</table>

1. Buffer areas are provided between agricultural, industrial, extractive and infrastructure services and rural dwellings.

2. Landscape plans are to include the proposed treatment, ownership and maintenance of buffer areas.

Subdivision of industrial land is to be in accordance with Chapter 11 - Buffer Areas.

Buffer areas are to be landscaped in accordance with an approved landscape plan and prior to release of linen plans.

Lodging of a bond may be required to ensure maintenance of landscaping.

Possible development considerations to help minimise land use conflict
**Element: Prime Agricultural Land**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>To retain and enhance prime agricultural lands.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORMANCE CRITERIA</td>
<td>SUGGESTED SOLUTIONS</td>
</tr>
<tr>
<td>The objective may be achieved where:</td>
<td>The following suggested solutions are <strong>ONE WAY</strong> of meeting the objective and performance criteria:</td>
</tr>
<tr>
<td>1. Reducing the potential for rural land use conflicts.</td>
<td>An agricultural land capability and suitability assessment is undertaken by a suitably qualified person.</td>
</tr>
<tr>
<td>2. Ensuring the subdivision design is compatible with the agricultural capability of the land.</td>
<td>Lands having a Agricultural Land Classification of 1, 2, 3 or Specialist classes are not to be developed for purposes, other than agriculture.</td>
</tr>
<tr>
<td>3. Ensuring land to be potentially used for intensive agricultural uses has:</td>
<td>A pattern of subdivision is proposed which:</td>
</tr>
<tr>
<td>• minimal detrimental impacts on water quality of receiving waters;</td>
<td>• retains land suitable for agricultural uses;</td>
</tr>
<tr>
<td>• minimal adverse impacts on the amenity of the surrounding area by reason of noise, odour and visual issues;</td>
<td>• maintains paddocks in workable sizes;</td>
</tr>
<tr>
<td>• embraced the concept of total catchment management.</td>
<td>• maintains access to stock water and yards;</td>
</tr>
<tr>
<td>4. Encourage agricultural use of high class agricultural land.</td>
<td>• retains flood refuges and shelter belts;</td>
</tr>
<tr>
<td></td>
<td>• retains and protects environmentally sensitive lands.</td>
</tr>
</tbody>
</table>

**Element: Village and Urban Expansion**

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>To retain lands identified as having a potential for future urban, village and other uses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORMANCE CRITERIA</td>
<td>SUGGESTED SOLUTIONS</td>
</tr>
<tr>
<td>The objective may be achieved where:</td>
<td>There are no recommended Suggested Solutions for this Element, as each situation requires an individual approach.</td>
</tr>
<tr>
<td>1. The proposed subdivision conforms to the appropriate Development Strategy for the locality.</td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES

1. References

Lismore City Council:

Lismore Strategic Plan

Lismore Urban Strategy

Lismore Village Development Strategy

Lismore Rural Housing Strategy

Lismore Local Environmental Plan 2000, (as amended)

Section 94 Contributions Plan

Landscape Guidelines

Planning for Bushfire Protection (RFS).

General Specification for the Construction of Road and Drainage Works.

General Specification for the Construction of Sewers.


On-site Sewage and Wastewater Management Strategy.


NSW Dept of Planning:


North Coast Urban Planning Strategy.


North Coast Regional Environmental Plan (as amended).

NSW Roads and Traffic Authority:


AUSTROADS 1988, Guide to Traffic Engineering Practice Series; Part 1 - Traffic Flow,
Part 2 - Roadway Capacity
Part 5 - Intersections at Grade
Part 6 - Roundabouts
Part 8 - Traffic Control Devices
Part 9 - Arterial Road Management
Part 10 - Roadway Lighting
Part 11 - Local Area Traffic Management
Part 12 - Parking
Part 13 - Pedestrians
Part 14 - Bicycles

AUSTROADS, Sydney.


The Institute of Municipal Engineering, Australia, Queensland Division, QUEENSLAND STREETS: Design Guidelines for Subdivisional Streetworks - 1995, The Institute of Municipal Engineering, Australia, Queensland Division, Brisbane.


Amended: 20/8/08
Chapter 7

Off Street Carparking
Chapter 7 – Off Street Parking

7. Off Street Carparking

7.1 Objectives of this Chapter

1. To ensure that parking supply and management in new developments supports Council policies and objectives for the development of Lismore;

2. To ensure that traffic generating developments make adequate provision for off-street carparking, such that the needs of occupants, users, visitors, employees, service and delivery vehicles are met;

3. To ensure the safe and efficient circulation of vehicles entering, leaving and within carparking and service/delivery areas;

4. To ensure that carparking facilities combine with and embellish subject developments, such that the visual impact of the carparking area is minimised and seen as an integral part of the development;

5. To minimise the detrimental effects (particularly visual and radiated heat effects) associated with off-street carparking areas on the amenity of Lismore;

6. To ensure that entry/exit points to carparking and service/delivery areas are situated in a way that sight distances are maximised, and disruption to the circulation of vehicles on the public road system is minimised.

7.2 Applicability and Definitions

This chapter applies to the provision of off-street carparking only. It assumes a suitable level of on-street carparking exists.

The definitions used in this Chapter are the same as in Schedule 7 of the Lismore Local Environmental Plan 2000.

7.3 Consultation and Pre-lodgement Advice

Applicants are encouraged to consult with Council’s Planners prior to the submission of a Development Application or Council’s Environmental Health Officers and Building Surveyors prior to the lodgement of a Development Application and/or Construction Certificate.

In relation to SEPP (Infrastructure) 2007, certain classes of development detailed in Schedule 3 must be referred by Council to the Roads and Traffic Authority (RTA) of NSW. Advice in this regard is readily available from Council’s town planning staff.

Council’s Public Transport Advisory Policy Group can provide pre-lodgement advice regarding the availability of, and infrastructure for, public transport. The Traffic Advisory Committee can provide advice on traffic control facilities within private developments such as shopping centres, upon request. The provision and maintenance of public transport timetable information is the responsibility of the transport operator.

7.4 Information Required with Development Applications

All development applications shall be accompanied by plans, drawn to scale, showing proposed locations and arrangements for:

- Off-street parking;
- Loading and unloading areas (where applicable);
• Circulation of traffic within, in/out of the property or parking area/s;
• Location, gradients and levels of access aisles, entry and exit points;
• Landscaping details (including location and species of shade trees, screening etc);
• Basic engineering design in relation to drainage and cut and fill of carparking area/s;
• Location and design of entry/egress to public roads; and
• Pedestrian travel paths being isolated from vehicle movements.

In the case of major developments (for example, those listed in Schedule 3 of State Environmental Planning Policy (SEPP) (Infrastructure) 2007), the preparation of a traffic study by a suitably qualified person may be required.

7.5 Consideration of Applications

In determining the carparking requirements for any development that requires consent or approval, the Council shall consider:

• The minimum number of spaces required as specified in Schedule 1 (if outside the Lismore CBD) or as specified in clause 7.7.3 of this Chapter (if within the Lismore CBD);
• The size, type and nature of the development and its traffic generating potential;
• Traffic volumes on the public road network servicing the development;
• The probable mode of transport of users to and from the development;
• The characteristics of the streetscape, the site, topography, neighbouring development pattern, street design (road layout, width, street tree planting, on-street parking, existing loading spaces and existing access arrangements);
• The time of peak demand for parking (eg evening versus normal retail use may allow the possibility of shared use of facilities).

7.6 Design and Layout

7.6.1 General Criteria

The careful siting and planning of carparking areas is a key element in reducing the visual impact of the carparking area, improving its functional performance and enhancing the overall aesthetics of a development.

In assessing proposals for the design of carparking and manoeuvring areas, Council will accept the standards specified in Australian Standard AS 2890.1 and AS2890.2 and the Road and Traffic Authority’s (RTA) “Guide to Traffic Generating Developments”. All car parking qualifying as shared or consolidated parking within the Lismore CBD (refer to section 7.8 of this Chapter) shall be designed to a standard equal to or exceeding standards described for User Class 3 in AS2890.1.

The following matters are to be addressed when designing carparking areas:

• The provision of the required number of carparking spaces as detailed in section 7.7 and Schedule 1 of this Chapter;
• Design of driveways, manoeuvring areas, carparking spaces and aisles in accordance with AS 2890.1 and the RTA’s “Guide to Traffic Generating Developments”;
• Adequate provision of loading bays and manoeuvring areas within the site boundaries in accordance with AS2890.2;
• Ready access from carparking areas to both the development being served and the public road network;
• The movement of all vehicles entering or leaving the site in a forward direction;
• The adoption of a logical and efficient internal circulation network, thereby making access easier for patrons and reducing conflict/confusion for users of the carpark;
• The provision of adequate landscaped areas in accordance with section 7.6.5 of this chapter;
• Provision of suitable pedestrian paths of travel to, from and through the parking facility;
• Separation of vehicular and pedestrian traffic;
• Separation of loading areas from parking areas;
• Crime prevention by design principles.
7.6.2 Minimum Car Parking Bay Dimensions

Car parking dimensions shall be as specified in AS 2890.1.

For people with disability the minimum dimensions of parking spaces shall also be as specified in AS 2890.1 and reference should be made to AS2890.6. Spaces designated for people with disability must be located close to an entrance to a building or facility with access from the car space by ramps or lifts in accordance with AS 2890.6 and Part D of the Building Code of Australia.

AUSTRALIAN STANDARD AS 2890.1 (EXTRACT)

CLASSIFICATION OF OFF-STREET PARKING FACILITIES

<table>
<thead>
<tr>
<th>User Class</th>
<th>Required door Opening</th>
<th>Required aisle width</th>
<th>Examples of uses (Note 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front door, first stop</td>
<td>Minimum for single manoeuvre entry and exit</td>
<td>Employee and commuter parking (generally, all-day parking)</td>
</tr>
<tr>
<td>1A</td>
<td>Front door, first stop</td>
<td>Three-point turn entry and exit into 90° parking spaces only, otherwise as for User Class 1</td>
<td>Residential, domestic and employee parking</td>
</tr>
<tr>
<td>2</td>
<td>Full opening, all doors</td>
<td>Minimum for single manoeuvre entry and exit</td>
<td>Long-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally medium-term parking)</td>
</tr>
<tr>
<td>3</td>
<td>Full opening, all doors</td>
<td>Minimum for single manoeuvre entry and exit</td>
<td>Short-term city and town centre parking, parking stations, hospital and medical centres</td>
</tr>
<tr>
<td>3A</td>
<td>Full opening, all doors</td>
<td>Additional allowance above minimum single manoeuvre width to facilitate entry and exist</td>
<td>Short term, high turnover parking at shopping centres</td>
</tr>
<tr>
<td>4</td>
<td>Size requirements are specified in AS/AZS 2890.6 (Note 2)</td>
<td></td>
<td>Parking for people with disabilities</td>
</tr>
</tbody>
</table>

NOTES:

1. Except for the requirements specified in Clause 1.4 of AS 2890.1 relating to User Classes 1A and 4, the examples of uses are intended to be flexible and allow for progressive improvement both in the ease of manoeuvring into and out of parking spaces and in leaving and re-entering the vehicle as one progresses up the user class scale from 1 to 3A. The modelling of vehicle manoeuvring into Class 1A spaces shows however, that many drivers may have difficulty driving into and out of such spaces, especially those with vehicles larger than the B85 vehicle. Furthermore, they may have difficulty entering and leaving the vehicle in the narrower spaces. Safety issues associated with delays and congestion caused by manoeuvres into and out of Class 1A spaces in large parking areas should also be taken into account. See also Appendix B, Paragraph B4.8.

2. In preparation, see footnote to Clause 1.2 in AS2890.1.
7.6.3 Driveways and Access Points
The following requirements will be applied to the siting of driveways and access points:

(i) The design of driveways and access points is to be such that vehicular entry and exit from a site is in a forward direction. This requirement will generally not apply to single dwelling houses; and

(ii) All driveways servicing car parks shall be signposted indicating parking is available and, where separated driveways are to be provided, “In/Entrance”, “Out/Exit” and “Keep Left” signs shall be provided as appropriate; and

(iii) Driveways shall be situated such that any vehicle turning from or into a street can readily be seen by the driver of an approaching vehicle or by an approaching pedestrian. Clear pedestrian sight lines in accordance with AS 2890.1 shall be provided at all access points; and

(iv) Driveways shall be located with suitable clearance from road intersections as required by AS2890.1. This will generally be six (6) metres clear of the kerb return of the intersection.

7.6.4 Pavement Thickness and Surfaces
Pavement thicknesses for carparking areas shall be designed on a site specific basis. Carparking areas will be required to be suitably line-marked and have a minimum surface treatment of a two coat finish or similar. Information in this regard may be obtained from Council.

7.6.5 Landscaping
All carparking areas must be suitably landscaped to Council’s satisfaction. Landscaping of carparking areas is important as it provides:

- screening from view of the carpark from adjoining development and public areas,
- provision of shade for patron’s vehicles, and
- reduction of radiant heat (ie large expanses of hard paved areas are to be avoided).

Shade trees should be provided at a rate of approximately 1 per 5 carparking spaces. In addition to this, landscaped areas are to have a width of not less than two (2) metres, thus providing a viable area for gardens and screening. The needs of pedestrians within the carparking area must also be considered and suitable access, paths etc. incorporated within landscaped areas.

A detailed landscaping plan of carparking areas is to be submitted with any development application. Such landscaping plans will show the location and species of shade trees and ornamentals, height and crown dimensions of mature shade trees, other landscaped areas (including species list) and details of pedestrian access and circulation. Appropriate plant species for landscaping purposes are detailed in Council’s Landscaping Guidelines. Advice from a landscape architect may be required, particularly for larger carparks.

7.6.6 Shopping Centre Car Parks – Pedestrian and Public Transport Access
The development or redevelopment of shopping centres should have particular regard to the safety of pedestrians accessing the centre from its car park and public transport, and should ensure safe, all weather access by public transport. In this section the term ‘shopping centres’ refers to regional, subregional, district or neighbourhood sized centres, comprising 1,000 square metres or more, of gross leasable floor space. The term does not refer to individual shops located either singly or in a ‘strip’ in Lismore or villages. The term ‘redevelopment’ means the further development of an existing shopping centre that requires the reconfiguration of the car park.

The development or redevelopment of shopping centres containing 1,000 square metres or more, gross leasable floor space must include:

(i) Clearly identifiable and safe pedestrian routes to the entrance of the shopping centre through the car park and from the closest bus stop. The pedestrian route/s is to be indicated on plans submitted with the development application and, should the development be approved, these routes must be clearly identified on the ground, with the aim of discouraging the random wandering of pedestrians throughout the car park, thereby reducing potential conflict with vehicles. The path from the entrance
to the nearest bus stop is to be suitable for use by people with disability. Supporting information should also describe the control of vehicle manoeuvres and speeds to enhance safety. Such control can include speed limits, speed humps, physical barriers between vehicle and pedestrian flows, surface marking, etc..

(ii) Secure and well lit bicycle locking points that are located where there is natural surveillance from adjacent users.

The development or redevelopment of shopping centres comprising 10,000 square metres or more, gross leasable floor space must, in addition to the above requirements, include:

(i) A well lit taxi rank close to the entrance to the centre and to the bus stop/shelter, and which allows:
   a) Entrance and exit by taxis in a forward direction;
   b) Passengers to manoeuvre shopping trolleys to the taxi to allow easy loading of shopping into the taxi; and
   c) Natural surveillance from adjacent users.

(ii) A well lit bus stop/shelter located as close as possible to the entrance to the centre, and linked to that entrance by a walkway. (Note: it is not required that this walkway extend across the road to a bus shelter for buses travelling in the opposite direction)

(iii) A loading/unloading bay close to the entrance to the centre, or near access facilities, for use by the maximum size 25 seat community buses transporting the aged or people with disability.

(iv) Clear signage to direct patrons to the bus stop and taxi rank, and to pedestrian ways.

7.7 Car Parking Spaces Required

The following sections describe the minimum number of parking spaces required for developments outside and within the Lismore CBD. It must be noted that these numbers are minimums and where a merit based assessment indicates additional car parking is necessary Council may require additional car parking spaces to be provided based on the criteria specified in 7.5. Where no parking requirement is specified, Council will assess the number of spaces based upon the merits of each case and an assessment of the traffic generating potential of the development.

7.7.1 Parking for People With Disability

Regardless of the location of the development, parking for people with disability shall be provided at a rate of no less than 1 space for every 100 spaces provided by a development.

7.7.2 Requirements Outside the Lismore CBD

The minimum number of spaces for developments located outside the Lismore CBD, as defined on Map 1, shall be the number contained in Schedule 1, rounded up to the next whole number. The numbers in Schedule 1 are a minimum.

Where combinations of uses are incorporated in the one development, for example, restaurant and shop, the parking provision shall be the combined total of the requirements specified in Schedule 1. However, where one of the uses will operate exclusively outside the hours of the other, the car parking rate will be based on the higher land use parking requirement.

On-street car parking spaces lost as a result of a development, for example, through construction of an additional driveway entrance, will be required to be provided off-street by the development, unless a variation can be justified under this chapter.

7.7.3 Requirements Within the Lismore CBD

This section applies to the area defined on Map 1 as the Lismore CBD. A traffic and parking study prepared in 2007 for Lismore City Council showed that, at the time, the CBD had an over supply of car parking spaces in relation to parking demand, and that a single fixed parking rate (for non-residential uses) in the CBD and a policy for encouraging shared and consolidated parking could provide an
incentive to development and redevelopment in the CBD. These incentives were developed on the basis of surveyed demand and car parking supply and will therefore need to be periodically monitored and reviewed to ensure that parking demand does not exceed overall parking supply.

7.7.3.1 Fixed Car Parking Rate
With the exception of certain uses listed below, a fixed rate of no less than 3.3 car spaces/100m$^2$ of gross floor area (as defined in the Lismore LEP) shall be required for development within the CBD/City Centre.

Exceptions:

(i) Residential uses exception: Where the development is (or includes) a residential use listed below, the minimum number of spaces required for the residential component shall be as described in Schedule 1 rounded up to the next whole number:

- Bed and Breakfast Establishment
- Boarding House
- Dwelling House
- Dual Occupancy
- Motel
- Residential Flat Building.

(ii) ‘Refreshment Room’ and Outdoor Dining use exceptions:
(Where: “Enclosed” has the same definition as “gross floor area” in the Lismore LEP; and “Magellan Street - Entertainment/Activity Precinct” is that area indicated by Map No 2 in Council’s ‘Outdoor Dining Policy’ as adopted on 14 September 2010)

(a) For ‘enclosed’ outdoor dining areas constructed outside the Magellan Street-Entertainment/Activity Precinct, Section 94 charges for non-provision of car parking in accordance with the specified rate under this DCP will apply.

(b) For ‘enclosed’ outdoor dining areas constructed within the specified Magellan Street-Entertainment/Activity Precinct, Section 94 charges for non-provision of car parking in accordance with the specified rate under this DCP will not apply.

(c) For ‘unenclosed’ outdoor dining areas in all CBD/City Centre locations, Section 94 charges for non-provision of car parking in accordance with the specified rate under this DCP do not apply in accordance with the definition of GFA.

(d) If construction of a new outdoor dining area necessitates removal of car parking spaces from the road reserve, a contribution for the lost space(s) will be levied in accordance with the Lismore Contributions Plan (Section 2.5.5), however this contribution will not be levied if the new outdoor dining area is located within the Magellan Street-Entertainment/Activity Precinct.

(iii) All Commercial and Business (incl. refreshment rooms) use exceptions:
Existing commercial/business/retail premises within the Lismore CBD (see map 1 of this DCP) may, with consent, increase internal floor space by up to 20% of the existing building GFA up to a maximum of 40 sq. m. without incurring Section 94 charges for car parking. This allowance will only be available once to each premises (whether 20% or 40 sq m is achieved or not), and any further internal extensions will attract relevant Sec 94 charges. The allowance applies from the date that DCP Amendment No. 10 takes effect (28 April 2011).

7.7.3.2 Shared Parking
A reduction in the fixed rate of 3.3 car spaces/100m$^2$ GFA may be applied where developments supply “shared” parking. This is parking provided in such a way that allows the public unrestricted use of the parking spaces on a development site regardless of whether they are attending the development on which the spaces are located.
Where part or the whole of the parking required for a new development (apart from the Residential uses listed above) is shared parking the minimum requirement for the component of parking that is shared will be reduced by 25%. However, the reduction only applies where the following criteria are satisfied:

1. A minimum of:
   a) six (6) spaces are provided if the parking is visible from a vehicle travelling on a public road, for example, at the front of the site or on a corner etc;
   OR
   b) 15 spaces are provided if the parking is not partly or wholly visible by the occupants of a vehicle travelling on a public road;

   AND

2. The shared parking:
   a) is provided within the development site; and
   b) is available to the general public, at a minimum, between the hours of 9am and 11pm, Monday to Saturday; and
   c) is not reserved for the users of the subject development (for example, spaces cannot be marked “For the Use of Employees or Customers of XYZ Shop”); and
   d) is provided with clearly visible signage stating that the shared parking is available to the public (refer to b) and c) above); and
   e) is designed in accordance with the Crime Prevention by Design principles.

Note: The reduction in car parking required will be calculated after any parking credit is applied (refer to section 7.7.3.4 below).

7.7.3.3 Consolidated Parking (Monetary Contributions in Lieu of Parking Space(s))
Where an applicant considers it impractical, impossible or undesirable to physically provide the required parking spaces on site in the CBD, a cash contribution for each parking space not provided may be accepted by Council under Section 94 of the Environmental Planning and Assessment Act 1979 to provide “consolidated” parking elsewhere. Where part or the whole of the parking for a new development (apart from the Residential uses listed in section 7.7.3.1 above) is consolidated the minimum requirement for the component of parking that is consolidated will be reduced by 25%. The amount of the contribution will be at the current rate at the time the monies are paid in accordance with Council’s Contributions Plan prepared pursuant to Section 94 of the Environmental Planning and Assessment Act 1979. It should be noted that contribution rates are subject to annual adjustment.

7.7.3.4 Redevelopment of Sites – Car Parking Credit
Where an existing site within the Lismore CBD is to be redeveloped, the existing site will be deemed to have provided parking to the CBD and a parking credit will be applied to the overall requirement for car parking for the proposed redevelopment. This deemed parking credit will be calculated in accordance with the following formula and the parking requirement for the proposed new development reduced by the deemed amount.

Deemed Parking Credit = parking requirement for existing development @ 2.5 spaces/100m² gross floor area less the number of parking spaces physically provided on the existing development site.

Where evidence can be provided that the development site has, through cash in lieu payment, provided a greater number of parking spaces to the CBD than that given by the above formula, the greater number of parking spaces shall be taken to be the allowable reduction applied to the proposed development parking requirement. The onus is on the developer to prove the existence of any such payments.

7.7.3.5 Removal of On-Street Car Parking
Where on-street car parking spaces in the CBD are lost as a result of a development taking place, for example, through construction of an additional driveway entrance, a “debit” may occur.
## Schedule 1  Carparking Requirements for Specific Land Uses

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>CARPARKING REQUIREMENTS</th>
<th>LOADING BAYS AND MANOEUVRING AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abattoir</td>
<td>1 per employee</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Amusement Parlour</td>
<td>4 per 100m² GFA, plus 1 per 2 employees</td>
<td></td>
</tr>
<tr>
<td>Animal Establishment: Boarding Kennels:</td>
<td>1 per 2 employees plus 2 set down/ pick up area</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Animal Establishment:</td>
<td>1 per 2 employees</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Art and Craft Gallery</td>
<td>1 per 2 employees, plus 2 per 100m² display area</td>
<td></td>
</tr>
<tr>
<td>Bed and Breakfast Establishment</td>
<td>1 per bedroom offered for public accommodation, plus 1 per residence</td>
<td></td>
</tr>
<tr>
<td>Boarding House: (includes a house let in lodgings or a hostel)</td>
<td>1 per 3 beds plus 1 per 5 beds visitor space or 1 per room plus 1 per 5 rooms visitor space (whichever the greater).</td>
<td></td>
</tr>
<tr>
<td>Brothel</td>
<td>1 per employee</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Bulk Store</td>
<td>1 per employee</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Bulky Goods Showroom</td>
<td>Less than or equal to 400m² GFA – 3 per 100m² GFA; &gt;400m² GFA – 2 per 100m² GFA</td>
<td>Loading bays and manoeuvring area for heavy rigid vehicles; more than 1000m² GFA loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Caravan Park: Manufactured home estate:</td>
<td>1 per serviced caravan/camp site, plus 1 per manager/owner residence, plus 1 per 2 employees, plus 1 per 10 sites for visitors</td>
<td>Refer to SEPP No. 36</td>
</tr>
<tr>
<td>Car Repair Stations:</td>
<td>4 per work bay, plus 1 per employee</td>
<td></td>
</tr>
<tr>
<td>Child Care Establishments (Pre-Schools and Kindergartens):</td>
<td>1 per employee, plus 1 per 15 children (if provision of 3 set down/pick up areas) or 1 per 10 children</td>
<td></td>
</tr>
<tr>
<td>Club: Staff</td>
<td>1 per 3 employees, plus</td>
<td>Loading bays and manoeuvring area for large rigid vehicles, plus a minimum of 1 coach parking space</td>
</tr>
<tr>
<td>Auditorium/beer garden/ function room</td>
<td>1 per 15m², plus</td>
<td></td>
</tr>
<tr>
<td>Dining</td>
<td>1 per 7m² floor area, plus</td>
<td></td>
</tr>
<tr>
<td>Bar/Lounge</td>
<td>1 per 4m² bar area, plus</td>
<td></td>
</tr>
<tr>
<td>Gaming</td>
<td>1 per 4m² gaming area</td>
<td></td>
</tr>
<tr>
<td>Commercial Premises: (Banks/Offices)</td>
<td>1 per 30m² GFA for ground or 1st floor level and 1 per 40m² GFA at subsequent upper levels. Minimum number of 2 spaces per office.</td>
<td></td>
</tr>
<tr>
<td>Communication Facility</td>
<td>1 space</td>
<td>Manoeuvring area for a small rigid vehicle</td>
</tr>
<tr>
<td>Community Facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience Shop (General Store)</td>
<td>5 per 100m² GFA</td>
<td>Loading bays and manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Craft Studio</td>
<td>1 per occupant, plus 1 per 40m² GFA retail area (minimum of 2 spaces)</td>
<td></td>
</tr>
<tr>
<td>Dwelling House</td>
<td>2 per dwelling (1 undercover)</td>
<td></td>
</tr>
<tr>
<td>Dual Occupancy:</td>
<td>1 per dwelling if area is &lt;125m² or 2 per dwelling if area is &gt;125m²</td>
<td></td>
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<tr>
<td>Educational</td>
<td></td>
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<tr>
<td>LAND USE</td>
<td>CARPARKING REQUIREMENTS</td>
<td>LOADING BAYS AND MANOEUVRING AREAS</td>
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<tr>
<td>Establishments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>1 per 2 employees, plus 1 per 5 students</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>1 per 2 employees, plus 1 per 10 students</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1 per 2 employees, plus 1 per 12 students</td>
<td></td>
</tr>
<tr>
<td>Environmental Facilities</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines.</td>
<td></td>
</tr>
<tr>
<td>Exhibition Dwelling</td>
<td>2 per dwelling (1 undercover)</td>
<td></td>
</tr>
<tr>
<td>Extractive Industry</td>
<td>1 per employee</td>
<td>Loading Bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Generating Works:</td>
<td>1 per 2 employees</td>
<td>Loading Bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Goods Transport Terminal:</td>
<td>1 per vehicle associated with the development, plus 1 per 2 employees</td>
<td>Loading Bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Health Care Professional</td>
<td>4 per practitioner, plus 1 per 2 employees</td>
<td></td>
</tr>
<tr>
<td>Home Industry</td>
<td>1 per employee other than the residents of the dwelling</td>
<td>Loading Bays and manoeuvring area for small rigid vehicles</td>
</tr>
<tr>
<td>Hospitals/Convalescence Homes/Institutions:</td>
<td>Carparking will be assessed in accordance with RTA Guidelines</td>
<td>Loading Bays and manoeuvring area for small rigid vehicles</td>
</tr>
<tr>
<td>Industry (General and Light):</td>
<td>1 per100 m² GFA or part thereof. Minimum of 2 spaces per unit or separate leased area</td>
<td>Loading Bays and manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Institution</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines.</td>
<td></td>
</tr>
<tr>
<td>Licensed Premises (incl Clubs):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff</td>
<td>1 per 3 employees, plus</td>
<td>Loading Bays and manoeuvring area for large rigid vehicles, plus a minimum of 1 coach parking space</td>
</tr>
<tr>
<td>Auditorium/beer garden/ function room</td>
<td>1 per 15m², plus</td>
<td></td>
</tr>
<tr>
<td>Dining</td>
<td>1 per 7m² floor area, plus</td>
<td></td>
</tr>
<tr>
<td>Bar/Lounge</td>
<td>1 per 4m² bar area, plus</td>
<td></td>
</tr>
<tr>
<td>Gaming</td>
<td>1 per 4m² gaming area</td>
<td></td>
</tr>
<tr>
<td>Light Industry</td>
<td>1 per100 m² GFA or part thereof. Minimum of 2 spaces per unit or separate leased area</td>
<td>Loading Bays and manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Liquid Fuel Depot</td>
<td>1 per employee</td>
<td>Manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Liquor Outlet:</td>
<td>4.4 per 100m² GFA</td>
<td>Loading Bays and manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Market:</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines.</td>
<td></td>
</tr>
<tr>
<td>Marina:</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines.</td>
<td></td>
</tr>
<tr>
<td>Materials Recycling Yard:</td>
<td>1 per 2 employees, plus 1 per 200 m² site area</td>
<td>Loading Bays and manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Medical Centre:</td>
<td>4 per practitioner, plus 1 per employees</td>
<td></td>
</tr>
<tr>
<td>Mine:</td>
<td>1 per 2 employees</td>
<td>Loading Bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Mortuary/Funeral Parlour:</td>
<td>Carparking requirements will be assessed on merits and in accordance with RTA Guidelines</td>
<td>Loading Bays and manoeuvring area for small rigid vehicles</td>
</tr>
<tr>
<td>Motel:</td>
<td>1 per accommodation unit, plus 1 per managers/owners residence, plus 1 per 2 employees, plus 1 per 30m² public area (if a restaurant is included in the motel), plus 1 per 15m² function room area</td>
<td>Loading Bays and manoeuvring area for small rigid vehicles</td>
</tr>
<tr>
<td>Motor Showroom:</td>
<td>1.5 spaces per 200 m² display area (indoor and outdoor), plus 1 per 2 employees, plus 4 per workbay</td>
<td>Loading Bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Offensive or Hazardous</td>
<td>1 per 100 m² GFA or part thereof. Minimum of 2</td>
<td>Loading Bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>LAND USE</td>
<td>CARPARKING REQUIREMENTS</td>
<td>LOADING BAYS AND MANOEUVRING AREAS</td>
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</tr>
<tr>
<td><strong>Industry:</strong></td>
<td>spaces per unit or separate leased area</td>
<td>area for articulated vehicles</td>
</tr>
<tr>
<td>Passenger Transport Terminal:</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines</td>
<td>Manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Places of Public Assembly:</td>
<td>1 per 10 seats or 1 per 10 m² of public floor space, whichever is greater</td>
<td>Manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Places of Public Worship:</td>
<td>1 per 10 seats or 10 m² of public floor space, whichever is greater</td>
<td></td>
</tr>
<tr>
<td>Public Building:</td>
<td>1 per 40m^2 GFA</td>
<td></td>
</tr>
<tr>
<td>Recreation Area:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Complex</td>
<td>1 per 2 employees, plus 1 per participant and spectator capacity (with a minimum of 125 spaces per playing field)</td>
<td>Manoeuvring area for and parking for coaches will be assessed on merits in accordance with RTA Guidelines</td>
</tr>
<tr>
<td>Local Playing Field</td>
<td>30 per playing field</td>
<td></td>
</tr>
<tr>
<td>Swimming Pool</td>
<td>1 per 2 employees, plus 1 per 50m² of water surface</td>
<td></td>
</tr>
<tr>
<td>Golf Course</td>
<td>1 per 2 employees, plus 4 per hole, plus 1 per driving bay or tee</td>
<td></td>
</tr>
<tr>
<td>Recreation Establishment</td>
<td>1 per 10m² public floor area, plus 1 per 3 beds or 2 per room or unit (whichever is greater), plus 1 per manager/owner, plus 1 per 2 employees</td>
<td>Loading bays and manoeuvring area for small rigid vehicles</td>
</tr>
<tr>
<td>Recreation Facility:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squash/Tennis Courts:</td>
<td>3 per court + 1 per 2 employees</td>
<td>Loading bays and manoeuvring area for small rigid vehicles</td>
</tr>
<tr>
<td>Gymnasium/Fitness Centre:</td>
<td>1/25 m² GFA + 1 per 2 employees</td>
<td></td>
</tr>
<tr>
<td>Indoor Cricket Centre</td>
<td>15 per pitch</td>
<td></td>
</tr>
<tr>
<td>Indoor Bowling Alley</td>
<td>3 per bowling lane</td>
<td></td>
</tr>
<tr>
<td>Recycling Drop-off Centre</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines</td>
<td>Provision of adequate manoeuvring and turning area for vehicles will be assessed on merits</td>
</tr>
<tr>
<td>Refreshment Room</td>
<td>1 per 3 seats + 1 per 2 employees or 15 per 100m² GFA (whichever is greater)</td>
<td></td>
</tr>
<tr>
<td>Residential Flat Building</td>
<td>1 per 1 bedroom unit, plus 1.5 per 2 bedroom unit, plus 2 per 3 bedroom unit, plus 1 per 5 units visitor parking</td>
<td></td>
</tr>
<tr>
<td>Restricted Premises</td>
<td>4.4 per 100m² GFA</td>
<td></td>
</tr>
<tr>
<td>Retail Plant Nursery</td>
<td>1/100 m² display area (indoor &amp; outdoor), plus 1 per 2 employees (with a minimum of 5 spaces)</td>
<td>Loading bays and manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Rural Industry</td>
<td>1 per 2 employees or 1 per 100 m² GFA (whichever is greater)</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Rural Tourist Facility</td>
<td>1 per cabin/unit 1 per 2 employees</td>
<td></td>
</tr>
<tr>
<td>Rural Workers Dwelling</td>
<td>2 per dwelling (1 undercover)</td>
<td></td>
</tr>
<tr>
<td>Sawmill</td>
<td>1 per 2 employees</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Service Station</td>
<td>1 per employee, plus 4 per workbay, plus a minimum of 1 articulated vehicle parking space</td>
<td>Manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Shops:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping Complex (incorporating department store)</td>
<td>4.4 per 100 m² GLFA (Dept Stores), plus 1 per 35 m² GFA (speciality shops)</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Individual Shop</td>
<td>4.4 per 100 m² GFA</td>
<td></td>
</tr>
<tr>
<td>Stock and Saleyard</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Storage Shed</td>
<td>1 per 20 sheds, plus 1 per 2 employees</td>
<td>Manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>LAND USE</td>
<td>CARPARKING REQUIREMENTS</td>
<td>LOADING BAYS AND MANOEUVRING AREAS</td>
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</tr>
<tr>
<td>Take Away Food Store (Drive-In):</td>
<td>1 per employee, plus 12 per 100m² GFA or 1 per 4 seats (whichever is greater), plus queuing area for a minimum of 6 cars.</td>
<td>Loading bays and manoeuvring area for large rigid vehicles</td>
</tr>
<tr>
<td>Temporary Event</td>
<td>Carparking requirements will be assessed on its merits and in accordance with RTA Guidelines</td>
<td></td>
</tr>
<tr>
<td>Tourist Facility</td>
<td>1 per accommodation unit or similar, plus 1 per 4 units visitor parking, plus 1 per managers/owners residence, plus 1 per 2 employees, plus 1 per 4 units for trailer/caravan/boat parking</td>
<td></td>
</tr>
<tr>
<td>Transport Depot</td>
<td>1 truck space for each truck associated with the development, plus 1 per driver, plus 1 per 2 onsite employees</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Veterinary Hospital</td>
<td>3 spaces per surgery, plus 1 per 2 employees</td>
<td>Loading bays and manoeuvring area for small rigid vehicles</td>
</tr>
<tr>
<td>Warehouse</td>
<td>1 per 300m²</td>
<td>Loading bays and manoeuvring area for articulated vehicles</td>
</tr>
<tr>
<td>Wholesale Plant Nursery</td>
<td>1 per 2 employees</td>
<td>Loading bays and manoeuvring area for large rigid</td>
</tr>
</tbody>
</table>

GFA = Gross Floor Area  
GLFA = Gross Leasable Floor Area

*Updated: 12/7/11*
Chapter 8

Flood Prone Lands
8 Flood Prone Land

8.1 Objectives of this Chapter
1. To permit development on flood prone land that is appropriate to the degree of flooding hazard experienced on that land.
2. To minimise the risk to life and damage to property as a result of floods.
3. To provide guidelines for determination of the merit of development on flood prone land as required by Section 79C of the Environmental Planning and Assessment Act 1979.

8.2 Definitions
In this Chapter the following definitions apply:

“Australian Height Datum (AHD)” is a common national surface level datum approximately corresponding to mean sea level.

“Average Recurrence Interval (ARI)” is the long-term average number of years between the occurrence of a flood as big as, or larger than, the selected event. E.g. floods with a discharge as great as, or greater than, the 100 year ARI flood event will occur on average once in every 100 years.

“Flood compatible materials” are materials used in building construction that can withstand inundation without suffering any form of damage and which can be readily cleaned when floodwaters subside.

“Flood liable land” is synonymous with flood prone land, i.e. land susceptible to flooding by the probable maximum flood (PMF) event.

“Floodplain” is the area of land which is subject to inundation by floods up to and including the probable maximum flood (PMF) event.

“Flood Planning Level” is the equivalent of the 1 in 100 year ARI flood level plus freeboard. 1 in 100 year ARI flood levels for the Lismore urban area are shown on Map 2. The freeboard adopted for the purposes of this Plan is 300mm. Therefore the Flood Planning Level may be calculated by adding 300mm to the 1 in 100 ARI level for the relevant area as shown on Map 2.

“Freeboard” is a factor of safety typically used in relation to the setting of floor levels, levee crest levels etc. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action, localised hydraulic behaviour and effects such as “greenhouse” and climate change. Freeboard is adopted as 300mm in this Plan.

“Habitable floor area” is that part of a residential development that is used for the purposes of a lounge or living room, dining room, rumpus room, kitchen, bedroom or workroom.

“Preferred Excavation Area” is an area within the floodplain in which the greatest flood velocities and flood gradients are experienced, and where, when fill material is won, the greatest benefit to floodplain management can be obtained. The identified preferred excavation area is located at the western end of Three Chain Road and is identified in the Lismore Floodplain Management Plan.

“Probable Maximum Flood (PMF)” is the largest flood that could conceivably occur at a particular location, usually estimated from probably maximum precipitation. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the
extent of flood prone land, that is, the floodplain. The extent, nature and potential consequences of flooding associates with the PMF event should be addressed in a Floodplain Management Study.

8.3 Development Controls
Development controls in this Chapter apply to various types of development on flood prone land throughout Lismore. In the urban area, the controls are based upon the degree of flooding hazard that is experienced on that land. Fine scaled modelling of flood hazards was undertaken by Patterson Britton & Partners in 2001 to define floodways and areas of differing flood hazard as a critical step in the preparation of the Lismore Floodplain Management Plan. As part of that process, various categories of flood prone land were identified for the purposes of guiding future land uses on the floodplain. Each category is based upon adopted criteria of depth and velocity likely to be experienced in the 1 in 100 year ARI flood. The criteria are listed in the Lismore Floodplain Management Plan. Areas affected by the various hazard categories are shown on Map 1 - Lismore Flood Hazard Categories. The four flood hazard categories are:

- Floodway;
- High Flood Risk Area;
- Flood Fringe Area; and
- Low Flood Risk Area

A fifth category – CBD Flood Liable, also shown on Map 1, has the same planning controls as the Flood Fringe Area. Each of the three categories represents a different level of flood hazard in terms of the potential risks posed to human life and property. Consequently varying levels of restriction on new development apply to land within each category. Controls in this Plan are listed for new residential, commercial and industrial development on flood prone land and apply only where such development is permissible in the zone under the Lismore Local Environmental Plan 2000. The controls applying to new commercial and industrial development in the High Flood Risk Area and the Flood Fringe Area are not applicable where a change of use is proposed. Where minor extensions to the existing floor space are proposed, the proposal will be considered on its merits.

8.4 Floodway
Floodway is that area of the floodplain where a significant discharge of water occurs during floods and hence velocities and depths are high. Floodways are usually aligned with naturally defined channels, and include areas that even if partially blocked, would cause a significant redistribution of flood flow or a significant increase in flood levels. No new buildings or structures of any type are permitted in the area designated as Floodway except:

1. where such buildings or structures are to be used for the purpose of providing utility installations or community facilities; or

2. if the building or structure is proposed to be located within 10 metres of the boundary of the Floodway as marked on the map and a hydraulic study has been carried out for the land on which the building is proposed which demonstrates, to Council’s satisfaction, that the flood impacts of the proposed building or structure and any associated works will not adversely effect flood behaviour or increase the flooding impacts on any other land; or

3. where the building or structure is located on land that forms part of the Lismore Airport and
   a) will form part of the commercial aviation area developed in the northern precinct of the airport and such development is consistent with the adopted plan of management for the Lismore Airport and maintains the cross sectional integrity of the respective floodway; or
   b) is development of a non-residential nature, located on the western side the Bruxner Highway between Habib Drive and the Lismore Airport passenger terminal, that has been developed consistent with the concept plan as shown in the Lismore Floodplain...
Management Plan and an evacuation plan has been prepared for each development. The area closest to the airport terminal is to be developed for uses that are ancillary to the airport.

8.5 High Flood Risk Area

High Flood Risk Area is the area in which there is a potential for flooding to cause danger to personal safety and/or loss or damage to light structures. Able bodied adults could have difficulty wading to safety. The adopted criteria for High Flood Risk Area has been defined in terms of two types of risk category for the 1 in 100 year ARI flood:

a) Human Risk Categories where there is potential for flood waters to create danger to personal safety; and
b) Property Risk Categories where there is potential for flood waters to create danger to light structures such as residential buildings.

High Flood Risk Areas also include land that would be categorised as ‘flood storage’ in the NSW Government Floodplain Management Manual.

Note: For 1 in 500 year ARI flood levels ADD 1.03m to the 1 in 100 year ARI flood level

8.5.1 Residential Development

No new residential development is permitted in the area designated as High Flood Risk on Map 1 unless the application is accompanied by a flood report prepared by a suitably qualified consultant providing site specific detail relating to predicted depths and velocities in the 1 in 100 ARI flood, which demonstrates to the satisfaction of Council that the flooding characteristics of the site are less hazardous than the criteria for depth and velocity adopted for the high flood risk area in the Lismore Floodplain Management Plan.

Where extensions or additions to existing residential development are proposed, all habitable floor areas are to be at or above the Flood Planning Level, except where in the opinion of Council such a floor level requirement is impractical or unreasonable.

Where replacement of an existing residential development is proposed, all habitable floor areas are to be at or above the Flood Planning Level.

New motels, and other forms of development providing temporary accommodation only, may be permitted where a minimum of 90% of the habitable floor area is at or above the Flood Planning Level and a flood evacuation plan is approved for the development.

No new caravan parks are permitted in the High Flood Risk Area.

8.5.2 Commercial Development

New commercial development to provide:

1. An equivalent of 25% of the gross floor area of the building to be at or above the Flood Planning Level.
2. A mezzanine level (with emergency exit for evacuation purposes) above the 1 in 500 yr ARI flood level as an emergency flood refuge for employees.
3. Bulk fill to within 300mm of finished surfaced level is to be sourced from on-site, from the preferred excavation area or from another area on the floodplain. Minor increases in the depth of imported fill will be considered where it can be demonstrated that this is necessary to complement the design of the footings of a future building. If bulk fill cannot be obtained on-site, from the preferred excavation area or from another area on the floodplain, Council may approve fill imported from another source providing a flood impact assessment has been performed.
prepared by a suitably qualified consultant which demonstrates that the fill will have no adverse effects upon flood levels upstream or on flooding behaviour on adjacent properties.

4. A risk analysis report prepared by a structural engineer addressing the design criteria adopted for the building and its relative merits in each of the 1 in 500 year ARI and PMF flood events. Such report to be satisfactory to Council.

8.5.3 Industrial Development

South Lismore (south of Hollingworth Creek) is isolated in the event of the South Lismore levee overtopping and has a lengthy evacuation route via Union Street, the Ballina St Bridge and Ballina Street or Conway Street to Wyrallah Road. The Hollingworth Creek Bridge represents a low point on the evacuation route that would be cut immediately when flood waters overtop the levee. Planning controls seek to reduce the need for owners of industrial buildings to access their premises during a flood by requiring minimum fill levels of new industrial subdivisions to be at the 1 in 100 year ARI flood level in areas south of Hollingworth Creek.

**Industrial Development South of Hollingworth Creek**

New industrial development located in South Lismore on the southern side of Hollingworth Creek is to provide the following:

1. A Minimum floor level at or above Flood Planning Level is preferred.

2. A mezzanine level (with emergency exit for evacuation purposes) above the 1 in 500 yr ARI flood level as an emergency flood refuge for employees.

3. Lots to be filled equivalent to the 1 in 100yr ARI flood level, subject to maintaining existing flood flow paths. For infill development in existing industrial areas, Council prefers that lots be filled to a level equivalent to the 1 in 100yr ARI flood level but will consider on its merits a fill level equivalent to that of surrounding lots or in accordance with any previous Council consent for filling. Where buildings are constructed on land that has not been filled to the 1 in 100 yr ARI flood level, an equivalent of at least 10% of gross floor area is to be at or above Flood Planning Level and those parts of the building below the 1 in 100 yr ARI flood level are to be constructed of flood compatible materials. Grading of site fill to street and/or to adjoining property boundary levels will be permitted where appropriate.

4. Bulk fill to within 300mm of finished surfaced level is to be sourced from on-site, from the preferred excavation area or from another area on the floodplain. Minor increases in the depth of imported fill will be considered where it can be demonstrated that this is necessary to complement the design of the footings of a future building. If bulk fill cannot be obtained on-site, from the preferred excavation area or from another area on the floodplain, Council may approve fill imported from another source providing a flood impact assessment has been prepared by a suitably qualified consultant which demonstrates that the fill will have no adverse effects upon flood levels upstream or on flooding behaviour on adjacent properties.

5. A risk analysis report prepared by a structural engineer addressing the design criteria adopted for the building and its relative merits in each of the 1 in 500 year ARI and PMF flood events. Such report to be satisfactory to Council.

**Industrial Development – All other Areas**

New Industrial development located in all areas other than south of Hollingworth Creek is to provide the following:

1. An equivalent of 25% of gross floor area to be at or above the 1 in 100 year ARI flood level.

2. A mezzanine level (with emergency exit for evacuation purposes) above the 1 in 500 yr flood level as an emergency flood refuge for employees.
3. Bulk fill to within 300mm of finished surfaced level is to be sourced from on-site, from the preferred excavation area or from another area on the floodplain. Minor increases in the depth of imported fill will be considered where it can be demonstrated that this is necessary to complement the design of the footings of a future building. If bulk fill cannot be obtained on-site, from the preferred excavation area or from another area on the floodplain, Council may approve fill imported from another source providing a flood impact assessment has been prepared by a suitably qualified consultant which demonstrates that the fill will have no adverse effects upon flood levels upstream or on flooding behaviour on adjacent properties.

4. A risk analysis report prepared by a structural engineer addressing the design criteria adopted for the building and its relative merits in each of the 1 in 500 year ARI and PMF flood events. Such report to be satisfactory to Council.

8.5.4 Controls Applying to All Developments

1. Where a minimum floor level is specified, a certificate from a registered surveyor will be required certifying that the floor has been constructed to the required level.

2. All applications involving new building work are to be accompanied by a certificate of structural adequacy prepared by a qualified structural/civil engineer stating that the building has been designed to withstand structural damage from the forces of floodwaters and associated debris.

3. For non-habitable floors constructed below the Flood Planning Level, the applicant will be required to demonstrate that:

   a) the new structure will not have an adverse affect upon the existing flow of floodwaters, and
   b) that all materials used below the Flood Planning Level are flood compatible.

8.5.5 Variation of Boundary between High Flood Risk Area and Flood Fringe Area

The boundaries of the High Flood Risk Area have been determined on the basis of flood modelling undertaken by Patterson Britton & Partners. The accuracy of the modelling at the individual property level is dependant upon the accuracy and level of information that was available at the time to generate the model. Any application that seeks to vary the boundary line between the High Flood Risk Area and the Flood Fringe Area must be justified by a flood report prepared by a suitably qualified consultant providing site specific detail relating to predicted depths and velocities in the 1 in 100 year ARI flood, with specific reference to the criteria for depth and velocity adopted for the High Flood Risk Area in this Plan.

8.6 Flood Fringe Area (including the CBD Flood Liable)

Flood Fringe Area is defined by the limit of the 1 in 100 year ARI flood level contour but excludes areas within the Floodway or High Flood Risk Area.

(N.B: For 1 in 500 year ARI flood levels ADD 1.03m to the 1 in 100 year ARI flood level).

8.6.1 Residential Development

1. Site filling is permitted to the equivalent of the Flood Planning Level provided material is sourced from the preferred excavation area or on-site. If fill cannot be obtained from the preferred excavation area, Council may approve fill imported from a source another source providing a flood impact assessment has been prepared by a suitably qualified consultant which demonstrates that the fill will have no adverse effects upon flood levels upstream or on flooding behaviour on adjacent properties.

2. Habitable floor areas for new residential development are to be at or above the Flood Planning Level.
3. New motels permitted where a minimum of 90% of the habitable floor area is at or above the Flood Planning Level and a flood evacuation plan is approved for the development.

8.6.2 Commercial Development

New commercial development to provide the following:

1. An equivalent of 25% of gross floor area of the building to be at or above the Flood Planning Level

2. A risk analysis report prepared by a structural engineer certifying that the design criteria adopted for the building will withstand the impact of flood waters and debris up to the 1 in 500 year flood ARI event. Such report to be submitted to Council with the Construction Certificate.

3. Bulk fill to within 300mm of finished surfaced level is to be sourced from on-site, from the preferred excavation area or from another area on the floodplain. Minor increases in the depth of imported fill will be considered where it can be demonstrated that this is necessary to complement the design of the footings of a future building. If bulk fill cannot be obtained on-site, from the preferred excavation area or from another area on the floodplain, Council may approve fill imported from another source providing a flood impact assessment has been prepared by a suitably qualified consultant which demonstrates that the fill will have no adverse effects upon flood levels upstream or on flooding behaviour on adjacent properties.

8.6.3 Industrial Development

South Lismore (south of Hollingworth Creek) is isolated in the event of the South Lismore levee overtopping and has a lengthy evacuation route via Union Street, the Ballina St Bridge and Ballina Street or Conway Street to Wyrallah Road. The Hollingworth Creek bridge represents a low point on the evacuation route that would be cut immediately when flood waters overtop the levee. Planning controls seek to reduce the need for owners of industrial buildings to access their premises during a flood by requiring minimum fill levels of new industrial subdivisions to be at the 1 in 100 year ARI flood level in areas south of Hollingworth Creek.

Industrial Development – South of Hollingworth Creek

New industrial development located in South Lismore on the southern side of Hollingworth Creek is to provide the following:

1. A Minimum floor level at or above Flood Planning Level is preferred.

2. A mezzanine level (with emergency exit for evacuation purposes) above the 1 in 500 yr ARI flood level as an emergency flood refuge for employees.

3. Lots to be filled equivalent to the 1 in 100yr ARI flood level, subject to maintaining existing flood flow paths. For infill development in existing industrial areas, Council prefers that lots be filled to a level equivalent to the 1 in 100yr ARI flood level but will consider on its merits a fill level equivalent to that of surrounding lots or in accordance with any previous Council consent for filling. Where buildings are constructed on land that has not been filled to the 1 in 100 yr ARI flood level, an equivalent of at least 10% of gross floor area is to be at or above Flood Planning Level and those parts of the building below the 1 in 100 yr ARI flood level are to be constructed of flood compatible materials. Grading of site fill to street and/or to adjoining property boundary levels will be permitted where appropriate.

4. Bulk fill to within 300mm of finished surfaced level is to be sourced from on-site, from the preferred excavation area or from another area on the floodplain. Minor increases in the depth of imported fill will be considered where it can be demonstrated that this is necessary to complement the design of the footings of a future building. If bulk fill cannot be obtained on-site, from the preferred excavation area or from another area on the floodplain, Council may approve fill imported from another source providing a flood impact assessment has been prepared by a suitably qualified consultant which demonstrates that the fill will have no adverse effects upon flood levels upstream or on flooding behaviour on adjacent properties.
5. A risk analysis report prepared by a structural engineer addressing the design criteria adopted for the building and its relative merits in each of the 1 in 500 year ARI and PMF flood events. Such report to be satisfactory to Council.

**Industrial Development – All other Areas**

New industrial development located in all areas other than south of Hollingworth Creek is to provide the following:

1. An equivalent of 25% of gross floor area to be at or above the Flood Planning Level.
2. A mezzanine level (with emergency exit for evacuation purposes) above the 1 in 500 yr ARI flood level as an emergency flood refuge for employees.
3. Bulk fill to within 300mm of finished surfaced level is to be sourced from on-site, from the preferred excavation area or from another area on the floodplain. Minor increases in the depth of imported fill will be considered where it can be demonstrated that this is necessary to complement the design of the footings of a future building. If bulk fill cannot be obtained on-site, from the preferred excavation area or from another area on the floodplain, Council may approve fill imported from another source providing a flood impact assessment has been prepared by a suitably qualified consultant which demonstrates that the fill will have no adverse effects upon flood levels upstream or on flooding behaviour on adjacent properties.
4. A risk analysis report prepared by a structural engineer addressing the design criteria adopted for the building and its relative merits in each of the 1 in 500 year ARI and PMF flood events. Such report to be satisfactory to Council.

**8.6.4 Controls Applying to All Developments**

1. Where a minimum floor level is specified, a certificate from a registered surveyor will be required certifying that the floor has been constructed to the required level.
2. All applications involving new building work are to be accompanied by a certificate of structural adequacy prepared by a qualified structural/civil engineer stating that the building has been designed to withstand structural damage from the forces of floodwaters and associated debris. Developments under $50 000 other than restumping of dwellings are exempt from this requirement.
3. For non-habitable floors constructed below the Flood Planning Level, the applicant will be required to demonstrate that:
   a) the new structure will not have an adverse affect upon the existing flow of floodwaters, and
   b) that all materials used below the Flood Planning Level are flood compatible.

**8.6.5 Variation of Boundary between Flood Fringe Area and Low Flood Risk Area**

The boundaries of the Flood Fringe Area have been determined on the basis of flood modelling undertaken by Patterson Britton & Partners. The accuracy of the modelling at the individual property level is dependant upon the accuracy and level of information that was available at the time to generate the model. Any application that seeks to vary the boundary line between the Flood Fringe Area and the Low Flood Risk Area must be justified by a flood report prepared by a suitably qualified consultant providing site specific detail relating to the predicted probable maximum flood level contour on the property.

**8.7 Low Flood Risk Area**

Low Flood Risk Area is defined by the limit of the probable maximum flood (PMF) level contour but excludes areas within the Floodway, High Flood Risk Area or Flood Fringe Area.
No development controls apply to residential, commercial or industrial development within the Low Flood Risk Area however the safety of people and associate emergency response management still needs to be considered and may result in:

- Restrictions on certain types of development that may be particularly vulnerable to emergency response such as aged care developments; and
- Restrictions on critical emergency response and recovery facilities and infrastructure such as evacuation centres, hospitals and major utility facilities to ensure such facilities and infrastructure can fulfil their emergency response and recovery functions during and after a flood event.

8.8 Rural Areas

Flood modelling data is not available for the 1 in 100 year ARI flood in rural areas. Where development is proposed on rural land that may be considered flood prone, the applicant will be required to submit a report from a registered surveyor establishing a level at the site equivalent to the estimated 1 in 100 year ARI flood level. The habitable floor level of all new dwellings is to be at or above the Flood Planning Level.
Chapter 9

Outdoor Advertising Structures
9 Advertising Structures

Signs have an important role in the city of Lismore. They provide information, identify businesses and products, and they constitute a significant part of the streetscape. Signs in the Lismore Local Government Area are used to advertise a place of business or give directions and/or information. They should be architecturally attractive, and contribute to rather than detract from the surrounding area.

These sign standards are Council’s policy in order to assure that a business will have precisely the same controls as other businesses in the same zone. In addition, the business is protected against undesirable and overpowering advertising structures from other competitors and/or adjacent premises in the area. Council is required to regulate advertising structures under the Environmental Planning and Assessment Act, 1979.

Without reasonable and fairly applied criteria, signs may distract and dominate the setting by way of their height, shape, size, number, lighting and movement. It is Lismore City Council’s intention to encourage the use of signs in appropriate locations, as they reflect the character and regional role of the Lismore area.

9.1 Objectives of this Chapter

1. To provide Lismore with effective guidelines for the erection and content of outdoor advertising signs throughout the Lismore area;

2. To protect Lismore’s streetscapes against the aesthetically adverse proliferation of inappropriate signage, thus protecting public amenity with regard to signage.

9.2 Relation to Other Plans

State Environmental Planning Policy No.64 Advertising & Signage overrides the provisions of this development control plan. When preparing or assessing a development application for advertising signage in rural zones, environmental protection zones, or signage which is visible from or within 250 metres of a classified road, the provisions of SEPP 64 should be considered. SEPP 64 may be found at www.legislation.nsw.gov.au/browse in force/environmental planning instruments in force.

The SEPP prohibits the display of an advertisement within the following zones or descriptions:

- heritage area
- conservation area
- open space
- waterway
- residential (but not including mixed residential/business zones)
- national park
- nature reserve

with the exception of business identification signs, building identification signs, signage on vehicles, and signage which is ‘Exempt Development’ under the Lismore Development Control Plan or Lismore Local Environmental Plan.

9.3 Definitions

In this Chapter the following definitions apply:

“advertising billboard” means a structure (such as framework, a signboard, a noticeboard, a wall, or a fence) erected or used primarily for the display of advertising matter.
“advertising sign” means an advertisement which refers to the name of the business, the premises, the use, the address, telephone number, or which communicates an advertising message by any other means to the public. An outdoor advertising sign is the advertising content which is displayed on an outdoor advertising structure.

“advertising structure” means a device whereby any advertising sign may be displayed, or which is designed or adopted or apparently designed or adopted for the display of advertising. The structure may be attached to a premises, or it may be an existing wall of a building, a free-standing wall, a fence, or items attached to or mounted on parked vehicles and box trailers upon which graphics are displayed.

“animated sign” means an advertising sign with movement, or that flashes or changes colour, due to the use of electrical or manufactured sources of power.

“awning sign (above)” means an advertising sign that is located on top of an awning or verandah and that does not project above the parapet or ridgeline or beyond the awning edge.

“awning sign (below)” means an advertising sign that is fixed below an awning and above the footpath and that does not project above the awning edge and is located at least 2.5 metres above the footpath and 500 millimetres from the kerbing edge or awning edge.

“banner/flag sign” means a single piece of lightweight material attached or supported on one or two sides that displays advertising matter.

“blimp/balloon sign” means an advertising sign which is inflated and suspended above the premises, site or event which it is intended to promote or identify and which is tethered and displayed at the same premises for a period of no more than one calendar month in any one year.

“bunting” means an advertising sign consisting of a continuous string of lightweight coloured material secured so as to allow movement.

“chalkboard sign” means a board used for the purpose of describing services or goods for sale which vary on a regular basis, such as a restaurant menu.

“directional sign” means an advertising sign erected by the Council for the purpose of directing vehicular or pedestrian traffic, or advising the public (including advising the public about any restrictions), and which does not include any information of a commercial nature.

“election sign” means an advertising sign which is temporarily displayed to relay information for political purposes and which has an area not exceeding 1 square metre and which is only exhibited during the campaign concerned.

“fascia sign” means an advertising sign that is painted on or attached to the fascia or return of an awning, but does not exceed the height of the fascia or the return of the awning.

“home occupation sign” means an advertising sign attached or located within the curtilage of a dwelling and which bears only the name, occupation and phone number of the occupier and has an area not exceeding 1 square metre.

“illuminated sign (indirect)” means an advertising sign in the form of a device (such as a reflective or luminous sign) in which a source of light is extended to the device in order to make the message readable.

“illuminated sign (internal)” means an advertising sign illuminated by an internal source of light.

“illuminated sign (neon)” means an illuminated advertising sign constructed from neon tubing.
“integrated sign” means an advertising sign that is permanent and is an integrated design component of a building.

“pole/pylon sign” means an advertising sign which is supported by one or more columns, uprights or braces fixed to the ground and which is not directly attached to any building or other structure.

“portable footpath sign” means a small, free-standing, portable advertising sign located on a footpath or area utilised for pedestrian traffic and includes a sandwich board.

“projecting wall sign (horizontal)” means an advertising sign which projects more than 300 millimetres from any wall to which it is attached, being a sign that has a width greater than its height.

“projecting wall sign (vertical)” means an advertising sign which projects more than 300 millimetres from any wall to which it is attached, being a sign that has a height greater than its width.

“real estate sign” means an advertising sign temporarily located on any land, building or structure which indicates the land, building or other structure is for sale, rent or auction, and which has an area not exceeding 5 square metres.

“sky/roof/fin sign” means an advertising sign erected on or above a roof or parapet wall of a building and which is supported, wholly or partially, by the building, and includes an advertising sign extending above the roof line of a building.

“temporary sign” means an advertising sign which is intended to advertise community or civic projects, construction projects or other special public events on a temporary basis and which is erected for no more than two consecutive calendar months.

“tourist sign” means an advertising sign that directs the travelling public to tourist facilities, activities or accommodation or places of scientific, historical or scenic interest.

“wall sign” means an advertising sign affixed or painted directly onto an exterior wall of a building, bus shelter or other structure and which is parallel to the face of the building or other structure.

“window sign” means an advertising sign painted or displayed on the exterior or interior of a shop window or on any glazed surface of a building or structure.

9.4 Development Control Table

The erection or display of an advertisement on land within a zone under the Lismore Local Environmental Plan 2000 specified in column 1 of the Table below:

(a) may be carried out without development consent if it is listed in column 2 under the heading “Without development consent”, or

(b) may be carried out only with development consent if it is listed in column 3 under the heading “Only with development consent”, and

(c) is prohibited if it is listed in column 4 under the heading “prohibited”.

<table>
<thead>
<tr>
<th>Column 1 Zone No.</th>
<th>Column 2 Without development consent</th>
<th>Column 3 Only with development consent</th>
<th>Column 4 Prohibited</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(a), 1(b), 1(r)</td>
<td>chalkboard sign, election sign, fascia sign, home occupation</td>
<td>any advertising sign not listed in Column 2 or 4</td>
<td>advertising billboard, animated sign, awning sign (above),</td>
</tr>
<tr>
<td>Column 1 Zone No.</td>
<td>Column 2 Without development consent</td>
<td>Column 3 Only with development consent</td>
<td>Column 4 Prohibited</td>
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<tr>
<td></td>
<td>sign, real estate sign</td>
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<td></td>
<td></td>
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<td>bunting, illuminated</td>
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<tr>
<td></td>
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<td>illuminated sign (neon),</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pole/pylon sign,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>portable footpath sign,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>projecting wall sign,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sky/roof/fin sign</td>
</tr>
<tr>
<td>1(c), 1(d), 1(f)</td>
<td>awning sign (below), chalkboard sign, election sign, fascia sign, home occupation sign, real estate sign</td>
<td>any advertising sign not listed in Column 2 or 4</td>
<td>advertising billboard, animated sign, awning sign (above), banner/flag sign, blimp/balloon sign, bunting, illuminated sign (internal), illuminated sign (neon), pole/pylon sign, portable footpath sign, projecting wall sign, sky/roof/fin sign, wall sign</td>
</tr>
<tr>
<td>2(a)</td>
<td>awning sign (below), chalkboard sign, election sign, fascia sign, home occupation sign, real estate sign (not exceeding an area of 2 square metres where the land is used for residential purposes)</td>
<td>any advertising sign not listed in Column 2 or 4</td>
<td>advertising billboard, animated sign, awning sign (above), banner/flag sign, blimp/balloon sign, bunting, illuminated sign (internal), illuminated sign (neon), pole/pylon sign, portable footpath sign, projecting wall sign, sky/roof/fin sign, window sign (other than at ground floor)</td>
</tr>
<tr>
<td>2(f), 2(v)</td>
<td>awning sign (below), chalkboard sign, election sign, facia sign, home occupation sign, real estate sign, window sign (ground floor only)</td>
<td>any advertising sign not listed in Column 2 or 4</td>
<td>advertising billboard, animated sign, portable footpath sign, sky/roof/fin sign</td>
</tr>
<tr>
<td>3(a), 3(b), 3(f), 4(a)</td>
<td>awning sign (below), chalkboard sign, election sign, fascia sign, home occupation sign, real estate sign, wall sign (not exceeding an area equivalent to 10% of the area of the wall), window sign (ground floor only)</td>
<td>any advertising sign not listed in Column 2 or 4, weighted portable footpath signs as permitted by Council’s Outdoor Dining Policy</td>
<td>portable footpath sign except for the specific weighted portable footpath signs permitted with consent under the provisions of Council’s Outdoor Dining Policy</td>
</tr>
<tr>
<td>Column 1 Zone No.</td>
<td>Column 2 Without development consent</td>
<td>Column 3 Only with development consent</td>
<td>Column 4 Prohibited</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------</td>
<td>---------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>5</td>
<td>awning sign (below), chalkboard sign, election sign, fascia sign, home occupation sign, real estate sign, window sign (ground floor only)</td>
<td>any advertising sign not listed in Column 2 or 4</td>
<td>advertising billboard, animated sign, bunting, election sign, portable footpath sign, sky/roof/fin sign</td>
</tr>
<tr>
<td>6(a), 6(b)</td>
<td>awning sign (below), chalkboard sign, election sign, fascia sign, home occupation sign, real estate sign, window sign (ground floor only)</td>
<td>any advertising sign not listed in Column 2 or 4</td>
<td>advertising billboard, animated sign, bunting, election sign, portable footpath sign, sky/roof/fin sign</td>
</tr>
<tr>
<td>7(a), 7(b), 8</td>
<td>fascia sign, home occupation sign, real estate sign</td>
<td>any advertising sign not listed in Column 2 or 4</td>
<td>advertising billboard, animated sign, awning sign, banner/flag sign, blimp/balloon sign, bunting, election sign, illuminated sign, integrated sign, pole/pylon sign, portable footpath sign, projecting wall sign, sky/roof/fin sign, wall sign, window sign</td>
</tr>
</tbody>
</table>

### 9.5 Design Guidelines

The design of all signs should have regard to the following matters:

**Appearance**

Signs should be simple, concise and uncluttered in appearance, utilising graphics where possible and harmonious colours. The emphasis should be on the clarity of communication.

**Professional Consultation**

Signs should utilise professionally designed layouts, and Council encourages applicants to consult with professionals (signwriters, artists, etc) prior to lodging an application.

**Position**

Advertising signs should be positioned so that they do not unreasonably obscure or dominate other existing signs on the same property or neighbouring properties.

**Character**

Advertising signs should be designed and located so as to be in scale and character with the architecture and appearance of the host premises and adjoining premises. This principle is of particular importance in the case of historic buildings or within historic precincts recognised by Council or the National Trust. The design and location of signs should complement rather than
compromise existing architectural features. No sign shall obstruct or block the view of any feature of historic architecture.

**Number**
The total number of signs on a particular property should be restricted to those necessary to provide reasonable identification of the business or businesses established thereon, with duplicate signs to be avoided. Signs may be used to minimise clutter where two or more businesses share a premises. Multiple tenement signs should not exceed 8 square metres in area.

**Combination**
Where a number of different signs on a single property are proposed, or where a large building complex is involved accommodating a number of firms or functions (eg. shopping centres, factory units, industrial estates, etc) a co-ordinated and orderly approach to advertising is to be employed, with the signs of uniform or complementary style and character. Entrance signs to industrial estates should be attached so as to be single structures (ie. identification sign).

**Amenity**
The size, shape, location, height and message of an advertising device should not detract from the amenity of adjacent premises or from the locality generally. Rather, the sign should relate to the existing land use. However, tourist signs and directional signs should be allowed regardless, as they perform an important role in directing tourists to significant locations. Any illuminated signs should not be a source of nuisance to neighbours.

**Obstruction**
Advertising signs must be positioned so as not to present a potential obstruction to the safe movement of pedestrians, bicycles or motor vehicles, or cause confusion with traffic signs, controls or directional signs.

**Safety**
Advertising signs must be designed and built in a manner which is structurally and electrically sound so that they pose no threat or danger to the public.

**Structure**
Any supporting structural elements should be discreet so that they do not detract from the overall appearance of the sign or the host premises.

**Signs in rural zones**
Signage in rural zones must relate to the land on which the sign is to be placed, or to premises situated on that land, and specify one or more of the following particulars:
- the purpose for which the land or premises is or are used;
- the identification of a person residing or carrying on an occupation or business on the land or premises and a description of this occupation or business
- particulars of the goods or services provided on the land or premises
- a notice directing the travelling public to tourist facilities or activities or to places of scientific, historical or scenic interest.

**9.6 Applications**
Sign applications should be submitted to Council on the Development Application form, with six (6) copies of accompanying plans of the proposed sign(s). Applications should address both the advertising content and the structure on which it is to be displayed.

The plans should be to scale, and clearly show the particulars of sign dimensions, type, colour(s), material(s), location, construction and method of attachment of the advertisement, and any further information deemed necessary or as requested by Council.
Applications will be determined according to the provisions of clause 24 of Lismore LEP 2000 and this Plan, as well as the merits of the sign's location and effect on the amenity of the area. The application fee shall be determined by Council's list of fees and charges.

The period of consent shall be in accordance with the provisions of the Environmental Planning & Assessment Act 1979 and / or such time as prescribed by Council. A consent approval will state the length of time the approval applies and a renewal and / or extension must be submitted prior to the expiry date.

Sign applications need not be a separate application from a development application for the whole development of a site. Applicants are encouraged to consider the provision of suitable integrated signage as part of the overall design of a development.

Where the application involves the erection of a complex structure, a Development Application may also be required to address this issue. Applicants shall be advised in this instance.

9.7 Existing Use
Where an advertising device has been legally approved in the past, “existing use rights” apply. Signs which have not been given approval but existed prior to the introduction of planning controls or the adoption of Lismore City Council’s original Policy on Outdoor Advertising Signs and Structures on October 15, 1985, may be deemed also as having existing use rights. Where changes are proposed to the sign, including shape, size, colour or text, existing use rights cease and the new sign should comply with clause 24 of Lismore LEP 2000 and this plan.

Where an advertising device does not comply with clause 24 of Lismore LEP 2000 and this plan, is not subject to existing use rights, and has not been approved, it should be removed. Where the existing sign is an advertising device which may be granted approval according to clause 24 of Lismore LEP 2000 and this plan, an application should be promptly lodged with Council.

9.8 Duration of Consents
In accordance with the provisions of State Environmental Planning Policy No. 64 Advertising Signage, Council may grant consent to an application for signage for a maximum period of fifteen years.

9.9 Agreement of landowner for erection of advertising signs
Council cannot accept a development application for any use, including advertising signage, without the written agreement of the owner of land on which the use, including signage, is to be carried out or erected. Therefore any development application for signage must include the agreement of the owner of the property on which the signage is to be erected. Lismore City Council or the Roads & Traffic Authority are the owners of road reserves, including footpaths, within Lismore. Council will not agree to the erection in the road reserve of advertising signs for commercial development.

9.10 Directional signage for tourist facilities
Directional signage for tourist facilities must comply with the Tourist Signposting Manual prepared by Tourism New South Wales and the NSW Roads & Traffic Authority, and be approved by the Tourist Attraction Signposting Assessment Committee (TASAC). This manual is available at www.corporate.tourism.nsw.gov.au. TASAC may be contacted through Tourism New South Wales.
9.11 Additional Information

Clause 9.3 of this Chapter describes each type of sign and in which zones each is permissible or prohibited. There are a number of technical matters which are not covered in this clause, and are detailed as follows:

**Advertising Billboard**

These signs are very obtrusive, and are therefore generally not encouraged in Lismore. The panel of these signs should generally be greater than 6 m² (square metres) in area, but not exceed 18 m² (square metres) in area.

**Awning Sign (Above)**

These signs should not exceed 1.5 m² (square metres) in area as a total per premises. These signs are considered to be obtrusive, and can adversely affect streetscapes and restrict views of architectural features on a building or buildings.

**Awning Sign (Below)**

These signs should not exceed 1.5m² (square metres) in area as a total per premises, with a maximum depth of 500mm, and located a minimum of 600mm from the kerbing edge.
**Chalkboard Sign**
These signs are not to be placed on footpaths or road reserves, and must be affixed to private property and generally not exceed 1.5 m² (square metres) in area as a total per premises.

**Directional Sign**
A directional sign is any advertising device which directs the travelling public to tourist facilities, activities, accommodation or places of scientific, historical or scenic interest, and which conforms to the Australian Standard 1743, and is approved and erected by Council.

**Election Sign**
Election signs greater than 1m² (square metre) in area may be permissible, subject to development consent.

**Illuminated Sign**
“Indirect” illuminated signs should not exceed 3m² (square metres) in area per premises.  “Internal” illuminated signs should not exceed 8m² (square metres) in area per premises.  Neon illuminated signs should not exceed 4m² (square metres) in framed area per premises.
**Pole/Pylon Sign**
These signs should not exceed 4 m² (square metres) in area per panel and should not exceed 7.5 metres in height.

![Pole/Pylon Sign Diagram]

**Portable Footpath Sign**
These signs, also known as “A” frames and sandwich boards, are commonly located on footpaths outside shops. These types of signs are prohibited throughout the Lismore City area, with the exception of specific, weighted portable footpath signs permitted under the provisions of Council’s Outdoor Dining Policy.

**Projecting Wall Sign**
Horizontal and vertical projecting wall signs must be located a minimum of 600mm from the kerbing edge.

![Projecting Wall Sign Diagram]

**Real Estate Sign**
Real Estate signs greater than 5m² (square metres) in area may be permissible, subject to development consent. These signs are only permitted to be erected on the property which is for sale, and must be removed upon the completion of sale of the property.

![Real Estate Sign Diagram]
Sky/Roof/Fin Sign
These signs should generally not exceed 8m² (square metres) in area, and not exceed the height of the highest part of the building on which they are erected. It is considered that these signs are unnecessarily obtrusive, often destroying the appearance and character of the building and the surrounding streetscape. This is particularly relevant within the Lismore precinct, where many of the residents have their principal view over the townscape.

Temporary Sign
Any approval for temporary signs will specify the period (no more than two consecutive calendar months) the sign may remain. At the expiry of the period of approval specified by the consent, the temporary sign shall be removed unless a written request is made for renewal or extension time.

Wall Sign
These signs should generally not exceed 15 square metres in area, be limited to one per wall, and should not protrude above the wall. Wall signs may also include fence signs, such as those used at sporting facilities.
Chapter 10

Notification and Advertising of Development Applications
10. NOTIFICATION OF APPLICATIONS

10.1 About notification

Public participation is an important component of the development assessment process to ensure that public participation occurs in an orderly, consistent and transparent manner. Lismore City Council is committed to community involvement in the assessment of proposed new development. This section outlines Council’s policy concerning notification.

10.2 Objectives

(a) Provide a framework for the notification and advertisement of development applications, applications to modify development consents and the review of development determinations.
(b) Provide an opportunity for public participation in the development application process.
(c) Establish a clear process and expectations of how public views are considered in the development application process.
(d) Specify circumstances where notification and advertising of applications is not required.
(e) Identify development applications that will be notified and/or advertised and those persons who will be notified.
(f) Facilitate the efficient processing of applications without unreasonably compromising the opportunity for public participation.
(g) To ensure notification and advertisement is carried out in accordance with the Environmental Planning & Assessment Act and Regulation.

How this section is used

This section applies to:
- applications for development consent lodged under the Environmental Planning and Assessment Act 1979 (EPA Act)
- amendments to development applications lodged before an application is decided

Modifications -
- changes to development consents;
- applications for review of decisions.

This section does not apply to Exempt or Complying Development as defined by the EPA Act.

These provisions set the minimum level for neighbour and stakeholder notification.

There may be occasions when these minimum provisions are increased at the discretion of the Council, taking into account the possible impacts of an application. In principle, where notification and/or advertising is required it will always occur in accordance with the minimum requirements of the DCP. However, on occasions the notification may
extend beyond the minimum number of properties and/or the advertising and notification period may be extended dependent upon the circumstances.

Council staff have delegated authority to administer the provisions of this DCP Chapter.

10.3 Definitions

A word or expression used in this chapter has the same meaning as it has in the Lismore LEP 2012 unless it is otherwise defined in this chapter:

**adjoining land** means land which abuts an Application Site or is separated only by a public reserve, road, watercourse or other like division.

**advertising** is where Council, in addition to writing to those persons required to be notified, places an advertisement in a local newspaper and a sign on the subject land, advising of the lodgement of a development application and of the time period in which submissions may be made.

**application site** means the land to which an application for development consent relates and includes any easement or right of way relating to the site.

**building** has the same meaning as in the *Environmental Planning & Assessment Act 1979*.

**Council** means Lismore City Council and includes Council officers who may make a decision on an application with delegated authority.

**delegated authority** means authority to make a decision as resolved by Council under s 377 of the *Local Government Act 1993* or as described in Council’s Delegations Manual.

**demolition** means the complete or partial dismantling of a building or structure including damage, defacement or the relocation of a building or structure.

**neighbouring land** means any land, other than adjoining land, which may be adversely affected by the use of an Application Site or the erection of a building on an Application Site (includes properties in a neighbouring Local Government Area).

**notification** is where Council writes to those person identified as requiring notification of the submission of a development application.

**land** has the same meaning as in the *Environmental Planning & Assessment Act 1979*.

**owner** means the name and address of the proprietor as registered in Council’s rating records.
10.4 Advertisement and notification of applications

Council will advertise or notify development applications in accordance with table 10.4 below. The following relevant development category advertising and notification periods will be in accordance with the provisions of the Environmental Planning & Assessment Act and Regulations:

- Designated Development
- Remediation Requiring Consent
- Nominated Integrated Development
- Other notified/advertised development

Public participation requirements for designated development, remediation requiring consent and nominated integrated development are set by legislation and therefore time periods may be subject to change if the legislation changes. The notification of other forms of integrated development will only be required where triggered by the table below.

The 7 day period for certain specified development may be extended at the discretion of Council depending on the circumstances of the particular development or as considered appropriate in the public interest.

If a particular type of development is not defined in the provisions of this chapter, then Council will determine appropriate notification/advertising processes relative to the likely impacts of the proposed development and forming an opinion about enjoyment of land that may be adversely affected with reference to other provisions within this chapter.
<table>
<thead>
<tr>
<th>Development that requires notification and notification period in (days)</th>
<th>Development that requires notification, advertising/site sign (minimum 14 day notification period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Bed and breakfast accommodation (14)</td>
<td>• Signage, other than building and business identification signs (sso)</td>
</tr>
<tr>
<td>• Boat sheds (14)</td>
<td>• Airstrips and Air transport facilities</td>
</tr>
<tr>
<td>• Dwelling houses (7): -</td>
<td>• Animal boarding or training establishments</td>
</tr>
<tr>
<td>➢ Dwelling houses greater than single storey, i.e. greater than 6.5m at the ridge and 4m at the top plate.</td>
<td>• Aquaculture</td>
</tr>
<tr>
<td>➢ Second storey extensions.</td>
<td>• Biosolids treatment facilities</td>
</tr>
<tr>
<td>➢ Dwelling houses that do not comply with setback requirements under this DCP.</td>
<td>• Caravan parks</td>
</tr>
<tr>
<td>➢ Alterations and additions to dwellings that do not comply with setbacks applying under this DCP.</td>
<td>• Cellar door premises</td>
</tr>
<tr>
<td>➢ Any new dwelling house in a heritage conservation area.</td>
<td>• Cemeteries</td>
</tr>
<tr>
<td>➢ Alterations and additions to a heritage item or dwelling in a heritage conservation area.</td>
<td>• Child care centre (sso)</td>
</tr>
<tr>
<td>• Dual occupancies - alterations and additions that do not comply with setbacks applying under this DCP (7)</td>
<td>• Commercial premises (new)</td>
</tr>
<tr>
<td>• Farm stay accommodation (14)</td>
<td>• Community facilities</td>
</tr>
<tr>
<td>• Fences that are not exempt development (7)</td>
<td>• Correctional centres</td>
</tr>
<tr>
<td>• Farm buildings located less than 20 metres from any property boundary (7)</td>
<td>• Demolition of a heritage item or a structure or building within a Heritage Conservation Area</td>
</tr>
<tr>
<td>• Garages, carports, sheds and other ancillary buildings where the height of external walls (not including gables) is greater than 2.7m from ground level (existing) to the underside of the eaves and 3.6m to the top of the roof ridgeline, or the area is greater than 54m² or the building does not comply with setbacks applying under this DCP. (7)</td>
<td>• Dual occupancies (sso)</td>
</tr>
<tr>
<td>• Roadside stalls (14)</td>
<td>• Eco-tourist facilities</td>
</tr>
<tr>
<td>• Secondary dwellings (14)</td>
<td>• Educational establishments</td>
</tr>
<tr>
<td>• Transport depots (14)</td>
<td>• Electricity generating works</td>
</tr>
<tr>
<td>• Water recreation structures (14)</td>
<td>• Environmental facilities</td>
</tr>
<tr>
<td>• Signage, other than building and business identification signs (sso)</td>
<td>• Extractive industries</td>
</tr>
<tr>
<td>• Airstrips and Air transport facilities</td>
<td>• Health services facility (sso)</td>
</tr>
<tr>
<td>• Animal boarding or training establishments</td>
<td>• Helipads</td>
</tr>
<tr>
<td>• Aquaculture</td>
<td>• Industry (new)</td>
</tr>
<tr>
<td>• Biosolids treatment facilities</td>
<td>• Intensive livestock agriculture</td>
</tr>
<tr>
<td>• Caravan parks</td>
<td>• Intensive plant agriculture</td>
</tr>
<tr>
<td>• Cellar door premises</td>
<td>• Landscape and garden supplies (sso)</td>
</tr>
<tr>
<td>• Cemeteries</td>
<td>• Mining</td>
</tr>
<tr>
<td>• Child care centre (sso)</td>
<td>• Neighbourhood shops</td>
</tr>
<tr>
<td>• Commercial premises (new)</td>
<td>• Places of public worship</td>
</tr>
<tr>
<td>• Community facilities</td>
<td>• Public administration building/ Emergency services facilities</td>
</tr>
<tr>
<td>• Correctional centres</td>
<td>• Recreation areas</td>
</tr>
<tr>
<td>• Demolition of a heritage item or a structure or building within a Heritage Conservation Area</td>
<td>• Recreation facilities (indoor &amp; outdoor)</td>
</tr>
<tr>
<td>• Dual occupancies (sso)</td>
<td>• Research stations</td>
</tr>
<tr>
<td>• Eco-tourist facilities</td>
<td>• Rural industries (sso)</td>
</tr>
<tr>
<td>• Educational establishments</td>
<td>• Rural supplies</td>
</tr>
<tr>
<td>• Electricity generating works</td>
<td>• Rural workers’ dwellings (sso)</td>
</tr>
<tr>
<td>• Environmental facilities</td>
<td>• Sex services premises</td>
</tr>
<tr>
<td>• Extractive industries</td>
<td>• Telecommunications facility (see notes in section 10.4j)</td>
</tr>
<tr>
<td>• Health services facility (sso)</td>
<td>• Vehicle repair station (sso)</td>
</tr>
<tr>
<td>• Helipads</td>
<td>• Veterinary hospitals</td>
</tr>
<tr>
<td>• Industry (new)</td>
<td>• Waste or resource management facilities</td>
</tr>
<tr>
<td>• Intensive livestock agriculture</td>
<td>• Water recycling facilities</td>
</tr>
<tr>
<td>• Intensive plant agriculture</td>
<td>• Any proposed development affecting a heritage item, other than minor works and maintenance, including use of a heritage item for use other than uses generally permitted in the zone, i.e. using special LEP heritage provisions.</td>
</tr>
<tr>
<td>• Landscape and garden supplies (sso)</td>
<td>• Any development where Lismore LEP clause 5.3 is used allowing development permitted in an adjoining zone.</td>
</tr>
</tbody>
</table>

### Subdivisions

- Subdivision of less than 5 lots and not including the creation of a public road (14)
- Subdivision involving boundary adjustments that create an additional dwelling entitlement (14)
- Subdivision where 5 or more lots are created.
- Subdivision involving the creation of a public road.
Notification of amended plans, modifications to applications, and reviews of determinations are dealt with in later sections of this chapter.

(a) When notification is not necessary

Some forms of development are of a nature which does not warrant notification by virtue of its minor nature, minimal or low environmental, social and economic impact and high degree of compliance with Council’s LEP and DCP.

There will be no notification of applications relating to:

(i) Exempt development;
(ii) Complying development;
(iii) Change of use, where, in the opinion of the Council, there will be no adverse impact on the neighbourhood;
(iv) Demolition of a structure that is not a heritage item or is not within a conservation area;
(v) Dwelling houses:-
   a. Single storey dwelling houses (i.e. less than 6.5m at the ridge and 4m at the top plate), that comply with setbacks and cut/fill/retaining provisions applying under this DCP;
   b. Minor alterations and additions (excluding second storey extensions) that comply with setbacks applying under this DCP;
   c. That have no other dwelling houses located on the same allotment;
(vi) Dual occupancies - minor alterations and additions, (excluding second storey extensions) that comply with setbacks applying under this DCP;
(vii) Environmental protection works;
(viii) Existing buildings where the work will not change the height, external shape or façade of the building;
(ix) Extensive agriculture;
(x) Farm buildings located more than 20 metres from any property boundary;
(xi) Flood mitigation works;
(xii) Forestry;
(xiii) Home businesses and home industries;
(xiv) Horticulture;
(xv) Intensification of a permissible use including change to the hours of operation of a business, or where, in the opinion of the Council, there will be no adverse impact on the neighbourhood;
(xvi) Internal alterations to a building;
(xvii) Subdivision applications to strata subdivide or to company/community title buildings, or boundary adjustments which do not affect neighbouring land;
(xviii) Swimming pools ancillary to a dwelling and for private use;
(xix) Tree removal applications;
(xx) Viticulture;
(xxi) Amendments to applications where the amendments do not change the height or setbacks or window size and window placement of the proposed development;
(xxii) Proposals which have no potential adverse impact on adjoining properties (i.e. a window on one side of a building which has no impact on properties on the opposite side of the property – notification will only sent to likely affected adjoining property);
Applications made by Council for capital or community infrastructure works on Council land, where in the opinion of the Council, there will be no adverse impact on the neighbourhood.

(b) Who will be notified

Unless otherwise exempted by the EPA Act or this policy, notice of an application will be sent to:

(i) all persons who, according to Council’s property records, own or occupy land immediately adjoining that part of the application site affected by the proposed development;

(ii) owners and occupiers of any neighbouring land which, in the opinion of Council, may be adversely affected by the application.

For the purpose of this section:

- if land is owned or occupied by more than one person, a written notice to one owner or one occupier is taken to be a written notice to all the owners and occupiers of that land.

- Council may also direct that:
  - an application be advertised or notified to any person or group of persons whom it considers may have an interest in the matter;
  - the application be available for inspection and submissions for such additional periods as it considers appropriate.

The extent of notification may be increased where the Council is of the opinion that additional notification is required taking into consideration the potential impact of the proposal.

(c) Cost of advertising and submissions

Applicants are required to pay a fee to Council to cover the cost of advertising and notification of the original application, subsequent amendments to an application prior to determination and any modification.

(d) Matters considered in forming the opinion that enjoyment of land may be adversely affected

In determining which neighbouring land may be adversely affected or whether additional notification or advertising processes or time periods are warranted Council will consider:

(i) the likely impacts of the development on both the natural and built environment of the neighbourhood;

(ii) the social and economic impacts on the neighbourhood;

(iii) Views to and from the surrounding land and buildings;

(iv) Potential overshadowing of surrounding land and buildings;

(v) Potential impact on privacy of surrounding land and buildings;

(vi) Potential noise, odour and vibration emissions to the surrounding land and buildings;
(vii) The likely visual impact of the proposed development in relation to the streetscape and views to and across the site;
(viii) Potential traffic generation;
(ix) Potential light-spill or reflection;
(x) Relevant history of the application site or adjoining land.

(e) Content of notification letter, advertisement and site notices

All advertisements, notification letters and site notices will include:

(i) The application reference number;
(ii) the address (or property description if no street address is allocated) on which the development is proposed to be carried out;
(iii) the name of the applicant;
(iv) a brief description of the proposed development;
(v) a statement that the application and the documents accompanying that application may be inspected at the consent authority’s principal office for a period specified in the notice during the consent authority’s business hours or online via Council’s website;
(vi) a statement that any person during the period specified may make a written submission in relation to the development application to the consent authority;
(vii) a statement outlining the privacy rights of any person making a submission to the Council.

Where the application involves erecting a building the notification letter will include an A4 size plan showing the height and external configuration and façade of the building in relation to the site. Floor plans will not provided due to privacy legislation, but can be viewed at Council’s office as detailed in the notification letter.

(f) Period for inspection of applications and lodgement of submissions

Applications may be inspected during business hours or online at any time, and submissions made during the notification period are to be in accordance with this Chapter.

Council will not decide on the application before the notification period has expired. Late submissions may be received by the Council up to a decision on the application.

(g) Advice to applicants of submissions

Council publishes all submissions online via the Council website. A fact sheet is available on Council’s website containing information about making submissions and what is published by Council. On request, applicants will be supplied with hard copies of all submissions.

(h) Consideration of submissions

Council will consider all submissions on their merits. Submissions will be summarised in the assessment report supplied for consideration and determination of the application. The report will include names of those who made the submissions.
Council is not bound by any submission and its assessment of an application will involve considering the merits of the application together with all submissions.

(i) **Other notifications**

A notice in accordance will be given to Tweed, Richmond Valley, Ballina Shire, Byron Shire and Kyogle Shire Councils in respect of applications for development on land adjoining those Local Government areas.

In respect of Designated and Integrated Development Applications, notification will be given in accordance with the provisions of the EPA Regulations in force at the time.

(j) **Community Consultation Plans including Telecommunications Infrastructure**

Council strongly encourages proponents for large or potentially controversial developments to undertake pre-consultation with communities likely to be affected by a proposed development. This assists with identifying issues of concern and enables design responses to those concerns to be included at an early stage in any proposal lodged with Council for consideration or comment. Pre-consultation can also reduce costs and potential submissions in relation to applications lodged for assessment.

Council will consider facilitating pre-consultation processes within reasonable means which may include:

- Putting proponents in contact with local community groups;
- Mail outs to residents from Council’s property database;
- Engaging an independent facilitator or making a suitable meeting venue available.

Large developments and proposals for new telecommunications facilities such as new mobile phone towers (whether under a DA for complying development process) have the potential to result in community concerns, and well considered community consultation plans have the ability to address issues and inform the community with background information to assist in understanding the proposed development.

There are community consultation guidelines published by various agencies for new telecommunication facilities, and to assist proponents, Council’s expectations for community consultation plans include:

(i) A pre-consultation public meeting with any known local community groups and/or property owners within 500m of the proposed telecommunications facility to share information and views;

(ii) The formal notification of the proposal should include details of how the Telecommunications Provider has responded to matters raised in previous submissions;

(iii) The formal notification of the proposal should include photomontages from different view points around the site, and refer to details demonstrating how visual impacts have been minimised in deciding the preferred proposal;

(iv) People who made submissions in response to pre-consultation for the proposal should be advised by letter of the formal proposal;
(v) The formal notification should ensure that all premises within 500m (unless this extent of notification is impractical in the circumstances) of the proposed installation are provided with written notification of the proposal;
(vi) Newspaper notices should be placed in the Echo/Northern Star and any local village newspaper/journal or the like around the same time;
(vii) In addition to a site notice, a notice should also be placed at any local village store in consultation with the proprietor of that store;
(viii) At the conclusion of the formal notification period, a public meeting should be convened at following proper advance notice of an accessible and convenient location and time to residents/submitters to respond to the matters raised in submissions. This will enable the Telecommunications Provider to respond directly to community questions and concerns and provide information/undertakings in response.

Council responses to requests for comment on community consultation plans will incorporate the above expectations to ensure appropriate and meaningful community engagement from an early stage in project development.

10.5 Amended plans

An applicant may amend an application at any time before Council has made its decision with the prior agreement of Council staff. If, in Council’s opinion, the amendments are considered likely to have a greater adverse effect on or a different adverse effect on adjoining or neighbouring land, then Council will renotify:

- Those persons who made submissions on the original application;
- Any other persons who own adjoining or neighbouring land and in the Council’s opinion may be adversely affected by the amended application;
- Where the amendments in the Council’s opinion do not increase or lessen the adverse effect on adjoining or neighbouring land, or only provides additional information, Council may choose not to notify or advertise the amendments.
- Where the amendments arise from a Council-sponsored mediation, and it is considered that the amendments reflect the outcome of the mediation and do not otherwise increase the application’s environmental impact, the amendments will not be notified or advertised.
- Amendments to applications to remove a tree or to lop, top, or prune a tree, will not be notified or advertised, where the application is required only by Chapter 14 of this DCP and no other development is involved.

a. Modifications

All applications to modify a development consent will be advertised/ notified unless:

(i) the modification does not change the height or external shape or facade of the proposal as shown on the original application; or
(ii) Council is satisfied that the modification or amendment has none or only a minimal impact on the environment; or
(iii) Council is satisfied that the modification or amendment does not substantially change the original application; or
(iv) Council is satisfied that no disadvantage will be caused to any person who owns adjoining or neighbouring land or who has made a submission relating to the application.
(v) In determining who is to be notified of the proposed modification, if Council is satisfied that the modification is of a minor nature, or of minimal environmental impact, the requirement for newspaper advertisement/site notice may be waived.

b. Modification of consents granted by a meeting of Council, the Court or a Joint Regional Planning Panel (JRPP)

(i) If an application is made to modify a consent granted by a meeting of Council, the Court, or the JRPP, or other than under delegated authority, Council will notify:

- those persons who made submissions on the original application, by sending written notice to the last address known to Council;
- any other persons who own adjoining or neighbouring land and in the Council’s opinion may be adversely affected by the amended application; having regard to the provisions in clause 10.5a above;
- in determining who is to be notified of the proposed modification, if Council is satisfied that the modification is of a minor nature, or of minimal environmental impact, Council shall have regard to the provisions of clause 10.5a above.

(ii) After determining an application for modification of consent granted by the Court, Council will send notice of its determination to each person who made a submission in respect of the application for modification.

c. Reviews

In the event that Council receives a request for a review of determination, Council will renotify:

- those persons who made submissions on the original application; and
- in the event of amended plans being lodged with the request for review, any other persons who own adjoining or neighbouring land and in the Council’s opinion may be adversely affected by the amended application;
- in determining who is to be notified of the proposed modification, if Council is satisfied that the modification is of a minor nature, or of minimal environmental impact, Council shall have regard to the provisions of clause 10.5a above.

10.6 Process following receipt of submissions

(i) Submissions in relation to development applications, modification applications and request for review applications must be in writing (or by email) for the Council to take them into account in assessing and determining an application.

(ii) Submissions received by the Council are published online and will be available for public inspection on Council’s website. Submissions will not be kept confidential, although the contact details (e.g. phone numbers, email addresses, but not addresses) of writers will be kept confidential.

(iii) Submissions will be formally acknowledged in writing by the Council.

(iv) Applications will be assessed by the Council taking into account all submissions received. Applications can then be determined in a number of ways, either under delegated authority by qualified and experienced planning staff, or by the Councillors at a Council Meeting or by the Joint Regional Planning Panel. Objections will continue to be considered on the basis of merit and relevance.
Any group of pro-forma objections or petitions will be published and considered as one objection only.

(v) If an application is to be considered by the Council those people who have made written submissions, together with the applicant, will be advised either in writing, telephone or email of any formal meeting at which the application is to be considered.

(vi) Those people that have made a submission(s) will be advised in writing of the Council’s decision regarding the application.

10.7 Mediation/Information sessions

There are different types and degrees of mediation that can occur to resolve issues or objections in relation to development proposals. Council’s policy titled “Guidelines and Practices for Mediation of Development Applications” explains the benefits of mediation or alternatively, information sessions to identify and resolve issues of contention on a mutually acceptable basis.

For many development applications, Council staff will explore options to resolve matters in submissions without the need for formal mediation processes. Under the above policy, Council’s Executive Director - Sustainable Development will consider mediation in either of the following situations:

(i) At the request of either the developers or objectors;
(ii) After consideration of submissions of objection and support following the public exhibition of development and/or other planning or approval proposals.

In relation to point (ii) above, the number of submissions and an indication in a submission(s) that there may be a compromise to be achieved will give weight to consideration for formal mediation processes to be offered to resolve a matter(s) of concern in accordance with the policy.

Mediation or alternative dispute resolution processes are voluntary processes, and Council is unable to make participation mandatory for any party.

10.8 Notification of Council decisions

Council will publish a notice of its decision on an application in a local newspaper (or other appropriate newspaper).

Council will also notify all those persons who made submissions in writing of the determination outcome.

Copies of Council decisions can be found at the Lismore Council website: [www.lismore.nsw.gov.au](http://www.lismore.nsw.gov.au)
Chapter 11

Buffer Areas
11 Buffer Areas

11.1 Objectives of this Chapter
The objective of this Chapter is to minimise land use conflicts between potentially incompatible land uses through the establishment of appropriate buffer areas.

11.2 Definitions
In this Chapter the following definitions apply:

“Buffer Area” means an area of prescribed width between adjoining land uses or developments that is created for the purpose of mitigating the impacts of one or more of those land uses, and in which the carrying out of certain development is restricted.

“Encroaching Development” means any development, including subdivision, the erection of a building or the carrying out of an activity on land to which this Plan applies, which is proposed on land adjacent to an existing development or land use, or to land previously zoned for a specific purpose under the Lismore LEP 2000.

11.3 Conflicts in Land Uses
Conflicts in land use may occur where residential development encroaches into non-residential areas, and established land use practices associated with a particular land use or activity are likely to lead to a real or perceived loss of amenity for residents. Typical external effects which may be generated by certain land uses and which could be considered to be incompatible with residential development include noise, odours, chemical sprays dust etc. If these effects are not taken into account at the development control stage pressures can be exerted on land owners to modify existing land use practices. This could affect the economic viability of an established land use or industry and in some cases could result in the sterilisation of a resource.

The most appropriate means for reducing potential land use conflicts is to provide for a physical separation between incompatible land uses in the form of a buffer area. The purpose of a buffer area is to provide a sufficient setback requirement such that impacts are reduced to the extent that they do not adversely affect the adjoining land use. Clause 11.4 sets out preferred buffer areas for a variety of land uses including agriculture, animal establishments, industries, public utilities and environmentally sensitive areas.

11.4 Recommended Buffers
The buffer areas outlined in this section are intended as a guide for establishing a physical separation between residential development and certain activities and developments where potential conflicts between land uses may arise. Where an application is received for a development which is likely to result in a conflict with existing or likely future adjoining land uses, it will be the responsibility of the “encroaching development” to provide the required buffer areas.

Intensive Horticulture
Horticulture is an important industry on the North Coast, and makes a significant contribution to Lismore’s economy. Lismore City is the third highest producing Local Government Area in the region in terms of gross value of agricultural commodities. It is also the most diverse Local Government Area with respect to the type of commodities it produces.

Potential conflicts between horticulture and residential development are dependant on the nature of the horticultural operation and the type of management practices employed by the producer. Commercial operations which involve the regular or intermittent use of chemical sprays on crops have the greatest potential for conflict with adjoining residential uses.
Both the aerial and ground application of pesticides is common practice for many commercial agricultural activities. Banana producers regularly use aerially applied sprays such as misting oil and fungicide on their crops. Tree crops such as macadamias and low chill stone fruit commonly utilise ground based spray rigs such as air blast misters.

Where pesticides are applied aerially, the Pesticide and Allied Chemicals Act requires that the property owner (or person authorising the spraying of the chemicals obtain the prior written consent of all owners of dwellings or public premises whose boundaries are located within 150 metres of the spray area. Under suitable conditions most of an aerially applied spray is deposited within an area extending 150 metres down wind of the aircraft flight path. The likelihood of pesticide drift beyond the target area is influenced by:

- How quickly the pesticide evaporates;
- The method of application, type of equipment used;
- The ability of the crop or ground surface to capture the spray droplets;
- Weather conditions and air turbulence during and shortly after the application.

While buffers of 150 metres are often recommended between residential and agricultural areas, “biological buffers” offer an alternative to conventional setback requirements in that they assist in the capture of airborne pesticide droplets through the creation of a vegetation filter. Research into the behaviour of pesticide spray drift has shown that vegetation screens can prove effective barriers to spray drift where they meet the following criteria:

(a) are of a minimum width of 30 metres;
(b) contain random plantings of a variety of tree and shrub species of differing growth habits, as spacings of 4 to 5 metres;
(c) include species which have long, thin and rough foliage which facilitate the more efficient capture of spray droplets (see Appendix A for suitable species).
(d) provide a permeable barrier which allows air to pass through the buffer (at least 50% of the screen should be open space).

Biological buffers have additional advantages in that they:

1. create corridors and habitat areas for wildlife;
2. increase the biological diversity of the area, thus assisting with pest control;
3. favourably influence the micro-climate;
4. are aesthetically pleasing; and
5. provide opportunities for recreational use such as cycleways/walkways.

**Recommended Buffer**

(a) 150 metre dwelling setback where there is no planted buffer; or
(b) 80 metre dwelling setback, including a “biological buffer” of minimum width of 30 metres established prior to development along the boundaries adjoining horticultural land use, and established in accordance with the criteria contained in Appendix A and the figure below.

Applications for development, where biological buffer areas are proposed, shall include a detailed landscaping plan indicating the extent of the buffer area, the location and spacing of trees and shrubs and a list of tree and shrub species. The application shall also contain details concerning the proposed ownership of the buffer area and the means by which the buffer is to be maintained.
Macadamia De-husking Plants

The mechanical de-husking of macadamia nuts is considered to be ancillary to the agricultural operation of macadamia producing properties in that it forms part of the normal harvesting process of macadamias. Consequently Council does not regulate macadamia de-husking plants by means of control on siting, noise generation, or hours of operation. During harvesting operations de-husking plants may generate significant levels of noise and traffic which can have impacts on adjoining properties. Proposals for new dwellings on properties adjoining existing macadamia de-husking plants should be located as far as practical from the plant in order to minimise adverse impacts.

Recommended Buffer
300 metres for residential development.

Piggeries

Piggeries on the North Coast range from small operations of less than ten sows (approximately 100 pigs) to large intensive units housing up to 800 sows (8,000 pigs). Most piggeries operate as part of a mixed farming operation where the piggery usually subsidises other farm enterprises.

Intensive piggeries which contain 50 or more pigs (5 or more breeding sows) are classified as “animal establishments” under the Lismore Local Environmental Plan 2000 and are permissible in rural zones subject to the granting of development consent by Council.

Piggeries accommodating more than 2,000 pigs (200 sows) are classed as Designated Development under Schedule 3 of the Environmental Planning and Assessment Regulation, 2000 and will require the preparation of an Environmental Impact Statement.
Piggeries accommodating more than 200 pigs (20 sows) may also be classed as designated if they are located:

(a) within 100 metres of a natural waterbody or wetlands; or
(b) in an area of:
   - High watertable; or
   - Highly permeable soils; or
   - Acid sulphate, sodic or saline soils; or
(c) on land of slopes greater than 6 degrees; or
(d) within a drinking water catchment; or
(e) on a floodplain; or
(f) within 5km of a residential zone and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to effect the amenity of the neighbourhood by reason of noise, odour, dust, traffic or waste.

Under the provisions of the Pollution Control Act, 1970, piggeries containing 50 or more breeding sows require the approval of the Environment Protection Authority. The buffer area for these piggeries will be determined by the EPA on a site specific basis but in any case shall not be less than that nominated in this Plan.

The irrigation of wastewaters from piggeries also requires an annual licence under the provisions of the Clean Waters Act, 1970.

Depending on the size of the establishment, and the method of effluent disposal, piggeries are likely to have a significant impact on nearby residential development through the generation of odours. The extent of the impact will be dependent on factors such as the size of the operation, prevailing wind conditions and topography. Buffers between piggeries and residential development should be of a sufficient distance so that odours generated by piggeries do not cause an undue loss of amenity to adjoining residents. The recommended buffers apply to piggeries and associated effluent disposal areas.

<table>
<thead>
<tr>
<th>Recommended Buffer</th>
<th>Primary Buffer</th>
<th>Secondary Buffer</th>
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</thead>
<tbody>
<tr>
<td>Large feedlots (&gt;500 pigs)</td>
<td>500 metres</td>
<td>1,000 metres</td>
</tr>
<tr>
<td>Small feedlots (&lt;500 pigs)</td>
<td>300 metres</td>
<td>600 metres</td>
</tr>
</tbody>
</table>

Urban/village residential and rural residential development is excluded from both the primary and secondary buffer areas. Single dwellings on agricultural holdings may be permitted in the secondary buffer (but generally not in the primary buffer) if no alternative suitable location is available.

**Cattle Feedlots**

A cattle feedlot consists of a confined yard area with watering and feeding facilities where cattle are completely hand or mechanically fed for the purposes of beef production.

Development consent is required for all cattle feedlots of 50 or more head (except where cattle are penned for feeding, weening, dipping, temporary agistment purposes or of drought or other emergency feeding). Large feedlots containing 1,000 or more head of cattle are classed as Designated Development under Schedule 3 of the Environmental Planning and Assessment Regulation 2000 and will require the preparation of an Environmental Impact Statement.

The establishment of feedlots containing more than 400 head of cattle also require approval from the Environment Protection Authority. The EPA will establish buffer areas for these feedlots on a site specific basis but in any case the buffers shall not be less than nominated in this Plan.
Cattle feedlots can have a significant environmental impact on adjoining properties through the generation of odours, dust and noise (from stock truck movements and feed mill operations). Consequently sufficient buffering needs to be provided between feedlots and residential development to mitigate the effects of these impacts.

### Recommended Buffer

| Large feedlots (>500 head) | 500 metres | 1,000 metres |
| Small feedlots (<500 head) | 300 metres | 600 metres |

Urban/village residential and rural residential development is excluded from both the primary and secondary buffer areas. Single dwellings on agricultural holdings may be permitted in the secondary buffer (but generally not in the primary buffer) if no alternative suitable location is available.

### Other Intensive Livestock Operations

Buffers may be required to other intensive livestock operations which are likely to impact on nearby residential development and these will be assessed individually according to the size, nature and characteristics of the operation. Generally the following minimum buffer areas should apply:

| Dairies | 300 metres | 600 metres |
| Poultry Farms | 300 metres | 400 metres |
| Abattoirs | 800 metres | 1,000 metres |

Urban/village residential and rural residential development is excluded from both the primary and secondary buffer areas. Single dwellings on agricultural holdings may be permitted in the secondary buffer (but generally not in the primary buffer) if no alternative suitable location is available.

### Grazing Land

Residential dwelling sites adjoining grazing land shall have a minimum 30 metre setback with a minimum 5 metre wide planted buffer along the boundaries adjoining the grazing land. Infill residential development zoned 2(a), 2(f) and 2(v) are exempt from this requirement.

### Cattle Dip Sites

There are 288 cattle tick dip sites in Lismore, 257 of which are operational. Cattle dipping remains an essential component of the cattle tick control program on the North Coast. The noise, dust and pesticide use associated with cattle dipping means that the operation of dip sites is generally not compatible with residential development. Even decommissioned dip sites are likely to contain chemical residues in the surrounding soil which may place a constraint on the development of surrounding land for residential purposes.

Various chemicals have been used in cattle tick dip sites over the years however arsenic, DDT and to a less extent Ethion, have been found to be the most persistent and may present a hazard to human health and/or the environment when present in high levels. The use of arsenic in dips ceased in 1955, followed by DDT in 1962. While current tickicides are not expected to be as persistent as arsenic or DDT they may still pose a harmful threat to humans and the environment if direct exposure to the chemical occurs.

The Cattle Tick Dip Site Management Committee (DIPMAC) recommends a 200 metre radius assessment zone around all cattle dip sites. While the 200 metre zone does not exclude all development within this area, the following matters must be addressed in any application for development within 200 metres of an identified dip site:

(a) Whether the dip site is in active use, and if so whether current dip practices are likely to result in exposure of tickicides to the proposed development by any means.
(b) Whether contaminants are likely to move off the site through spray drift, erosion of contaminated soil, stormwater run-off or in windblown dust.
(c) Whether the proposed development site is located “upstream” or downstream” of the dip site.
(d) Whether the dip site is securely fenced, particularly with respect to preventing children from entering the dip area. Most fencing around dip; sites are designed for stock control and would not normally be of a standard that would exclude humans.
(e) Whether warning signs have been erected around the perimeter of the contaminated area.
(f) The lateral extent of chemical contamination in the soil around the dip site, as determined by soil sampling techniques undertaken in accordance with EPA/DIPMAC guidelines.
(g) Whether the proposed development could result in the use of contaminated land for purposes such as the growing of vegetables, fruit trees or raising of poultry, livestock etc.
(h) Whether any rehabilitation measures are proposed for the dipsite (such as the relocation of contaminated soils off the site to a secure storage area).

Applications for development within the 200 metre assessment zone will be assessed on their merits taking into account the above factors, and any advice received from the Environmental Protection Authority.

**Extractive Industries**

Extractive industries involve the use of an extensive range of plant and equipment which creates noise and dust as material is won from the quarry face and then crushed and screened for loading and transport. In some cases blasting is necessary to extract the material. Quarrying activities are incompatible with many land uses, particularly those of a residential nature. It is therefore desirable to provide a buffer area around quarries to minimise land use conflicts and safeguard quarry resources which could be sterilised as a result of encroachment by residential land uses.

The extent of the buffer requirement depends on the size of the quarry, whether blasting is utilised, the nature of production methods, the extent of crushing and screening operations, topography and site conditions and the intensity of surrounding development and land uses. A two level buffer standard is recommended with the primary and secondary buffer as follows:

<table>
<thead>
<tr>
<th></th>
<th>Primary Buffer</th>
<th>Secondary Buffer</th>
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</thead>
<tbody>
<tr>
<td>Large quarries</td>
<td>500 metres</td>
<td>800 metres</td>
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<tr>
<td>(&gt;10,000m³ pa)</td>
<td></td>
<td></td>
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<tr>
<td>Medium quarries</td>
<td>400 metres</td>
<td>600 metres</td>
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<tr>
<td>(5,000m³ – 10,000m³ pa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor quarries</td>
<td>300 metres</td>
<td>400 metres</td>
</tr>
<tr>
<td>(&lt; 5,000m³ pa)</td>
<td></td>
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</tbody>
</table>

Urban/village residential and rural residential development is excluded from both the primary and secondary buffer areas. Single dwellings on agricultural holdings may be permitted in the secondary buffer (but generally not in the primary buffer) if no alternative suitable location is available.

**Sewerage Treatment Works**

The operation of sewerage treatment plants involves the aerobic treatment of sewage effluent in order to achieve a quality of effluent discharge from the plant as prescribed by license issued by the DEC. The normal and efficient operation of sewerage treatment works involve the generation of some odours which may make them incompatible with certain land uses, particularly residential, commercial and public uses.

The Department of Planning recommend a buffer of at least 400 metres width around sewerage treatment works, although this may be varied to suit local conditions. Compatible uses which may
be carried out within the 400 metre buffer include agricultural and grazing uses, commercial plant nurseries, certain recreational uses and industrial development.

**Recommended Buffer**

- 400 metres for residential and commercial uses, and public uses such as community facilities, schools, etc.
- 100 metres for industrial uses.

**Garbage Tips**

Lismore City Council operates a garbage tip at East Lismore. Garbage tips generate a number of external impacts related to their operation which include odours, dust, noise from machinery, traffic and visual impacts. Buffers between the perimeter of the working area of the tip and residential development should seek to minimise those impacts on residences while taking into account the operation characteristics of the tip and specific conditions affecting the site.

**Recommended Buffer**

Wyrallah Road, East Lismore – the area shown hatched on the map.

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**Industrial Development**

Where the subdivision of land is proposed for industrial development which adjoins existing residential development (or land zoned for the purposes of residential development), a buffer shall be provided by the subdivider along the boundary with the residential land. The purpose of the buffer is to provide visual screening and assist in the reduction of impacts such as noise or other emissions from future industrial development.

Buffers should be mounded (to a minimum height of 1.5 meters) and densely planted in accordance with an approved landscaping plan. Generally Council will not accept land in buffer areas for dedication as Public Reserve. The subdivider shall provide details as to the type of industry to be adjoining the residential land, the future ownership of the buffer area and the means by which the landscaping will be maintained to Council’s satisfaction.
### Recommended Buffer

<table>
<thead>
<tr>
<th>Industries</th>
<th>Minimum</th>
<th>Preferred</th>
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<tbody>
<tr>
<td>Light Industries</td>
<td>10 metres</td>
<td>20 metres</td>
</tr>
<tr>
<td>General Industries</td>
<td>20 metres</td>
<td>40 metres</td>
</tr>
</tbody>
</table>

Buffer widths may be reduced where a public road provides a physical separation between residential land and industrial development, however mounding and landscaping will still be required to provide an effective visual barrier.

### Potentially Hazardous or Offensive Industries

Potentially hazardous or offensive industries are defined as industries which would pose a significant risk to the biophysical environment or to human health or property or would omit a polluting discharge (including noise) in a manner which would have a significant adverse impact on the locality, if the development were to operate without employing measures (such as isolation from other development) to reduce or minimise its impact.

Industries of this nature may be located in rural areas within the 1(a) General Rural zone subject to development consent (see Chapter 3 – Industrial Development). The width of buffer areas between potentially hazardous or offensive industries and non compatible uses such as residential development will be dependent on the nature of the industry but should be of sufficient distance that adverse impacts are reduced to acceptable limits.

**Recommended Buffer**

1,000 metres to residential development and other non-compatible uses (a reduction may be considered depending on the nature of the industry).

### Crematoriums

Crematoriums are a permissible use in the 4(a) Industrial zone but prohibited in residential zones under the Lismore LEP 2000. Where industrial areas border on residential areas an appropriate buffer is required to overcome perception issues that may be experienced by nearby residences.

**Recommended Buffer**

A minimum of 80 metres from existing residential development or from land that is zoned 2(a) Residential Zone, 2(f) Residential (Flood Liable) Zone or 2(v) Village Zone.

### Planning for Bushfire Protection


A list of suitable fire retardant trees and shrubs are included in Appendix B.

### Rivers, Watercourses and Wetlands

Buffers between residential development and rivers, streams, watercourses and wetlands are necessary in order to maintain water quality and protect the aesthetic, recreational and habitat values of the watercourse and riparian vegetation.

**Recommended Buffer**

Rural dwellings (and unsewered urban development) – 50 metres from the nearest point of the dwelling house or effluent disposal trench to the bank of any river, stream or watercourse.

Urban development (sewered) – 30 metres from the nearest boundary of urban allotments to the bank of any river, stream or watercourse. This buffer may be reduced in width where effective stormwater control and a landscaped buffer is provided. A list of suitable trees and shrubs for planting in streamside buffers is included in Appendix C.
Environmental Buffers
To protect the integrity of areas which are recognised as having high environmental value (such as National Parks, Nature Reserves and 7(a) Environmental Protection Zones, as well as water catchment areas and State Forests) a sufficient setback between new residential development and the defined boundary of environmentally sensitive areas should be maintained. Adverse impacts on these areas from residential development may include predation of wildlife by domestic animals, invasion of exotic weeds, and nutrient enrichment from stormwater run-off.

Recommended Buffer
Rural dwellings – 200 metres (preferred), 100 metres (minimum)
Urban development – 20 metres from the nearest boundary of any urban development (a reduction may be considered where an appropriate animal proof fence is erected along the boundary).

Railway Lines
The following minimum setbacks from railway lines apply to residential dwellings:

- Rural areas: 50 metres
- Urban areas: 20 metres (with appropriate mounding and planting)

Powerlines
The minimum allowable clearances for powerlines as set out in the Table below, are the minimum necessary when the conductor will be at its closest position to a building or structure during strong winds or high temperatures. Under these conditions the conductor may swing or sag considerably towards a building or structure compared with its normal position. Allowance should be made for any swing or sag of powerlines under these conditions.

<table>
<thead>
<tr>
<th>COLUMN 1</th>
<th>COLUMN 2</th>
<th>COLUMN 3</th>
<th>COLUMN 4</th>
<th>COLUMN 5</th>
<th>COLUMN 6</th>
<th>COLUMN 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension as shown in drawing</td>
<td>Insulated service lines</td>
<td>Insulated mains or bare neutral of service line or of mains</td>
<td>Bare phase conductors of mains or of service lines</td>
<td>Voltage not exceeding 850 volts exceeding 850 volts but not exceeding 650 volts exceeding 650 volts but not exceeding 33 000 volts exceeding 33 000 volts but not exceeding 132 000 volts</td>
<td>Voltage exceeding 650 volts but not exceeding 33 000 volts</td>
<td>Voltage exceeding 33 000 volts but not exceeding 132 000 volts</td>
</tr>
<tr>
<td>A</td>
<td>Any part of any roof, or similar structure, vertically below an overhead line and normally accessible to persons. Any advertising sign or the like</td>
<td>2.7 metres vertically</td>
<td>2.7 metres vertically</td>
<td>3.7 metres vertically</td>
<td>4.5 metres vertically</td>
<td>5.5 metres vertically</td>
</tr>
<tr>
<td>B</td>
<td>Any part of any roof, or similar structure, vertically below an overhead line and not accessible to persons. Any advertising sign or the like</td>
<td>1.2 metres vertically</td>
<td>2.7 metres vertically</td>
<td>2.7 metres vertically</td>
<td>3.7 metres vertically</td>
<td>4.6 metres vertically</td>
</tr>
<tr>
<td>C</td>
<td>A wall, or similar structure, not normally accessible to persons. Any flag. Any advertising sign or the like</td>
<td>0.3 metres in any direction other than vertical</td>
<td>0.3 metres in any direction other than vertical</td>
<td>0.5 metres in any direction other than vertical</td>
<td>1.5 metres in any direction other than vertical</td>
<td>3.0 metres in any direction other than vertical</td>
</tr>
<tr>
<td>D</td>
<td>Any window opening. Any balcony, verandah or the like</td>
<td>Out of normal reach of persons</td>
<td>0.9 metres in any direction</td>
<td>1.5 metres in any direction</td>
<td>2.1 metres in any direction</td>
<td>3.0 metres in any direction</td>
</tr>
<tr>
<td>E</td>
<td>Any part of an outdoor wireless or outdoor television aerial or part of a staywire</td>
<td>1.8 metres in any direction</td>
<td>1.8 metres in any direction</td>
<td>1.8 metres in any direction</td>
<td>2.1 metres in any direction</td>
<td>3.0 metres in any direction</td>
</tr>
<tr>
<td>F</td>
<td>Any part of a clothes line</td>
<td>The horizontal distance between the conductor closest to the aerial and a line drawn vertically through the part of the aerial closest to the power line must also comply with these clearances. Aerials must not be erected over power lines.</td>
<td>1.8 metres in any direction</td>
<td>3.9 metres in any direction</td>
<td>3.9 metres in any direction</td>
<td>3.9 metres in any direction</td>
</tr>
<tr>
<td>G</td>
<td>Over the carriageway of roads</td>
<td>5.5 metres vertically</td>
<td>5.5 metres vertically</td>
<td>5.5 metres vertically</td>
<td>6.7 metres vertically</td>
<td>6.7 metres vertically</td>
</tr>
</tbody>
</table>

Powerlines across private property generally require a 10 metre wide easement either side of the line to permit access to power poles for maintenance purposes. In rural areas dwellings should be located at least 20 metres clear of powerlines.
**Rifle Ranges**

Restrictions apply to the erection or use of any building for any purpose on land shown hatched on the following map, located immediately to the south of the rifle range in Rifle Range Road, Tuncester. In addition, no dwellings are permitted within the buffer area of 500 metres around the firing line of the pistol and small bore range, as indicatively shown by the dotted line on the map. Any other development and/or use proposed within the 500 metre buffer will be subject to Council consideration via the lodgement of a Development Application, having regard to the impact of that development on the continuing use of the rifle range.

![Map of Rifle Ranges and Lismore Airport](image)

**Lismore Airport**

Air space “protection” around an aerodrome is an important factor in maintaining the continued safe operation of an aerodrome. The Civil Aviation Authority defines a set Obstacle Limitation Surfaces (OLS) designed to provide a safe, efficient and predictable environment for aeroplanes in which to approach, land and takeoff. The objective of the OLS Standards is to define the air space around the aerodrome which is to be kept free of obstacles so as to enable aeroplane operations to be conducted safely. No structure or installation is to be erected within the air space nominated without specific approval of the CAA:

1. Above RL 56 metres AHD (45 metres above ground level of the airport) within an area of 4,000 metres radius from the runway as indicated in Figure 1.

2. Within the runway approach surfaces as indicated in Figures 1 and 2.

The nominated Obstacle Limitation Surfaces may be extended in the event of future extensions to the Lismore Airport runway.

Noise generated by aircraft has a differing impact upon a range of various land uses within the area surrounding airports. Accordingly, it is acknowledged by Council that certain types of development, such as residential dwellings, are not appropriate within close proximity to an airport.
Taking this into account, in accordance with the requirements of the attached Land Use Compatibility Advice Table, Council will generally not permit any form of residential development in locations where the ANEF (Australian Noise Exposure Forecast System), as shown on Figure 3, is at a level of 20 ANEF or more.

### LAND USE COMPATIBILITY ADVICE FOR AREAS IN THE VICINITY OF AUSTRALIAN AIRPORTS

<table>
<thead>
<tr>
<th>Building Type</th>
<th>ANEF Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Conditional</td>
</tr>
<tr>
<td></td>
<td>Unacceptable</td>
</tr>
<tr>
<td>Houses, home units, flats</td>
<td>Less than 20 ANEF (note 1)</td>
</tr>
<tr>
<td>Hotels, motels, hostels</td>
<td>Less than 25 ANEF</td>
</tr>
<tr>
<td>Schools, Universities</td>
<td>Less than 20 ANEF (note 1)</td>
</tr>
<tr>
<td>Hospitals, Nursing Homes</td>
<td>Less than 20 ANEF (note 1)</td>
</tr>
<tr>
<td>Public Buildings</td>
<td>Less than 20 ANEF (note 1)</td>
</tr>
<tr>
<td>Commercial Buildings</td>
<td>Less than 25 ANEF</td>
</tr>
<tr>
<td>Light Industrial Buildings</td>
<td>Less than 30 ANEF</td>
</tr>
<tr>
<td>Heavy Industrial Buildings</td>
<td>Acceptable in all ANEF zones</td>
</tr>
</tbody>
</table>

Notes:

1. The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variations in aircraft flight paths.

2. Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential use. Land use authorities may consider that the incorporation of noise control features in the construction of residences is appropriate (see also Appendix A).

3. An analysis of building noise reduction requirements by an acoustic consultant should be made and any necessary noise control features included in the design of the building.

4. If the 35 ANEF contour is not at present included in ANEF drawings this contour should be determined by interpolation.

5. This table is included in the Standards Association of Australia’s AS 2021-1985.
**APPENDIX A**

**Trees and shrubs suitable for planting within a ‘biological buffer’**

<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brisbane wattle</td>
<td>Acacia fimbriata</td>
</tr>
<tr>
<td>White Sally wattle</td>
<td>Acacia floribunda</td>
</tr>
<tr>
<td>Sally wattle</td>
<td>Acacia melanoxylon</td>
</tr>
<tr>
<td>River She-oak</td>
<td>Allocasuarina cunninghamiana</td>
</tr>
<tr>
<td>Swamp She-oak</td>
<td>Allocasuarina glauca</td>
</tr>
<tr>
<td>Forest She-oak</td>
<td>Allocasuarina torulosa</td>
</tr>
<tr>
<td>Bottlebrush</td>
<td>Callistemon sp. (all Callistemon species including cultivars)</td>
</tr>
<tr>
<td>Willow-leaf Hakea</td>
<td>Hakea salicifolia</td>
</tr>
<tr>
<td>Common Tea Tree</td>
<td>Leptospermum flavescens</td>
</tr>
<tr>
<td>Lemon-scented Tea Tree</td>
<td>Leptospermum petersonii</td>
</tr>
<tr>
<td>Fine-leaved paperbark</td>
<td>Mealaleuca linarifolia</td>
</tr>
<tr>
<td>Hoop Pine</td>
<td>Araucaria cunninghammii</td>
</tr>
<tr>
<td>Turpentine</td>
<td>Syncarpia glomulifera</td>
</tr>
</tbody>
</table>

Other tree and shrub species with long, thin and rough foliage which present efficient targets for the capture of spray droplets may also be suitable for planting within biological buffers.
### APPENDIX B

**Fire retardant trees and shrubs**

<table>
<thead>
<tr>
<th>Species Description</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cootamundra Wattle</td>
<td><em>Acacia baileyara</em></td>
</tr>
<tr>
<td>Silver Wattle</td>
<td><em>Acacia dealbata</em></td>
</tr>
<tr>
<td>Blackwood</td>
<td><em>Acacia melanoxylon</em></td>
</tr>
<tr>
<td>Lilly Pilly</td>
<td><em>Acmena smithii</em></td>
</tr>
<tr>
<td>River Oak</td>
<td><em>Allocasuarina cunninghamiana</em></td>
</tr>
<tr>
<td>Flame Tree</td>
<td><em>Brachychiton acerifolium</em></td>
</tr>
<tr>
<td>Kurrajong</td>
<td><em>Brachychiton populneus</em></td>
</tr>
<tr>
<td>Pink Euodia</td>
<td><em>Euodia elleryana</em></td>
</tr>
<tr>
<td>Blueberry Ash</td>
<td><em>Elaeocarpus reticulatus</em></td>
</tr>
<tr>
<td>Moreton Bay Fig</td>
<td><em>Ficus macrophylla</em></td>
</tr>
<tr>
<td>Rosemary Grevillea</td>
<td><em>Grevillea rosmarinifolia</em></td>
</tr>
<tr>
<td>Tulipwood</td>
<td><em>Harpullia pendula</em></td>
</tr>
<tr>
<td>Native Frangipanni</td>
<td><em>Hymenosporum flavum</em></td>
</tr>
<tr>
<td>Brush Box</td>
<td><em>Lophostemon confertus</em></td>
</tr>
<tr>
<td>White Cedar</td>
<td><em>Melia azedarach</em></td>
</tr>
<tr>
<td>Boobialla</td>
<td><em>Myoposum insulare</em></td>
</tr>
<tr>
<td>Native Daphne</td>
<td><em>Pittosporum undulatum</em></td>
</tr>
<tr>
<td>Firewheel Tree</td>
<td><em>Stenocarpus sinuatus</em></td>
</tr>
<tr>
<td>Turpentine</td>
<td><em>Syncarpia glomulifera</em></td>
</tr>
<tr>
<td>Brush Cherry</td>
<td><em>Syzygium australe</em></td>
</tr>
<tr>
<td>Riberry</td>
<td><em>Syzygium leuhamni</em></td>
</tr>
<tr>
<td>Coolamon</td>
<td><em>Syzygium moorei</em></td>
</tr>
<tr>
<td>Water Gum</td>
<td><em>Tristaniopsis laurina</em></td>
</tr>
</tbody>
</table>

Other tree and shrub species, in particular local rainforest species and native palms and treeferns, may be suitable for fire retardant purposes where they meet the following criteria:

i) have leaves which are large, coarse, moist and fleshy;
ii) have tight or smooth bark;
iii) have dense foliage; and
iv) exhibit little or no presence of volatile oils in the foliage.
## APPENDIX C

### Trees and Shrubs suitable for planting in streamside buffers

<table>
<thead>
<tr>
<th>Trees and Shrubs</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush Ironbark Wattle</td>
<td>Acacia aulacocarpa</td>
</tr>
<tr>
<td>Blackwood</td>
<td>Acacia melanoxylon</td>
</tr>
<tr>
<td>Red Apple</td>
<td>Acmena ingens</td>
</tr>
<tr>
<td>Wild Quince</td>
<td>Alectryon subcinereus</td>
</tr>
<tr>
<td>Red Ash</td>
<td>Alphitonia excelsa</td>
</tr>
<tr>
<td>Rough-leaved Elm</td>
<td>Aphananthe philippinensis</td>
</tr>
<tr>
<td>Hoop Pine</td>
<td>Araucaria cunninghamii</td>
</tr>
<tr>
<td>Bangalow Palm</td>
<td>Archontophoenix cunninghamiana</td>
</tr>
<tr>
<td>White Booyong</td>
<td>Argyrodendron trifoliolatum</td>
</tr>
<tr>
<td>Two-leaved Coogera</td>
<td>Arytera distylis</td>
</tr>
<tr>
<td>Lacebark</td>
<td>Brachychiton discolor</td>
</tr>
<tr>
<td>Flame Tree</td>
<td>Brachychiton acerifolium</td>
</tr>
<tr>
<td>Black Bean</td>
<td>Castanospermum australis</td>
</tr>
<tr>
<td>River Oak</td>
<td>Casuarina cunninghamiana</td>
</tr>
<tr>
<td>Brown Kurrajong</td>
<td>Commersonia bartramia</td>
</tr>
<tr>
<td>Palm Lilly</td>
<td>Cordyline stricta</td>
</tr>
<tr>
<td>Pepperberry Tree</td>
<td>Cryptocarya obovate</td>
</tr>
<tr>
<td>Native Tamarind</td>
<td>Diploglottis Australis</td>
</tr>
<tr>
<td>Koda</td>
<td>Ehretia acuminata</td>
</tr>
<tr>
<td>Blue Quandong</td>
<td>Elaeocarpus grandis</td>
</tr>
<tr>
<td>Hard Quandong</td>
<td>Elaeocarpus obovatus</td>
</tr>
<tr>
<td>Green-leaved Walnut</td>
<td>Endiandra Muelleri</td>
</tr>
<tr>
<td>Hairy Walnut</td>
<td>Endiandra pubens</td>
</tr>
<tr>
<td>Flooded Gum</td>
<td>Eucalyptus grandis</td>
</tr>
<tr>
<td>Forest Red Gum</td>
<td>Eucalyptus tereticornis</td>
</tr>
<tr>
<td>White Euodia</td>
<td>Euodia microcorca</td>
</tr>
<tr>
<td>Creek Sandpaper Fig</td>
<td>Ficus coronata</td>
</tr>
<tr>
<td>Sandpaper Fig</td>
<td>Ficus fraseri</td>
</tr>
<tr>
<td>Moreton Bay Fig</td>
<td>Ficus macrophylla</td>
</tr>
<tr>
<td>Small-leaved Fig</td>
<td>Ficus obliqua</td>
</tr>
<tr>
<td>Strangler Fig</td>
<td>Ficus watkinsiana</td>
</tr>
<tr>
<td>Teak</td>
<td>Flindersia australis</td>
</tr>
<tr>
<td>Cudgerie</td>
<td>Flindersia schottiana</td>
</tr>
<tr>
<td>Ball Nut</td>
<td>Floydia praetia</td>
</tr>
<tr>
<td>Cheese Tree</td>
<td>Glochidion ferdinandii</td>
</tr>
<tr>
<td>Silky Oak</td>
<td>Grevillea robusta</td>
</tr>
<tr>
<td>Guioa</td>
<td>Guioa semiglaucia</td>
</tr>
<tr>
<td>Tulip Wood</td>
<td>Harpulilia pendula</td>
</tr>
<tr>
<td>Native Frangipani</td>
<td>Hymenosporum flavum</td>
</tr>
<tr>
<td>Foambark</td>
<td>Jagera pseudorhous</td>
</tr>
<tr>
<td>Thin-fruit Tree Tea</td>
<td>Leptospermum brachyandra</td>
</tr>
<tr>
<td>Mat Rush</td>
<td>Lomandra hystrix</td>
</tr>
<tr>
<td>Spiny Mat Rush</td>
<td>Lomandra longifolia</td>
</tr>
<tr>
<td>Red Kamala</td>
<td>Mallotus philippensis</td>
</tr>
<tr>
<td>White Cloud Tree</td>
<td>Melaleuca bracteata</td>
</tr>
<tr>
<td>White Cedar</td>
<td>Melia azedarach var australasica</td>
</tr>
<tr>
<td>White Bolly Gum</td>
<td>Neolitsea dealbata</td>
</tr>
<tr>
<td>Holly Wood</td>
<td>Pittosporum rhombifolium</td>
</tr>
<tr>
<td>Native Daphne</td>
<td>Pittosporum undulatum</td>
</tr>
<tr>
<td>Brown pine</td>
<td>Podocarpus elatus</td>
</tr>
<tr>
<td>Celery Wood</td>
<td>Polyscias elegans</td>
</tr>
<tr>
<td>Steelwood</td>
<td>Sarcopteryx stipata</td>
</tr>
<tr>
<td>Whalebone Tree</td>
<td>Streblus brunonianus</td>
</tr>
<tr>
<td>Brush Cherry</td>
<td>Syzygium australae</td>
</tr>
<tr>
<td>Giant Water Gum</td>
<td>Syzygium francisii</td>
</tr>
<tr>
<td>Red Cedar</td>
<td>Toona ciliata</td>
</tr>
<tr>
<td>Water Gum</td>
<td>Tristaniopsis laurina</td>
</tr>
<tr>
<td>Weeping Myrtle</td>
<td>Waterhousea floribunda</td>
</tr>
</tbody>
</table>
Chapter 12

Heritage Conservation
12 Heritage Conservation

This Chapter applies to land within Lismore City, and specifically to the buildings, items and Conservation Areas listed in Schedules 1 and 2 of the Lismore Local Environmental Plan 2000. (see Attachment to this Chapter).

This Chapter may also be recommended by Council to owners of non-listed, but similar historic properties to guide sympathetic alterations outside of conservation areas.

This Chapter should be read in conjunction with the Lismore Local Environmental Plan 2000, the North Coast Regional Environmental Plan, Chapter 6 (Nimbin Village) of Part B of this DCP and any other Council policies or other chapters of this DCP which may be relevant to the proposal (eg. requirements for development on flood prone lands, tree preservation, off-street car parking, urban design and weather protection and crime prevention through urban design).

This Chapter will apply whenever development consent is required for works, as follows:

- To demolish or alter an Item of Environmental Heritage;
- To carry out work to a heritage item, or on land within its vicinity;
- To carry out development, including subdivision, in a Conservation Area.
- To excavate any land for the purpose of exposing a relic or to damage or despoil a relic;
- To damage or remove a tree
- NOTE- Non structural changes which alter the exterior of a building such as: cladding, re-roofing in different materials, repainting with a different colour, replacement of timber windows with aluminium, etc are alterations that require consent.

12.1 Objectives of this Chapter

1. To protect the significance and setting of heritage items and conservation areas in the Lismore City Council area;
2. To integrate heritage conservation into planning and development controls;
3. To allow sympathetic changes to occur;
4. To provide detailed polices which encourage well designed extensions and infill development.
5. To encourage and promote public awareness, appreciation and knowledge of the value of heritage items and conservation areas

12.2 Definitions

In this Chapter the following definitions apply:

‘Conservation’ means all the processes of looking after a place to retain its cultural significance. It includes maintenance, preservation, restoration, reconstruction, and adaptation and will be commonly a combination of more than one of these.

‘Conservation Management Plan’ is a document prepared in accordance with NSW Heritage office guidelines, to establish the heritage significance of a place, and identify conservation policies and management mechanisms to enable that significance to be retained.

‘Cultural Significance’ means aesthetic, historic, scientific or social value for past present and future generations.

‘Fabric’ means all the physical material of the place.
'Form' means the overall bulk, shape height and building parts.

'Heritage Conservation Area' means an area described in Schedule 1 of Lismore LEP 2000 or Schedule 1 of the North Coast Regional environmental Plan.

'Maintenance' means the continuous protective care of fabric, contents and setting of a place and is distinguished from repair. Repair involves restoration and reconstruction.

'Place' means site, area, building or other work, group of buildings, or other works together with associated contents and surrounds.

'Preservation' means maintaining the fabric of a place in its existing state and retarding deterioration.

'Reconstruction' means returning a place nearly as possible to a known earlier state and distinguished by the introduction of materials (new or old) to the fabric.

'Relic' means any deposit, object or material evidence relating to settlement (including Aboriginal habitation) prior to January 1 1900 of the area of the City of Lismore.

'Restoration' means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

'Streetscape' means the combination of buildings, trees, road, verges and fences which can be viewed into and out of properties.

12.3 How this Chapter relates to the Development Application process

Development applications applying to heritage items or in Conservation Areas must comply with relevant policies set out in Clauses 12.4 (Heritage Principles), 12.5 (Design Guidelines) and 12.6 (Precinct Policies).

It is recognised that the policies in this plan may not be appropriate in every case, and sometimes a variation is required. If a proposal departs from the policies, justification must be provided. A variation may be approved if it meets the overall aims and objectives of this Chapter.

12.4 Heritage Principles

What is heritage?

We all have places and things that are important to us and or families. The same attachment applies to places valued by our community. Heritage is essentially whatever we consider important to save for future generations.

Although this plan applies mainly to buildings and streetscapes, the definition of heritage is very broad and includes indigenous sites, trees, natural landscapes, industrial sites and bridges.

The Lismore Citywide Heritage Study carried out in 1995 identified places, buildings and other items. Many of these are legally protected in the Lismore LEP 2000. Special precincts containing individual and groups of important buildings and streetscapes are protected in Conservation Areas.

Why conserve heritage items and places?

- Heritage items and places provide a link to the past and help people understand connections to their local history.
- Heritage buildings provide examples of craftsmanship and materials which are becoming increasingly rare.
• Heritage places provide identity and meaning to the town.
• Heritage is a drawcard for tourism which is an important part of the local economy.
• Heritage is an asset that should be looked after carefully!

This shady tree lined street in the Girards Hill Conservation Area demonstrates the value of natural heritage in the City and is worthy of careful protection.

Good principles for conservation
The ‘Burra Charter’ is the Australian national set of principles and guidelines on heritage conservation and management. It represents ‘best practice’ for all people who provide advice, make decisions or carry out works to places of heritage value.

Overall, it recommends a cautious approach to change:

“do as much as necessary to care for the place and make it useable, but otherwise change it as little as possible”

The Conservation Principles from the Burra Charter are summarised briefly below. Before preparing a development proposal, it is recommended that these principles are carefully considered.
• retain what is important about a place;
• provide for current and future maintenance;
• respect original fabric, past uses, associations and meanings;
• understand and retain evidence of changes which are part of the history;
• understand the place before making decisions
• use traditional techniques and materials to conserve original materials;
• retain the use of a place if it is important, or ensure a compatible new use;
• involve minimal change to allow new uses, respect the original fabric, associations and uses;
• retain an appropriate visual setting for heritage places
• keep a building, work or other component in its historical location, because the physical location of a heritage item or place is part of its cultural significance. Do not relocate unless this is the only practical means of ensuring its survival.
• keep contents, fixtures and objects which are part of a place’s cultural significance at that place.
• retain related buildings and objects as they are also important, and
• enable people who have special associations and meanings with a place in its care and future management to be involved.
Understanding heritage value

Conservation is not just about preserving or restoring a building to its former details, but also ensuring that heritage values are not lost or eroded in the process.

Lack of maintenance, badly designed alterations, incorrect materials, inappropriate subdivisions which detract from the setting of a building, and unsympathetic colour schemes all result in the loss of heritage value. It is therefore important to understand why a building or place is important before changes are considered.

Original Fabric

The physical material of a building or place (known as fabric) contains evidence of its history and how it may have changed. Care and skill are needed to make decisions about the care and management of a heritage building or place;

- Understand the properties of traditional materials before making changes, for example use correct mortars with old bricks.
- Obtain advice from Council who can provide access to a Heritage Advisor/Officer and can offer information on traditional materials such as metal and timber.
- Seek advice from skilled tradesmen with heritage experience,
- Beware of irreversible changes such as painting of brickwork.
- Consider a range of solutions when planning upgrades for safety, fire protection.
- And remember that regular maintenance is essential to look after an old building, and can prevent more costly repairs.

Keeping a building dry is fundamental to its long term conservation. Proper dispersal of stormwater from footings is essential but often overlooked.

12.5 Design Guidelines

This section looks at design elements and how they have an impact on the physical character of buildings and streetscapes.

General Streetscape Context

It is important that alterations, new additions or new buildings are ‘good neighbours’ and are in keeping with the character of the locality. Understanding this context helps when designing a new building or alterations.

Design elements which characterise the historic areas of Lismore:

- weatherboard buildings, mainly single storey with galvanised metal roofing.
• consistency of scale, height, and bulk within residential streets.
• steeper roof pitches, often with complex hip and gables;
• long slender proportions to windows, especially those facing the street,
• projecting gables to the street,
• verandahs generally on front or side elevations,
• informal grass verges with consistent street tree planting
• front fences of low to medium height,
• masonry and stone restricted mainly to large churches and key civic and commercial buildings.

**Sympathetic Change**

Heritage protection is not intended to freeze historic properties in time. The need to upgrade older homes to modern standards is accepted but these changes should take place in the most sympathetic way possible. Those elements which led to a property being protected must be maintained.

Well maintained, historic homes have a character which is not readily reproduced in new areas. The combination of established trees and attractive streets add to the appeal of such properties.

Consider your requirements before you purchase a historic property. Too many alterations may result in the character and charm of the property being lost.

**Basic principles to be observed:**

- Maintain the general scale, height and bulk and proportions of traditional buildings in the streetscape.
- Do not overwhelm the original building with an extension. Consider creating two separate buildings with a linkage. This helps retain the integrity of the original.
- Do not alter original front facades of buildings in conservation areas. Additions are best sited to the side or rear.
- Keep floor levels similar to adjoining buildings.
- Avoid making a replica copy of a heritage building for infill development, but follow proportions and scale.
- Keep it simple- do not use a mixture of features from different eras or add historic features to new buildings.

**Roof Pitch and Form**

Roof pitch has a major impact on the appearance of a building. Historic buildings have distinctive traditional roof forms including hipped roofs, later developments with projecting gables and gambrel roofs, and complex roof forms on more sophisticated residences. Roof pitch tended to
decrease in the interwar and Californian bungalow styles. Although there are a variety of roof shapes, there is a general consistency of scale, height and bulk.

**PREFERRED**
- Ensure that roof pitch, proportion and orientation to the street is compatible with traditional roofs in the surrounding streetscape.
- Use uncoloured galvanised steel where possible or reinstate a painted roof where evidence of this exists.
- Use correct gutters in the maintenance of older buildings. Quad, half round and ogee gutters are the most appropriate profiles, depending on original details.

**NOT ENCOURAGED**
- Use modern material such as ‘colorbond’ on heritage items. Avoid concrete tiles or contemporary colours such as blues, etc in metal roofing on non-heritage items as this is incompatible with the character of the streetscape in Conservation Areas.
- Use perforated box gutters as they are not correct in a historic context.

Projecting gables and subsidiary gables are repeated in this streetscape. This roof design could be reflected in a design for infill development without being an exact copy.

A typical hipped roof with projecting gable

Verandahs
Verandahs are an essential element of traditional Australian houses and occur widely in the conservation areas. They are an important design element, are functional for cooling and providing shaded outdoor living spaces.

**PREFERRED**
- Include verandahs into the design of new development;
- Use a simple skillion style as it integrates well with new buildings.
- Conserve verandahs with original timber detailing.
- Open up enclosed verandahs where possible and re-instate missing details.

**NOT ENCOURAGED**
- Introduce bullnose style, lace ironwork, decorative fretwork or federation brackets to posts on modern buildings, as it lacks historic context. These features may be re-instated to a historic building, where it can be shown that they previously existed.
Bullnose verandah with traditional hipped roof to main dwelling. The balustrade may be a later addition.

Example of an early enclosed verandah

**Windows and Doors**

Windows and doors also have a major impact on the appearance of a building. Many buildings in the conservation areas have traditional double hung, sash or casement timber windows. These provide a strong vertical element in the streetscape.

**PREFERRED**
- Use strong vertical proportions to windows in new development and additions.
- Use timber windows for restoration of traditional buildings.
- Use timber windows without glazing bars for infill development where possible as it is consistent with the character of the streetscape. Aluminium windows with a suitable frame size and proportions will be considered for new work but have a different aesthetic character and limit the ability to vary colour schemes.

**NOT ENCOURAGED**
- Use Aluminium windows on heritage items or significant buildings.

Example of a 12 pane double hung sash window. Example of casement windows with long narrow proportions.
Building Materials

It is important to use the right materials to maintain the integrity and character of heritage buildings and streetscapes. Weatherboard cladding and metal roofing are the most commonly used building materials in residential conservation areas. The conservation areas in the city centre which contain many public buildings tend to be dominated more by masonry buildings.

PREFERRED

- Use matching materials for restoration and additions to existing buildings.
- Use lightweight materials such as timber, compressed sheeting, or cement profiled weatherboards for infill development in a frontage dominated by timber buildings. The use of masonry is only acceptable in a mixed street frontage of timber and masonry buildings where less than half the buildings are of timber construction.
- Paint or render new masonry (where acceptable) for infill development in a plain colour and texture, in preference to face brick.

NOT ENCOURAGED

- Use textured paint type finishes.
- Use white, light, multi coloured, or double height bricks or imitation sandstone blocks.

Colours

Traditional colour schemes complement older homes and provide much character to the streetscape. Usually the roof and walls are light, with dark contrasts to gutters, joinery and trims. A paint scrape behind a meter box or protected area may reveal the original colour scheme.

PREFERRED

- Use a traditional colour scheme for an old building. Seek advice from Council, paint companies, and numerous books on this subject. Contrasting colour schemes which use dark walls with light trims can also be very effective, but be careful in colour selection and ensure that it will be sympathetic in the streetscape.
- Use variations to traditional colours for new development but still maintaining light colours for wall and roof and dark to trims, which will be harmonious in the streetscape. Colour scheme details for new development will be required with the development application.

NOT ENCOURAGED

- Use typical traditional colour schemes such as Cream, Indian Red and Brunswick Green for new development.
- Use bold primary colours, black or white.
**Setbacks and Orientation**

Setbacks for new development should comply with Council’s requirements.

- Variations will only be considered where it can be demonstrated that the setback is consistent with adjoining development and that the new building will not be intrusive in the streetscape.
- Minimum setbacks may need to be increased to protect the setting of a heritage item, where new development is adjacent.

**Garages and Carports**

Garages are a functional requirement of modern life and were not often included with many historic homes. Additions for garages need careful location and design.

**PREFERRED**

- Retain early garages, carports and sheds wherever possible as they contribute to the character of the conservation area.
- Locate garages generally towards the rear of allotments and set back a minimum of 1 metre from the front of the dwelling.
- Keep garages and carports separate from the house as a general rule.
- Match the roof pitch, form and materials of the main building as closely as possible.
- Respect vertical proportions. Avoid double width horizontal doors.
- Consider a simple car port under a continuation of the roof line, for small sites as this has less visual impact.

**NOT ENCOURAGED**

- Prefabricated metal sheds with low pitched roofs. These are not compatible with traditional streetscapes and should be avoided.

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Example of a typical garage sited towards the rear of the allotment.  
Example of a car port designed to complement the dwelling with similar roof pitch and form.
Fences
Front fences are important for defining public and private spaces and add character to heritage areas.

PREFERRED
- Be consistent with traditional fences in the streetscape. They are generally a modest height, and not solid to allow a view of the garden and the front of the house.
- Choose a fence style and materials which is in keeping with the age and style of the dwelling. Examples include picket fences, low post and rail fences and low walls with galvanised pipe common to the 1920s and 30s.
- Use a simple fence style for new development that will harmonise in the streetscape.

Timber Picket fence
Post and Rail Fence

Low fences typical with inter-war dwellings.
Consistent low fences here create an appealing streetscape.

NOT ENCOURAGED
- Metal panel fences, pool fencing, spear tops, aluminium lace panels and bagged masonry fences as they are out of keeping with the character of heritage items or conservations areas.
- Exceeding a height of 1.2 metres forward of the front building line. Elsewhere the maximum height is 1.8metres

Outbuildings and Swimming Pools
Swimming pools and additional shed space should generally be located at the rear of properties.

PREFERRED
- Ensure that they are well positioned to respect the setting and spaces around the building, especially in relation to heritage items.
- Respect original garden layouts retaining mature trees, shrubs, plants and pathways.
- Locate swimming pool safety fencing at the rear of properties where it will be screened from public view and add landscaping to soften the impact on a historic house.
Signage and Advertising

Signage on commercial or civic buildings can contribute to the character of the streetscape provided that it is visually sympathetic.

**PREFERRED**
- Use signs of an appropriate size and in appropriate locations, eg, hanging signs or signs within a fascia.
- Use traditional hand painted signage, or individually mounted letters in preference to pre-cut vinyl lettering.
- Use colour schemes that are effective and readable through use of contrast

**NOT ENCOURAGED**
- Signs in locations, which detract from a building such as above parapets, large projections or over-large fascias.
- Use of bold primary, fluorescent or neon colours. Council may require bold corporate colour schemes to be adapted to make them acceptable on heritage items or in conservation areas.
- Internally illuminated signs such as box signs or neon letters as they are inconsistent with heritage buildings and precincts and will not be approved. Consider externally illuminated signage with spotlights subject to development consent.

12.6 Conservation area / precinct policies

The following section outlines specific policies which relate to the different conservation areas. These policies must be addressed with development proposals for that respective area.

**DALLEY STREET**

**Statement of significance**

"Good row of early twentieth century homes. Buildings not outstanding in themselves but combining well, particularly the row of inter-war houses at Nos 29-35. Set in generous grounds with well maintained front lawns and gardens. Gentle rise on the flood free knoll enhances streetscape. The large symmetrical ground hugging bungalows contrast with the raised basements of contemporary housing elsewhere in Lismore."

Examples of dwellings with projecting centre gables and low front fence treatment in the Dalley Street Conservation Area.

**Characteristics That Define This Conservation Area**

- Detached single storey houses, mainly from the interwar period built at low density on large lots;
• Predominantly timber construction with galvanised metal roofs with strong horizontal proportions;
• Low front fences especially low brick walls or posts with galvanised pipe. Not picket fences.
• Landscaped, spacious grounds with mature trees and shrubs;
• Verandahs and gabled porches are a strong design element common to many houses;
• High proportion of dwellings used as professional consulting rooms due to proximity to St Vincent’s Hospital opposite.

Dalley Street Conservation Area Precinct Policies
• Any development in this precinct must respect the scale, density, form and proportions of existing development, with special attention to the low set horizontal emphasis of existing dwellings.
• Generous setbacks and landscaping especially to the front of buildings should be maintained, to conserve the spaces between buildings which contribute to the character of this precinct.
• Any development in this precinct should remain single storey height to maintain the visual character and unity of this streetscape.
• Car parking should not be approved in front set back areas as it would erode the visual amenity of the streetscape and detract from the setting of the dwellings
• Front fences should be low (less than 1 metre) in character with the established pattern of development. Solid fencing to front boundaries will not be permitted as it is out of character in the streetscape, but is acceptable to side and rear boundaries.

SPINKS PARK AND CIVIC PRECINCT/CONSERVATION AREA

Statement Of Significance
“Pre-First World War urban park located at the centre of town, on the eastern bank of Wilson’s River. The site of a number of notable period buildings, monuments and street furniture. Enhanced by tree planting from c1900. Site of recreational facilities (bowls, croquet and baths) from the 1920s. Consciously created in accordance with the prize winning design by noted architect FJ Board. Board also designed many of the park’s buildings including the rotunda and CWA rooms. One of the forward looking works of an active and progressive municipal Council, eventually named after Mayor Spinks. Considerable social, historical and aesthetic significance, despite alteration of the original design concept. Local Significance”.

“Important concentration of buildings forming an attractive period townscape. Setting enhanced by park and proximity to the river and centre of town. Buildings of note on Molesworth and Magellan Streets include several public, civic and commercial buildings. The former post office building is a fine landmark on the corner of the two streets. The grouping marks the historic shift of the town centre from its original focus, north of Woodlark St.”

Spinks Park Croquet Club with the Rotunda behind
The Queen Victoria Fountain, restored in 2003 and placed in traditional garden landscaped setting.
Characteristics That Define This Conservation Area

- A city centre park of considerable community value which has been in continuous use since the early 1900s
- Substantial and notable public and commercial buildings in a prominent streetscape located opposite Spinks Park.
- Historic tree planting and relationship with the Wilsons River.
- Periodic flood events, recently addressed by construction of a levee wall.

Precinct Policies

- Ensure continued public use and ongoing management of War Memorial Park and Spinks Park through an adopted Plan of Management.
- Ensure that heritage issues are fully addressed when making decisions about alterations, changes and development of any facilities, structures, uses or layout in the park.
- Buildings, monuments and structures in must be carefully conserved in accordance with the Principles of this Plan and the Burra Charter. (Council’s budget needs to reflect these obligations)
- Ensure that measures are taken for the protection of historic buildings, structures or monuments during any festivals or events held in the park.
- Adopt a policy on graffiti removal and ensure that any graffiti on historic structures is removed immediately with appropriate methods.
- Ensure that original plantings that relate to the historical significance of the park as originally laid out by FJ Board are maintained as long as possible and take action to plant a the same replacements species if or when required.
- Foster an understanding and appreciation of the historical and social significance of Spinks Park in the community so that it is valued as an important public space and precinct for future generations.

ST CARTHAGE’S CONSERVATION AREA

Statement Of Significance

“Important grouping of Cathedral and school buildings set in generous and attractive grounds. Major townscape significance in a very visible inner urban location. Social and historical interest for the changes in use over the years, in keeping with the changing circumstances of the Church and Catholic education. Local Significance.”

Characteristics That Define This Conservation Area

- Large scale buildings in a distinct group with views over low lying playing fields.
- Elevated site and visually prominent.
- Important spaces between key buildings contribute to the visual character of the precinct.
- Architectural and aesthetic qualities of the precinct are very important to the city centre identity.
- Large fig trees on eastern side of Dawson Street contribute to the aesthetic quality of the streetscape.
Precinct Policies

- Development in this precinct must be carefully assessed not only in relation to any individual heritage item, but also to the relationship between key buildings, and the spaces they create, and on the character of the precinct as a whole.
- Owners of buildings in this precinct need to consider long term maintenance plans and uses of historic buildings. Preparation of Conservation Management Plans for this group of buildings is recommended.
- Any proposals for development of sports facilities on open space land surrounding this precinct such as club houses, amenities etc, must be carefully designed and sited, sympathetic in form, scale and colours should not obstruct views of landmark buildings.
- Any advertising on sports fields land surrounding the precinct should also be suitably discreet.

ST ANDREWS CONSERVATION AREA

Statement of Significance

‘The St Andrews/Court House precinct is a notable illustration of the response of urban form to social and environmental factors. Views to and from the river contribute to the precinct’s townscape value. All buildings, grand and modest, create period streetscapes of interest, though there have been some unwelcome intrusions. The varied period character adds to the interest. Historically this was the original commercial centre of Lismore.

The elevated site gives the magnificent Church landmark prominence. The Court House and Police station mark the establishment of law and order as well as official early recognition of the importance of Lismore as a settlement.

For residential buildings, the precinct offered a flood free location. Verandahs are a unifying design element. The large filigree style building on Coleman Street is an unusual building of special note. The row on Coleman Street also has the benefit of a green strip on Molesworth St, kept free of buildings by regular flooding. Local Significance.’

Characteristics That Define This Conservation Area

- An elevated site, which is visually prominent and historically important to the city.
- The Church, Court House and associated buildings provide this precinct with a strong, formal character and sense of place.
- The continuous land uses of law and order with associated legal offices are important and provide enduring character and identity to this precinct.
The streetscapes display a mixture of architectural styles and scale of buildings
The row of elevated dwellings on Coleman Street in their leafy surroundings are unique in the city and contrast with the more formal character of the legal buildings.

Precinct Policies

- Development in this precinct must relate sympathetically to surrounding neighbours and not overwhelm important individual heritage items.
- All development should be high quality, formal in character and use materials which harmonise with neighbouring sites.
- The vacant allotment on the corner of Zadoc and Molesworth Streets (Lot 1 DP 617760) requires careful design for future development. Any building should address both street frontages on the corner and car parking should be sited at the rear. (The use of this site as an open car park is not in keeping with the character of this precinct and should be avoided.)
- Owners of buildings in this precinct need to consider long term maintenance plans and management of key heritage items.
- Any advertising in this precinct should be restrained in colours, size and style in keeping with the formal legal and religious character of the precinct.
GIRARDS HILL CONSERVATION AREA

“Girards Hill began as a private subdivision of land to the south of the main town centre. The first houses appeared in the 1880s. At first a scattering of homes built by people seeking attractive views and flood free homes sites, close to the centre of town. Gradual infill and closer subdivision produced a mixture of periods and styles.”

Statement of Significance

“The Girards Hill precinct is notable as a diverse collection of houses unified by their consistent use of timber and iron. This consistent period feature distinguishes Lismore from other towns in the region which have lost much of this character, or which developed using quite different materials. The townscape value of the area also derives from the imposition of a modified street grid on a sloping hillside. This provides for dramatic siting of houses and enhances views into and out of the area. Narrow street pavements with grassed verges in many of the streets contribute to a strong perception of a semi rural urban from. This area features many fine buildings as well as good private gardens and trees. There are however, many unsympathetic intrusions Regional Significance.”

Timber is the dominant material for construction in this locality.

Characteristics That Define This Conservation Area

- Residential in character, predominantly single storey featuring many significant individual buildings and groups of buildings from the 1880s to 1940s.
- Streetscapes have a strong identity created by the consistent use of weatherboards and corrugated metal roofing.
- A variety of roof forms in keeping with the evolving architectural styles.
- Informal grassed verges combined with established shady street trees enhance the setting of the timber dwellings and provide amenity for residents.
- Widespread use of architectural detailing of timber joinery appropriate to the changing styles, eg bellcast weatherboards, brackets, valances, window hoods, and gable end trims.
- Timber picket fences and 1920-30s fences of timber beams and brick piers, and galvanised pipes define front boundaries.

Precinct Policies

- Generally, all original timber homes should be maintained and conserved as they collectively make up the character of this precinct.
- The early workers cottages at the western end of Parkes Street are particularly important as they provide an important link to early life in the city. Any alterations must be carefully designed not to overwhelm the modest scale of these original buildings.
- Any proposals affecting significant or contributory buildings in this precinct which are not individually listed as heritage items in the Lismore LEP, (as they are included collectively in the Conservation Area), need to be considered in a similar manner to that of a heritage item.
- Any alterations or additions affecting buildings which are important as part of a group must maintain those elements which unite the buildings and retain the group value.
- Unsympathetic alterations should be reversed wherever possible in conjunction with development applications for other work.
- The unformed wide grass verges and street trees in Cathcart St, James Street and others must be carefully retained. Intrusions should not be made into these verges to widen the road pavement, create sealed parking areas, or create wide driveway entrances.
- Well designed, high quality infill development which respects the scale, form, proportions and materials of the precinct will be favourably considered on sites which are not identified as significant or contributory.

Early cottages in Parkes St

The steeply sloping hill enhances the setting of the dwellings.

**NIMBIN VILLAGE**

**Statement Of Significance**

**Township and Setting**

The town and its setting have high local significance as a cultural landscape. There is a high degree of integrity, and abundant surviving evidence to demonstrate the process of village development. Unlike most other settlements in the study area, development is densely nucleated within the original survey boundaries. The main street is separately listed as a grouping. Local Significance

**Nimbin Main Street**

Outstanding streetscape located at the core of the Nimbin Conservation area. Unique in Australia. Colourful murals expressing New Age/Alternative themes symbolises the transformation of the local community following the 1973 Aquarius Festival. Aesthetically the colour gives new life to the Inter-war architecture, and signals the economic benefits brought about by the new rural population and increasing numbers of tourists. Illustrative of local theme of “Rural Renaissance”.

Streetscape enhanced by topography and fork in the road, as well as new buildings continuing traditional forms. State Significance.’
Characteristics That Define This Conservation Area

- A unique main street with a ‘new age’ social and aesthetic character layered on a historic building stock.
- Traditional residential single storey, weatherboard and iron buildings, built mainly between 1910 and 1930s,
- A defined edge to the village centre, surrounded by an outstanding landscape setting.
- Residential allotment sizes generally a minimum of 1000m².

Precinct Policies

Chapter 6 (Nimbin Village) of Part B of this Development Control Plan applies to proposals in this Conservation Area.

In addition the following precinct policies apply:

- Restoration or reconstruction work in the conservation area should be accurate to historical architectural details.
- Awnings may be replaced by verandahs on old buildings but must be appropriate to the age and style of the building. i.e. bullnose verandah are not usually associated with 1920s and 1930s buildings. Use old photographs if available to provide details. Where cantilevered awnings are original, retain and repair where necessary.
- Use traditional elements in shop facades such as stall risers beneath windows. Do not introduce large modern plate glass windows to ground level. Retain recessed doorways, tiled entries, and original details.
- Colours on historic buildings need not be restricted to the heritage palette in this precinct owing to its unique visual character.
- Security shutters if required should be placed inside the shop to maintain the external character of the main street. External roller shutters are not considered compatible with the heritage significance of this precinct and should be avoided. Alternative measures such as security lighting, cameras, or alarms should be considered.
- Murals are a dynamic part of the streetscape and ongoing maintenance is required. New murals may be introduced within appropriate elements of a building in the main street precinct subject to development consent.
- The introduction of any new paving, planting and street furniture should be guided by a master plan developed in consultation with the local community.
## Schedule 1 Heritage items

(Clause 12)

<table>
<thead>
<tr>
<th>Map No</th>
<th>Property Title or Description</th>
<th>Address/Location</th>
<th>Item (including the site unless otherwise specified)</th>
<th>Heritage Study Reference</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graham Centre</td>
<td>22 Woodlark Street, Lismore</td>
<td>Office Building and Former Bank</td>
<td>20016</td>
<td>State Built Item</td>
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<td>2</td>
<td>St Carthage’s Catholic Cathedral</td>
<td>6-8-10 Leycester Street, Lismore</td>
<td>Church</td>
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<td>State Built item Conservation area Archaeological site</td>
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<td>3</td>
<td>“Monaltrie”</td>
<td>451 Wyrallah Road, East Gundurimba</td>
<td>House and Grounds</td>
<td>20095 40008 10004 30156</td>
<td>State Built item Landscape item Archaeological site</td>
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<td>4</td>
<td>The Lismore Clinic</td>
<td>185 Molesworth Street, Lismore</td>
<td>Medical Clinic</td>
<td>20003</td>
<td>Built item</td>
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<td>Former Lismore Municipal Building</td>
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<td>Public Building</td>
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<td>Former Post Office</td>
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<td>Post Office</td>
<td>20009 40009 40009</td>
<td>Built item Conservation area Archaeological site</td>
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<td>Lismore Uniting Church</td>
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<td>Church</td>
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<td>Built Item</td>
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<td>Former Boarding House (Gwalla Flats)</td>
<td>7 Coleman Street (Cnr Cambrian), Lismore</td>
<td>Boarding House</td>
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<td>Built item Conservation area</td>
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<td>St Andrews Anglican Church</td>
<td>8 and 14 Zadoc Street (Cnr Keen Street), Lismore</td>
<td>Church</td>
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<td>Built item Conservation area Landscape item</td>
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<td>Former Church of Christ</td>
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<td>St Pauls Presbyterian Church</td>
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<td>Former St Mary’s Convent</td>
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<td>Winsome Hotel</td>
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<td>Hotel</td>
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<td>“Trevallyn”</td>
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<td>“Ermello”</td>
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<td>Disputed Plain Homestead</td>
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<td>House and Site</td>
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<td>Freemasons Hotel</td>
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<td>Hotel</td>
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<td>St John’s Presbyterian Church</td>
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<td>20074</td>
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<td>“Wendella”</td>
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<td>Woodlawn College</td>
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<td>“Tulloona”</td>
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<td>9 Zadoc Street, Lismore</td>
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<td>52 and 54 Newbridge Street, Lismore</td>
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<td>Railway Wharf</td>
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### Schedule 2  Heritage Conservation Areas

(Clause 14)

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<td>St Andrews Conservation Area</td>
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</tr>
<tr>
<td>Spinks Park/Civic Precinct Conservation Area</td>
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<td>St Carthages Conservation Area</td>
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<td>Nimbin Conservation Area</td>
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</tr>
</tbody>
</table>
Chapter 13

Crime Prevention through Environmental Design
13 Crime Prevention through Environmental Design

Crime is a major social problem in our society affecting thousands of people’s lives each year. Abundant media attention surrounding crime, especially serious crimes against the person and property, generates considerable fear within the community. Crimes like break and enter, rape, murder and home invasion are depicted as daily threats to the safety of the community. Fear of crime in itself can restrict people’s freedom of movement and can prevent them from fully participating in the community. Some groups of people are particularly vulnerable to crime and the fear of crime, including older people, women, parents, teenagers, etc.

Many different strategies are needed to combat the complex issues of crime and fear of crime. There is widespread acknowledgement that planners, architects and developers can play an important role in enhancing the safety of our communities. This Plan is designed to assist in the achievement of this goal. It is, however, only one tool in amongst a myriad of others. Ordinary homeowners can also make their residents safer by following some of the ideas put forward in the Plan.

It is important also to acknowledge that a commitment to longer term strategies that address the root cause of crime, such as underlying social issues like poverty and need for family support is essential in crime prevention.

In order to create a safe and defensible environment, Council will have particular regard to design aspects of all forms of development when assessing applications. It should be noted that major Development Applications will require the submission of a CPTED review and/or comments by the Crime Prevention Development Officer prior to the determination of the application.

A whole of community response to crime prevention through environmental design is imperative in order to make a difference. This Plan proposes one way in which the community can work together in creating a safer environment and can be active in practical crime prevention.

13.1 Rationale

Criminals assess their target sites and make decisions based on factors such as risk, effort and likely rewards. CPTED is an attempt to design, manage and manipulate the environment in ways that reduce the opportunities for crimes to be committed.

Generally speaking, the following principles apply to people looking to commit crimes:

- The greater the risk of being seen challenged or caught, the less likely they are to commit a crime.
- The greater the effort required, the less likely they are to commit a crime.
- The lesser the actual or perceived reward, the less likely they are to commit a crime.

It follows that the built environment can and should be designed, managed and manipulated to ensure that:

- There is more chance of being seen, challenged, caught or reported to authorities.
- Greater effort to gain entry and exit is required.
- The rewards, actual or perceived, are less.

13.2 Guidelines for Development Assessment

Many factors must be considered when planning and designing a new development or redeveloping an existing one. This Plan is to ensure that crime prevention is a key consideration in urban design. To this end, the aims of the Plan are to establish guidelines which:

- Enhance the safety of developments for all users; and
• **Minimise the opportunities for crime to be committed.**

The following is a set of criteria against which an application will be assessed. This policy does not necessarily take precedence over other Council policies, such as those relating to heritage or environmental considerations. It is one important planning consideration among many.

### 13.3 Surveillance

#### Siting and Design of Buildings

Buildings should be sited in a manner that encourages opportunities for surveillance. Surveillance can be natural (or casual), technical (such as close circuit television cameras) as well as formal (such as Neighbourhood Watch groups). There are a number of ways in which this can be achieved, including the siting of windows and balconies onto public areas to monitor pedestrian and vehicle movements. Strategic design of landscaping and lighting will also increase areas of surveillance and sight lines.

Additionally, a neighbourhood will benefit from mixed-use development whereby 24-hour surveillance can be encouraged. That is, office and retail uses are the predominant activity during working hours when many of the residential premises are vacated and vice versa. Cafes and kiosks located within parks is another example of mixed-use development and will also offer increased casual surveillance for both areas.

#### Subdivision Design

Subdivisions should be designed in such a manner that allows for natural surveillance from private areas into public and recreational spaces (e.g. parks and playgrounds). Location of outdoor equipment, such as barbeques or clotheslines, nearby play equipment in multi-unit housing, will also increase casual surveillance opportunities.

Public thoroughfares/pathways should be visible from dwellings and roadways throughout the subdivision to promote natural surveillance.

#### Landscaping

Applicants should pay special attention to their selection of plant species so that factors such as shape, height, foliage and canopy spread do not interfere with the natural monitoring of public spaces.

#### Lighting

Lighting plays an important role in creating a safe night-time environment for pedestrians and vehicles.

Lighting should be easily maintained, vandal resistant and have particular regard to the specific environment in which it serves.

Special attention should be given to building entries, common areas and locations likely to attract night use by pedestrians (e.g., pathways, vehicle parking areas, public phones).

There are a number of types of illuminations that vary in their purpose and application. The correct lighting type should be matched with its intended use.
13.4 Access Control and Target Hardening

Access
Strategic design and management can restrict access to designated areas. It is important to offer the right cues to users of the space, both legitimate and otherwise. These cues affect people’s conscious and unconscious decisions about entering into the space.

Spaces should be clearly defined as private, semi-private or public by the use of fencing, bollards, vegetation, landscaping, changes in ground level, traffic calming, paving type and signage.

Target Hardening
Target hardening literally refers to making a premise or piece of property harder to target for non-legitimate purposes. It should be considered when the choice of construction material is being decided upon.

Target hardening can be achieved by the use of security hardware such as locks, chains, alarms and human measures (security guards, etc).

13.5 Territorial Reinforcement

Reinforcing Territory
It is important to establish ownership and the sense of ownership in the communal areas surrounding private areas. These are the transitional spaces from public to semi-private to private areas.

Designing environments in ways that reinforce ownership of the space will lead to greater levels of influence and power as well as surveillance. Space management, where formal care and supervision arrangements are in place, is another way to enhance community safety. Processes such as safety audits and CPTED assessments can be used. Community Safety Officers, located at each Police Local Area Command can assist in these projects.

13.6 Defensive Space

Visible signs of care and order, in any environment, are signals that the environment is maintained and ‘defended’ and that the community is protecting itself. The environment therefore gives the impression that greater effort is required to commit a crime and that there is greater chance of detection.

A well-maintained environment can also reduce fear of crime. Areas that display signs of decay, graffiti and vandalism are usually more intimidating to the general public than those that appear to be well cared for and regularly maintained.
### CPTED - GUIDELINES FOR DEVELOPMENT ASSESSMENT

#### Single Dwellings and Dual Occupancies

<table>
<thead>
<tr>
<th>Site and Building Layout</th>
<th>Landscaping</th>
<th>Security</th>
<th>Front Fencing</th>
<th>Lighting</th>
<th>Address</th>
</tr>
</thead>
</table>
| To maximise casual surveillance, orientate buildings towards the street | To avoid planting which can provide an entrapment spot:  
- Do not use dense, medium height planting in front of the dwelling | To restrict access to the side and rear of the site:  
- Provide locking gates on all side and rear access ways  
- Avoid rear access where possible | To maximise opportunities for casual surveillance of the dwelling from the street frontage and of the dwelling:  
- Front fences should not exceed 1m in height  
- Install double glazing at the front of the dwelling rather than using solid fences greater than 1m if noise insulation is required | To ensure lighting does not produce areas of light and shadow or patches of glare:  
- External lighting should gradually increase in brightness from the edge of the site to the entrance of the dwelling | To prevent unintended access street numbers should be clearly visible from the street. This is achieved by:  
- Making street numbers minimum of 7 cm high  
- Positioning street numbers 0.6m-1.5m above ground level on front site boundary  
- Making street numbers from durable, reflective material  
- Keeping street numbers clear |

#### To ensure dwelling entry is clearly visible from the street by day and night:  
- Entrances should be no more than 10m from the street frontage  
- Dwelling entry should be well lit  
- To avoid planting vegetation which could enable intruders to gain access to the dwelling or neighbouring dwellings:  
  - Plant medium shrubs close to the dwelling if sight lines will not be obscured  
  - Use low level shrubs where visibility is required  
  - Do not use large trees which can give access to upper levels  
- To design and construct dwellings to reduce opportunities for illegal access:  
  - Install locks on all windows and doors and chains on front doors  
  - Install viewers on front doors  
  - Install security grills which are sympathetic to the architectural style of the building and allows observation of the street  
- To minimise front fencing as opportunities for concealment:  
  - They should be predominately open in design to allow sight through the fence, eg: picket, wrought iron.  
  - If solid fence over 1 metre is required the upper section should contain open elements to allow visibility  
- To avoid light spillage onto neighbouring properties (to maximise casual surveillance):  
  - Use movement triggered sensor lights aimed within the property  
  - Use auto-timers for entry to ensure consistency of lighting whether dwelling is occupied or not. |
<table>
<thead>
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<th>Site and Building Layout</th>
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<th>Address</th>
</tr>
</thead>
</table>
| To ensure access between the dwelling entry and street frontage is direct:  
  - Entry should be well lit at night  
  - Avoid recessed doorways which restrict opportunities for casual surveillance |  |  |  |  |  |
| Where balconies form part of the layout, surveillance should be casual but unobtrusive to neighbouring properties, by:  
  - Avoiding direct overlooking by using screening material such as lattice or other material which offers both privacy and vision |  |  |  |  |  |
| Casual surveillance of the street should be achieved through the internal layout of the dwelling, by:  
  - Positioning a habitable room to enable casual observation of the street  
  - Ensuring that on site parking does not prevent opportunities for casual surveillance |  |  |  |  |  |
To maximise casual surveillance, orientate buildings towards the street:  
- Designing adequate lighting around entrance and exit points and service areas  
- Making all lighting vandal resistant

To avoid planting which can provide an entrapment or concealment spot:  
- Do not use dense, medium height planting in front of the building  
- Low ground cover or high canopied trees, clean trunked to a height of 2m should be planted around high use facilities such as children’s play areas, pedestrian routes and car parks

To restrict access to the side and rear of the site:  
- Provide locking gates on all side and rear access ways  
- Avoid rear access where possible

To prevent unintended access:  
- Street numbers minimum of 7 cm high  
- Positioning street numbers 0.6m-1.5m above ground level on front site boundary  
- Making street numbers from durable, reflective material  
- Keeping street numbers free from obstruction

To design dwelling to overlook communal areas, such as play areas, gardens, swimming pools etc:  
- Ensure that dwellings adjacent to communal areas have at least one habitable room window overlooking the area  
- Designing pedestrian routes which are sufficiently lit to be able to identify a face from 15m away  
- Making all lighting vandal resistant  
- Ensuring the correct type of lighting is used

To avoid planting vegetation which could enable intruders to gain access to the dwelling or neighbouring dwellings:  
- Plant medium shrubs close to the dwelling if sight lines will not be obscured  
- Use low level shrubs where visibility is required  
- Do not use large trees which can give access to upper levels

To design and construct dwellings to reduce opportunities for illegal access:  
- Install locks on all windows and doors and chains on front doors  
- Install viewers on front doors  
- Install security grills which are sympathetic to the architectural style of the building and allows observation of the street.

To ensure that materials minimise opportunities for vandalism, by:  
- Not using flat or porous finishes in areas where graffiti is likely to be a problem. Favour use of non-porous material such as glazed ceramic or treated masonry products.  
- Installing street furniture made from hardwearing vandal resistant materials and secured by sturdy anchor points

<table>
<thead>
<tr>
<th>Site and Building Layout</th>
<th>Lighting</th>
<th>Landscaping and Fencing</th>
<th>Security</th>
<th>Building Identification</th>
<th>Building Materials and Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>To maximise casual surveillance, orientate buildings towards the street</td>
<td>To ensure that all entrance and exit points and service areas, such as garbage and loading bays, are clearly identifiable after dark, by:</td>
<td>To avoid planting which can provide an entrapment or concealment spot:</td>
<td>To restrict access to the side and rear of the site:</td>
<td>To prevent unintended access</td>
<td>To ensure that materials minimise opportunities for vandalism, by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Designing adequate lighting around entrance and exit points and service areas</td>
<td>- Provide locking gates on all side and rear access ways</td>
<td>street numbers should be clearly visible from the street. This is achieved by:</td>
<td>- Not using flat or porous finishes in areas where graffiti is likely to be a problem. Favour use of non-porous material such as glazed ceramic or treated masonry products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Making all lighting vandal resistant</td>
<td>- Avoid rear access where possible</td>
<td>- Making street numbers minimum of 7 cm high</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Installing street furniture made from hardwearing vandal resistant materials and secured by sturdy anchor points</td>
</tr>
<tr>
<td>To design dwelling to overlook communal areas, such as play areas, gardens, swimming pools etc:</td>
<td>To ensure that all pathways in, around and to the site are well lit, by:</td>
<td>To avoid planting vegetation which could enable intruders to gain access to the dwelling or neighbouring dwellings:</td>
<td>To design and construct dwellings to reduce opportunities for illegal access:</td>
<td>Individual dwellings and facilities should be made clearly identifiable by:</td>
<td>To ensure that regular maintenance of materials and swift removal of graffiti are carried out, by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Designing pedestrian routes which are sufficiently lit to be able to identify a face from 15m away</td>
<td>- Plant medium shrubs close to the dwelling if sight lines will not be obscured</td>
<td>- Marking with a number or signage</td>
<td>- Using green screens, the planting of suitable vegetation in front to large blank walls or using vegetation to cover the wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Making all lighting vandal resistant</td>
<td>- Use low level shrubs where visibility is required</td>
<td>- Marking each level with unit numbers and entry exit points on that level, eg lifts, stairs.</td>
<td>- Use of vandal resistant paint or artwork to reduce opportunities for graffiti.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ensuring the correct type of lighting is used</td>
<td>- Do not use large trees which can give access to upper levels</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Site and Building Layout</th>
<th>Lighting</th>
<th>Landscaping and Fencing</th>
<th>Security</th>
<th>Building Identification</th>
<th>Building Materials and Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>To design dwellings and communal areas to give a sense of territorial ownership, by:</td>
<td>To ensure that all lighting on the site be designed so it does not produce areas of glare and shadow, by:</td>
<td>To ensure that sight lines between entry and street frontage remain unobscured;</td>
<td>To ensure that an appropriate level of security is achieved in communal areas:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Making individual sections distinguishable from others through design features</td>
<td>- Using lights with a wide beam of illumination which reaches to the beam of the nest light or to the perimeter of the site</td>
<td>- Avoid medium level vegetation. Low ground cover or high canopied foliage should be favoured</td>
<td>- Restrict access to buildings at all times. Install entry phones to enable controlled access.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Separating public and private areas, using features such as street furniture, pavers, fencing, landscaping, etc.</td>
<td>- Ensuring that adequate signage is provided for all units and facilities. Consider use of location maps for larger sites.</td>
<td></td>
<td>- Install self-closing doors and signs for residents not to leave doors wedged open</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ensuring that adequate signage is provided for all units and facilities. Consider use of location maps for larger sites.</td>
<td></td>
<td></td>
<td>- Consider the employment of a resident caretaker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design pathways with good visibility for the user by:</td>
<td>To minimise front fencing as opportunities for concealment:</td>
<td></td>
<td>Install security devices such as grilles on door and window openings. Such devices should be visually permeable (do not use solid shutters).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Making them direct and without blind corners or opportunities for concealment</td>
<td>- They should be predominately open in design to allow sight through the fence, eg: picket, wrought iron.</td>
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<tr>
<td>- Ensuring that barriers are see through, including vegetation</td>
<td>- If solid fence over 1m is required the upper section to contain open, visually permeable spaces</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Site and Building Layout</th>
<th>Lighting</th>
<th>Landscaping and Fencing</th>
<th>Security</th>
<th>Building Identification</th>
<th>Building Materials and Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid blind corners in stairways, halls, etc, by:</td>
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<tr>
<td>- Installing mirrors which allow users to see ahead of them around corners</td>
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<tr>
<td>- Installing glass panels at the end of stairwells to enhance casual surveillance</td>
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</tbody>
</table>

To maximize casual surveillance and recognition of residents:
- Ensure that communal areas and facilities are easily accessible to residents
- Ensure that a minimum numbers of dwellings share an entry point
- Locate facilities such as laundries in visible areas to increase users’ sense of safety
- Ensure that landscaping does not conceal entry points
- Incorporate activities such as cafes, shops, at street level to encourage pedestrian activity and casual surveillance

To maximise opportunities for casual surveillance of the dwelling from the street frontage and of the dwelling:
- Front fences should not exceed 1m in height
- Install double glazing at the front of the dwelling rather than using solid fences greater than 1m if noise insulation is required
<table>
<thead>
<tr>
<th>Site and Building Layout</th>
<th>Lighting</th>
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<th>Building Identification</th>
<th>Building Materials and Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure all dwelling entrances are clearly visible from the street by day and night:</td>
<td></td>
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<tr>
<td>• Entrances should be no more than 10m from the street frontage</td>
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</tr>
<tr>
<td>• Dwelling entries should be well lit</td>
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<tr>
<td>• People should be able to see into entry lobbies before entering</td>
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<tr>
<td>• Entry points should be unobstructed</td>
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</tbody>
</table>
## CPTED - GUIDELINES FOR DEVELOPMENT ASSESSMENT

### Commercial

<table>
<thead>
<tr>
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<th>Facilities</th>
<th>Services</th>
<th>Security &amp; Building Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>To maximise casual surveillance, by:</td>
<td>To ensure that facilities are planned to maximise opportunities for casual surveillance, by:</td>
<td>To ensure safety at public telephones, they should be located in areas of high use and where casual surveillance opportunities are maximised, by:</td>
<td>Ensure that security devices do not give a fortress like appearance and that they contribute to the streetscape, by:</td>
</tr>
<tr>
<td>- Ensuring that ground floor use is ‘activity generating’ where possible, eg cafes, retail etc.</td>
<td>- Locating facilities in the most convenient and accessible place possible</td>
<td>- Locating telephones in a highly visible, well lit area</td>
<td>- Avoiding the use of solid roller shutters on shop fronts</td>
</tr>
<tr>
<td>- Not using blank walls on street frontages</td>
<td>- Where possible, locating facilities close to a regularly staffed area such as a receptionist desk or help desk</td>
<td>- Avoid locating telephones near possible entrapment spots</td>
<td>- Using open grille security devices, sympathetic to the character of the building, on shop fronts where necessary</td>
</tr>
<tr>
<td>- Designing first floor sites to overlook street frontage</td>
<td>- Encourage residential use above commercial use</td>
<td>- Telephones should be well maintained and vandal resistant</td>
<td>- Using toughened glass and alarms on doors and windows</td>
</tr>
</tbody>
</table>

To ensure that entrance and exit points are clearly visible from the street and easily identifiable to prospective users, by: | To ensure that access to facilities is direct, by: | To ensure that public seating is located in areas which discourage loitering but enhance casual surveillance, by: | To restrict access to the side and rear of sites, by: |
<p>| - Locating main entrance and exit points at the front of the site and in view of the street | - Avoiding long and blind corridors | - Placing seating in high traffic areas with clear sight lines in a number of directions | - Fitting locks and alarms on opening doors and windows |
| - Designing all entrances to provide users with the opportunity to see in before they enter | - Making corridors well lit | - Installing mirrors which allow users to see up ahead | |</p>
<table>
<thead>
<tr>
<th>Site and Building Layout</th>
<th>Facilities</th>
<th>Services</th>
<th>Security &amp; Building Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that entrance and exit points are safe and amenable, by:</td>
<td>To ensure that facilities are designed to encourage use, by:</td>
<td>To ensure safety at Automatic Teller Machines (ATMs) they should be located in areas of high use and where casual surveillance opportunities are maximised, by:</td>
<td>To ensure that the street number is clearly visible from the street, by:</td>
</tr>
<tr>
<td>• Avoiding recessed doorways as they can provide opportunities for entrapment and concealment</td>
<td>• Avoiding recessed doorways as they can provide opportunities for entrapment and concealment</td>
<td>• Locating ATMs in a highly visible, well lit location</td>
<td>• Making street numbers minimum of 7.5 cm high</td>
</tr>
<tr>
<td>• Clearly identify entrance and exit points to reduce confusion and restrict use by illegitimate users</td>
<td>• Clearly identify entrance and exit points to reduce confusion and restrict use by illegitimate users</td>
<td>• Avoid locating ATMs in recesses</td>
<td>• Positioning street numbers on the street alignment and maintaining them free from foliage and other obstructions</td>
</tr>
<tr>
<td>• Use of adequate and appropriate lighting to avoid shadows</td>
<td>• Use of adequate and appropriate lighting to avoid shadows</td>
<td>• Avoid locating ATMs near possible entrapment spots</td>
<td>• Making street numbers on awnings minimum of 15cm high</td>
</tr>
<tr>
<td>• Staff entrances should be well lit with maximum use of casual surveillance strategies</td>
<td>• Staff entrances should be well lit with maximum use of casual surveillance strategies</td>
<td>• ATM design should incorporate reflective material to allow users to observe people approaching from behind</td>
<td>• Ensuring that street numbers are made from a durable, reflective material</td>
</tr>
<tr>
<td>• Clear indications of closing times of building exits</td>
<td>• Clear indications of closing times of building exits</td>
<td></td>
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</tr>
</tbody>
</table>

To ensure that landscaping does not provide opportunities for concealment, eg along pathways or adjacent to service areas, by: 
• Use of low ground cover or high canopied trees, clear trunked to a height of 2m
<table>
<thead>
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<tbody>
<tr>
<td>To clearly delineate between public and private space, by:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Using landscaping, building features, street furniture, etc, to define boundaries</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
# CPTED - GUIDELINES FOR DEVELOPMENT ASSESSMENT

## Car Parking – both public and private

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<tr>
<th>Multi Storey Car Park: Layout</th>
<th>Lighting</th>
<th>Security</th>
<th>Ground Park: Layout</th>
<th>Landscaping</th>
<th>Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>To allow quick and easy access to pedestrian entry and exit points, by:</td>
<td>To promote user safety in car parks, by:</td>
<td>To design and manage car parks to reduce the opportunity and incentive for theft and vandalism, by:</td>
<td>To design car parks to promote safety of all users, by:</td>
<td>To provide unobscured sight lines throughout the parking areas, by:</td>
<td>To promote user safety in car parks, by:</td>
</tr>
<tr>
<td>- Making access to lifts, stairs and doors clearly visible from each car parking space</td>
<td>- Avoiding lighting which produces areas of glare and shadow</td>
<td>- Locating a help or information point on each level</td>
<td>- Avoiding large expanses of car parking. Large car parks should be divided into sections, each visually distinguishable by use of different materials such as paving, landscaping, etc.</td>
<td>- Ensuring that vegetation is pruned and maintained</td>
<td>- Avoiding lighting which produces areas of glare and shadow</td>
</tr>
<tr>
<td>- Making location signs for pedestrians large and legible with strong colours, standard symbols and simple graphics</td>
<td>- Use of wide beam lighting which reaches to the next light or perimeter of the site</td>
<td>- Use of convex mirrors where there are blind corners</td>
<td>- Sections of car parks should be able to be separately locked and opened</td>
<td>- Avoiding vegetation with concentrated top to bottom foliage. Low ground cover or high canopied vegetation is preferred</td>
<td>- Use of wide beam lighting which reaches to the next light or perimeter of the site</td>
</tr>
<tr>
<td>- Restricting unauthorised pedestrian traffic</td>
<td>- Grading lighting intensity from brightest at the entrance to allow for gradual adjustment of vision</td>
<td>- Where appropriate, use of security guards or Close Circuit TV</td>
<td>- Effective surveillance should be used</td>
<td>- Grading lighting intensity from brightest at the entrance to allow for gradual adjustment of vision</td>
<td>- Installing vandal resistant lighting</td>
</tr>
</tbody>
</table>

<p>| To allow people easy identification of their vehicles, by: | To ensure lighting is of adequate brightness, by: | To ensure lighting is of adequate brightness, by: | To ensure lighting is of adequate brightness, by: | To ensure lighting is of adequate brightness, by: |
| - Dividing non-residential car parks into sections/groups distinguishable by codes, eg colour, themes | - Making lighting sufficiently bright to enable a car park user, standing, to see into the rear seat of a parked car | - Making lighting sufficiently bright to enable a car park user, standing, to see into the rear seat of a parked car | - Making lighting sufficiently bright to enable a car park user, standing, to see into the rear seat of a parked car | - Making lighting sufficiently bright to enable a car park user, standing, to see into the rear seat of a parked car |
| | | - Placing signs at the car park entrance advising users to lock their cars and informing them of the security systems in place | - Ensuring information about closing times is conveyed at the car park entrance | | - Ensuring that links between car park and development it will serve are visible by day and night |</p>
<table>
<thead>
<tr>
<th>Multi Storey Car Park: Layout</th>
<th>Lighting</th>
<th>Security</th>
<th>Ground Level Car Park: Layout</th>
<th>Landscaping</th>
<th>Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that entrance and exit points are safe and amenable, by:</td>
<td>To adequately light access ways and facilities, by:</td>
<td>To enhance user safety through signage, by:</td>
<td>To ensure that entrances and exits for cars and pedestrians are clearly signposted, by:</td>
<td>To clearly delineate between public and private space, by:</td>
<td></td>
</tr>
<tr>
<td>- Avoiding recessed doorways as the can provide opportunities for entrapment and concealment</td>
<td>- Ensuring pedestrian access ways to, from and around the car park are well lit</td>
<td>- Placing signs at the car park entrance advising users to lock their cars and informing them of the security systems in place</td>
<td>- Making all signs clearly visible from all parking spaces by day and night</td>
<td>- Use of landscaping, change of materials, street furniture etc to distinguish between areas</td>
<td></td>
</tr>
<tr>
<td>- Clearly identify entrance and exit points to reduce confusion and restrict use by illegitimate users</td>
<td>- Ensuring facilities such as toilets, telephones, lifts, etc are well lit</td>
<td>- Ensuring information about closing times is conveyed at the entrance to the car park</td>
<td>- Providing identification signs to enable drivers to easily locate their cars by day or night</td>
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<tr>
<td>- Staff entrances should be well lit with maximum use of casual surveillance strategies</td>
<td></td>
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<tr>
<td>- Clear indications of closing times of car park</td>
<td></td>
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<tr>
<td>To design car parks with the minimum number of entry and exit points, by:</td>
<td>To ensure that materials used enhance the lighting of the car park, by:</td>
<td>To reduce impact of damage and vandalism as a deterrent to further damage, by:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Locating maximum number of entry and exit points at ground level to increase opportunities for casual surveillance</td>
<td>- Use of light colour paints and finishes on walls and ceilings of car parks and associated routes</td>
<td>- Speedy repair or cleaning of damaged or vandalised property</td>
<td>- Use of landscaping, change of materials, street furniture etc to distinguish between areas</td>
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<tr>
<td>- Controlling exit points by supervised mechanical boom gates</td>
<td></td>
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<tr>
<td>Multi Storey Car Park: Layout</td>
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<tr>
<td>To design car parks for maximum levels of casual surveillance, by:</td>
<td></td>
<td></td>
<td>To design car parks for maximum levels of casual surveillance, by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Locating facilities such as telephones and bicycle storage in the most prominent and visible areas possible</td>
<td></td>
<td></td>
<td>• Where possible, locating car parks where they can be overlooked by windows from adjacent users, eg houses, shops</td>
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<tr>
<td>• Locating spaces for vulnerable groups (such as people with disabilities, parents with prams) in highly visible locations</td>
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<td></td>
<td>• Locating facilities such as telephones and bicycle storage in the most prominent and visible areas possible</td>
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<tr>
<td>• Installing seating in highly visible locations to discourage loitering</td>
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<td></td>
<td>• Locating spaces for vulnerable groups in highly visible locations</td>
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<tr>
<td>• Incorporating other uses within the car park which allow for casual surveillance, such as car washes</td>
<td></td>
<td></td>
<td>• Installing seating in highly visible locations to discourage loitering</td>
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Chapter 14

Tree Preservation Order
14 Tree Preservation Order

Trees are a vital component of the landscape and have a significant influence on the character of individual premises, neighbourhoods and the City as a whole. The presence of suitable trees provides scenic and environmental amenity and wildlife habitat. Trees reduce the impact of urban features, assist in minimising land degradation and provide shade and shelter for humans and wildlife. Trees enrich our environment and contribute to our sense of wellbeing.

Council’s Tree Preservation Order prohibits the partial or total destruction of a tree or trees in urban zones without the prior written consent of Council.

14.1 Objectives of this Chapter

This Chapter’s objective is to promote the retention of trees and tree cover, within urban, village and rural residential areas so as to conserve as far as practicable the existing landscape quality and remaining natural ecosystems. Council encourages the planting of suitable native trees to provide integration of trees into existing land uses.

This Chapter also clarifies where Council is the consent authority for tree removal or pruning in urban, village, business, rural residential, industrial and special uses zones and the Catchment Management Authority is the consent authority for tree removal in rural areas.

- To minimise unnecessary removal of tree(s).
- To conserve tree(s) of ecological, heritage, aesthetic and cultural significance.
- To preserve and enhance flora and fauna habitat and corridors.
- To conserve remnant vegetation.
- To conserve riparian vegetation.
- To encourage the planting of local native species.
- To encourage the planting of tree(s) that are appropriate for conditions within urban, village, industrial, business and rural residential zones.

14.2 Definitions

In this Chapter the following definitions apply:

“Dead Tree” refers to a tree(s) that is no longer capable of performing the one of the following processes: photosynthesis, take up water through roots, hold moisture in its cells and produce new shoots.

“Endangered Species” means a native (flora or fauna) species that is likely to become extinct in nature in NSW unless the circumstances and factors threatening its survival or evolutionary development cease to operate; or its numbers have been reduced to such a critical level, or its habitats have been so drastically reduced, that it is in immediate danger of extinction; or it might already be extinct, but it is not presumed extinct. These species are listed in Schedule 1 of the Threatened Species Conservation Act, 1995.

“Environmental Weed” means a plant that poses a threat to the natural environment. Environmental weeds are not native to the area and are very successful and resilient (refer to Appendices for links to obtain a list of environmental weeds).

“Habitat Tree” means any tree(s) which has developed hollows in the trunk or limbs and which is suitable for nesting birds, arboreal marsupials (such as possums), native mammals (such as bats) or which support the growth of locally indigenous epiphytic plants (such as orchids).
“Heritage Conservation Area” means an area listed in Schedule 2 Heritage Conservation Areas of Lismore Local Environmental Plan 2000 and shown edged heavy black on the sheet of the map marked “Lismore Local Environmental Plan 2000 (Amendment No 2) Conservation Area” specified in that Schedule in respect of that land. The heritage conservation areas within the Lismore Local Government Area are listed below:

- Dalley Street Conservation Area
- Girards Hill Conservation Area
- St Andrews Conservation Area
- Spinks Park/ Civic Precinct Conservation Area
- St Carthages Conservation Area
- Nimbin Conservation Area

“Heritage Item” means a building, work, relic, tree(s) or place (which may or may not be situated on or within land that is a heritage conservation area) described in Schedule 1 Heritage Items of Lismore Local Environmental Plan 2000. Heritage items are shown edged heavy black on the maps marked “Lismore City Council Local Environmental Plan 2000 (Amendment No 2) Heritage Items”.

“Large woody debris or snags”: consist of whole tree(s), limbs and root masses that are partly or wholly submerged. They form one of the most important habitat components for fish within a river or creek.

“Noxious Weed” means a plant declared noxious within the Far North Coast County District under the Noxious Weeds Act, 1993 (refer to Appendices for links to obtain a list of noxious weeds).

“Protected Native Plants” refers to flora listed in Schedule 13 of the National Parks and Wildlife Act, 1974.

“Prune” means to cut off living parts or branches of a plant, to improve shape or growth.

“Road Reserve” means all land between adjoining property boundaries where a road is formed. It relates only to existing roads.

“State Environmental Planning Policy (SEPP) 14 - Coastal Wetlands” means an area of coastal wetlands identified under the EPA Act to be under threat from escalating development pressure. Such designated wetlands are marked on a map, a copy of which can be viewed at Council’s Administration Centre.

“State Environmental Planning Policy (SEPP) 44 - Koala Habitat Protection” applies to 107 local government areas in NSW that correspond to the known geographic distribution of koalas in NSW.

“Threatened Species” means native species, populations and communities of flora and fauna that are endangered, vulnerable or presumed extinct in New South Wales. They are specified in Schedules 1 and 2 of the Threatened Species Conservation Act, 1995.

“Tree” is defined as a woody stem of any plant species which:
- has a height of more than 5 metres; or
- has a girth (circumference) of 500mm or greater at a height of 1 metre above the natural ground surface; or
- has a branch spread of 4 metres or more.
“Tree removal or partial or total destruction” of a tree(s) means the ring-barking, cutting down, clearing, lopping, topping, removing, injuring, poisoning or wilful damage of any tree(s).

“Vulnerable Species” means a native (flora or fauna) species that is likely to become endangered unless the circumstances and factors threatening its survival or evolutionary development cease to operate. These species are listed in Schedule 2 of the Threatened Species Conservation Act, 1995.

All other definitions shall be as described in the Environmental Planning and Assessment Act 1979 (as amended) and Lismore Local Environmental Plan 2000.

14.3 Statutory Framework for this Chapter
The following legislation provides Lismore City Council with the legal basis to establish a Tree Preservation Order:

Environmental Planning and Assessment Act, 1979 (as amended)
Part Three - Environmental Planning Instruments
Division 1 – General
Section 26 - Contents of Environmental Planning Instruments Section 72 - Development Control Plans

Environmental Planning and Assessment Regulation, 2000
Part 3 Development Control Plans
Clauses 16 to 23

Lismore Local Environmental Plan (LEP) 2000
Part 2 - General Provisions
Clause 18 - Preservation of Trees

National Parks and Wildlife Act, 1974
Part 8 Native Plants
Clause 115A Management plans for protected native plants
Threatened Species Conservation Act, 1995
Part 6 – Licensing
Division 1 – Grant of Licences
- Section 91 – Licence to harm or pick threatened species, populations or ecological communities or damage habitat
- Section 92 – Application for Licence

Native Vegetation Act, 2003

Fisheries Management Act, 1994, through the Fish Habitat Protection Plan No 1.

The above provisions give this part of Development Control Plan No.1 its legal status and enables Council to initiate proceedings for breaches of this Tree Preservation Order.

This Chapter does not override any provisions in the above Acts.

14.4 Land to which the Tree Preservation Order Applies
Consent is required from Council to remove, prune or destroy tree(s) in the following zones identified in the Lismore LEP 2000:

- Zone No 2(a) - Residential Zone
- Zone No 2(f) - Residential (Flood Liable) Zone
- Zone No 2(v) - Village Zone
- Zone No 3(a) – Business zone
- Zone No 3(b) - Neighbourhood Business Zone
- Zone No 3(f) - Services Business (Flood Liable) Zone
- Zone No 4(a) - Industrial Zone
- Zone No 5 - Special Uses Zone
- Zone No 5(b) - Special Uses (Technology Park) Zone
- Zone No 6(a) - Recreation Zone
- Zone No 6(b) - Private Recreation Zone
- Zone No 7(a) - Environment Protection (Natural Vegetation and Wetlands) Zone
- Zone No 7(b) - Environment Protection (Habitat) Zone

To obtain consent from Council a Tree/s removal and/or pruning application form needs to be completed and submitted to Council with the appropriate fee. For a copy of the application form please contact Council’s Administration (02) 6625 0500 or a copy can be downloaded from Council’s webpage www.lismore.nsw.gov.au.

14.5 Land to which the Tree Preservation Order does not apply
The Tree Preservation Order does not apply to land that is contained within the following zones of the Lismore LEP 2000; however consent from another Authority may apply (refer to section 14.8):

- Zone No 1 (a) – General Rural zone
- Zone No 1 (b) – Agricultural zone
- Zone No 1 (c) – Rural Residential zone
- Zone No 1 (d) - Investigation zone
- Zone No 1 (f) - Forestry zone
- Zone No 1 (r) – Riverlands zone
14.6 Tree Removal requiring Consent from Council

Tree(s) removal or pruning in any of the cases below requires consent from Council:

- All tree(s) within the Lismore LGA zones listed in section 4 of this plan.
- Protected Native Plants listed in Schedule 13 of the *National Parks and Wildlife Act, 1974* (refer to Appendices).
- Tree(s) within Heritage Conservation Areas (see Section 3 *Definition of Terms* and Schedules 1 and 2 of Lismore LEP 2000).
- Trees(s) on sites containing Heritage Items.
- Tree(s) in a SEPP 14 Coastal Wetland. Council may only consent to the works under the *Environmental Planning and Assessment Act, 1979* (EPA Act) with concurrence of the Director of the relevant State Government Agency.
- Tree(s) on lands greater than one hectare in area to which State Environmental Planning Policy (SEPP) 44 - Koala Habitat Protection applies over which a development application has been made. Within the Lismore LGA this means areas containing the following trees: Forest Red Gum (*Eucalyptus tereticornis*), Tallowwood (*Eucalyptus microcorys*), Swamp Mahogany (*Eucalyptus robusta*). The following species also provide koala habitat and will also require the appropriate box to be ticked on the application form: Brush Box (*Lophostemon confertus*), Grey Ironbark (*Eucalyptus siderophloia*), Flooded Gum (*Eucalyptus grandis*), White Mahogany (*Eucalyptus acmenoides*), Small-fruited Grey Gum (*Eucalyptus propinqua*), Forest She-oak (*Allocasuarina torulosa*), Broad-leaved Paperbark (*Melaleuca quinquinervia*) and Pink Bloodwood (*Corymbia intermedia*).

14.7 How to obtain Consent for tree removal/pruning

To obtain consent from Council a Tree/s removal and/or pruning development application form needs to be completed and submitted to Council with the appropriate fee. For a copy of the application form please contact Council’s Administration (02) 6625 0500 or a copy can be downloaded from Council’s webpage [www.lismore.nsw.gov.au](http://www.lismore.nsw.gov.au).

14.8 Tree Removal Requiring Consent from another Authority

Removal, pruning or harming tree(s) in the following areas within Lismore LGA requires consent from the Northern Rivers Catchment Management Authority (NRCMA) under the *Native Vegetation Act, 2003*:

- Zone No 1 (a) – General Rural zone
- Zone No 1 (b) – Agricultural zone
- Zone No 1 (c) – Rural Residential zone
- Zone No 1 (d) - Investigation zone
- Zone No 1 (r) – Riverlands zone

Breaches and compliance issues in the above zones are to be directed to the relevant State Government Agency.

Removal, pruning or harming to vegetation listed as a Threatened Species (endangered or vulnerable) in any zone within the Lismore LGA requires consent from the Director-General of the relevant State Government Agency under the *Threatened Species Conservation Act, 1995*. The most recent information can be obtained from the NSW National Parks & Wildlife Service *Atlas of NSW Wildlife* (refer to Appendices for contacts details).

Consent from relevant State Government Agency may be required for “Removal of large woody debris from New South Wales rivers and streams”, under the *Fisheries Management Act, 1994*, through the Fish Habitat Protection Plan No 1.

Consent from the relevant State Government Agency is required for any clearing on State Protected Land, including woody weed removal or removal of dead trees whether standing or fallen under the *Native Vegetation Act, 2003*.
Refer to appendices for the contact details for the above authorities.

14.9 Exemptions to the Tree Preservation Order

The following situations are exempt from requiring consent under Council's Tree Preservation Order. Removal and/or pruning of tree(s) that are exempt under the Tree Preservation Order must be carried out by means not detrimental to the native ecosystem.

- Removal of dead branches including palm fronds.
- Any tree(s) grown specifically for its edible fruit.
- Any dead tree(s)
- Any tree(s) identified as a noxious weed under the Noxious Weeds Act, 1993 (refer to Appendices).
- Any tree(s) listed as an Environmental Weed (refer to Appendices).
- Tree(s) authorised for removal under the Rural Fires Act, 1949.
- Tree(s) required to be pruned in accordance with the Electricity Supply Act, 1995, No.94.
- The partial or total destruction of a tree(s) by a Public Authority for the purposes of air navigation.
- Any tree(s) within a State Forest or on land reserved for sale as a timber forest reserve under the Forestry Act, 1916.
- Tree(s) within an approved plantation meeting the criteria of the Timber Plantations (Harvest Guarantee) Act, 1995.
- Plantations established by State Forests on purchased lands and on private or public land under the Joint Venture or Farm Forestry Schemes.
- Pruning or removal of a tree(s) authorised by development consent issued by Council. The tree(s) must have been identified for removal within the development application.
- Tree(s) on Council owned/managed land authorised by Lismore City Council’s (LCC) Parks Section after consultation with local residents.
- Tree(s) growing within the Road Reserve (refer to section 3 in this plan for definition) where it can be shown that such tree(s) present a serious hazard to motorists.

14.10 Application Procedures

Application forms and advice can be obtained from Council’s Administration Offices, 43 Oliver Avenue, Goonellabah during normal business hours and Council’s website www.lismore.nsw.gov.au.

The application must provide the following details:

- Property address or real property description (Lot /DP number from Rates Notice)
- Applicant’s name and address
- Land owner’s consent (the owner of the land on which the tree(s) is growing must sign the application form)
- A plan outlining the location(s) of the all tree(s) on the site highlighting the tree(s) that are proposed to be removed or pruned. Figures 1 and 2 are an example of such a plan.
- Each tree must be numbered on the plan and identified by reference to a physical feature (e.g. 5m from eastern boundary; 7m to the north of the garage). Two distances may be necessary.
- A description of the tree(s) including the following
  - Tree(s) species; if unknown please describe the leaves and bark.
  - Height
  - Width
- Reasons for removal or pruning of tree(s).

Please note that no works are to be undertaken prior to the Council consent being issued. Any consent given by Council to remove tree(s) will generally be subject to conditions requiring the
planting of replacement tree(s) on the subject land in a more suitable location, or planting of species better suited to site condition.
14.11 Criteria for Removal

In accordance with the provisions of the Tree Preservation Order, Council will take into consideration the following criteria when addressing an application to prune and/or remove tree(s):

- Whether the tree(s) is dead, dying, dangerous or diseased. Please note where the applicant believes the tree(s) to be dangerous, it is important that the applicant provides a report describing why the tree(s) is deemed dangerous by a qualified arborist.
- Whether the tree(s) is within six metres of a dwelling (dependent on tree(s) species and soil type).
- Whether the growth habit or mature size of a tree(s) is undesirable in a given situation (e.g., under powerlines, root interference with services, or building).
- Whether the tree(s) is interfering or likely to interfere with the provision of a public road, provided that in the design and location of work, all effort has been taken to avoid the destruction of tree(s).
- Whether the tree(s) is interfering or likely to interfere with public or private utilities and services and corrective action is not practical.
- Whether the tree(s) is in an overcrowded situation and judicious removal of tree(s) will result in improved growth of other trees.
- Whether the tree(s) is interfering or likely to interfere with the efficiency of a solar heating appliance, natural light or energy efficient house design. This clause does not extend to clotheslines.
- Whether the tree(s) is causing illness or a severe allergic reaction to a person and such claim can be substantiated by medical evidence from a registered medical practitioner.
- Whether the tree(s) shows poor form and shape and/or vigour typical to species.
- A tree(s) that is overhanging the boundary and creating a public nuisance will be considered for pruning. Please note the following:
  - Owners consent from the person(s) whose property the tree(s) is on must be supplied.
  - If owner consent cannot be gained, please contact Council for further assistance.
  - The assessing Council Officer will determine the amount of pruning required. This will be dependent on species type, tree shape and type of nuisance.
- Whether a tree is appropriately planted in consideration of its species, location, compatibility with the surrounding landscape, proximity to buildings, and/or aesthetic qualities.

Note these criteria are intended for use by the assessing officer only and will be used for consideration purposes where there may be some indecision on another matter. Because your tree(s) meet one or more of these criteria will not automatically initiate an approval.

14.12 Criteria for Refusal

In accordance with the provisions of this Tree Preservation Order, the following reasons are not adequate justification to remove tree(s):

- **View**: Significant pruning and/or removal of tree(s) to enhance a view or outlook.
- **Shade**: Significant pruning and/or removal of tree(s) to reduce shading. Judicious crown thinning may be permitted where medical evidence is submitted stating that shading is detrimental to a person’s health, or where evidence is submitted to indicate shading prevents energy efficiency through solar passive design.
- **Leaf fall**: Pruning and/or removal of tree(s) to prevent leaves accumulating under or around tree(s) or within gutters or swimming pools.
- **Pruning to Boundary Line**: Pruning tree(s) to the boundary line.
- **No reason given for removal.”

14.13 Matters for Consideration

Council in considering whether to grant consent under this Development Control Plan will consider the following:
- Protecting catchments which provide water for urban purposes;
- Protecting wildlife corridors and vegetation links with other nearby bushland;
- Protecting vegetation as a natural stabiliser of the soil surface and of existing landform such as natural drainage lines, water courses and foreshores;
- Protecting bushland for scenic values and the retention of the unique visual characteristics of the landscape.

14.14 Consent Conditions
When consent for tree(s) removal is issued, the following conditions may be imposed:
- Consent is valid for six (6) months from the date of consent.
- The applicant/owner will receive two copies of the consent, one to be retained by the applicant/owner and one to be given to the contractor if engaged to carry out work.
- All refuse is to be recycled/reused on site or transferred to a Council landfill site to be recycled as green waste.
- Consent is generally subject to the establishment of appropriate replacement tree/s at a suitable location. Generally, Council requires that trees removed be replaced by suitable native species at a rate of 2 trees (or 1 tree and 2 shrubs) in urban areas, depending on the circumstances of each case.
- Replacement planting may include Koala food trees. If replacement within residential allotments is not appropriate, the applicant/owner may be required to plant such species on Council’s public reserves, or alternatively pay a fee for Council to organise replacement planting and maintenance.
- In the event that contractors are engaged to carry out tree removal works on private property, it is the responsibility of the owner/applicant to confirm the validity and currency of all insurance and Work Cover requirements.

14.15 Arborist and Structural Engineers Reports
An arborist report should include the following as a minimum
- Where an application is to remove a tree(s) that is alleged to be dying, or that is suspected to possess structural, mechanical or other damage, the applicant may be required to submit a report from a suitably qualified arborist, at no cost to Council. The arborist report is to provide Council with detailed information concerning the problems the tree(s) has and clear recommendations for future action.
- Council may approve the removal of a tree(s) where the arborist’s report, based on sound horticultural and arboricultural principles, recommends the removal of a tree(s) outside the provisions of this Development Control Plan.
- Where structural damage to property is alleged, the applicant may also be required to submit a report from a suitably qualified structural engineer in consultation with a suitably qualified arborist, at no cost to Council.

14.16 Appeals
An applicant dissatisfied with a decision of Council (either refusal or imposition of conditions) may:
- a) Request in writing, within 28 days of Council decision, a review of the decision (a fee may apply) or
- b) Appeal against Council’s determination to the Land and Environment Court.

14.17 Enforcement
Any person who contravenes or causes or permits to be contravened the provisions of this Development Control Plan shall be guilty of an offence under the Environmental Planning and Assessment Act 1979 (as amended). Dependent on the severity of the offence Council may:
- 1. Issue a Penalty Infringement Notice in accordance with Section 125(1) and Section 76A(1): If a tree(s) is removed or pruned or harmed without consent a $600 fine will be issued.
If a tree(s) is removed or pruned or harmed not in accordance with the consent issued a $600 fine will be issued. In addition if either of the above instances occur the person will be required to replace the damaged or destroyed tree or trees with a minimum of two trees and maintain the trees to mature height, or

2. Civil enforcement under Class 4 Land and Environment Court Act, 1979 and all court cost incurred, and/or

3. Criminal prosecution under Class 5 Land and Environment Court Act, 1979 and all court cost incurred.
Chapter 15

Waste Minimisation
15 Waste Minimisation

Lismore City Council (LCC) has introduced the ‘Waste Minimisation’ section of this Development Control Plan in an effort to:

- reduce waste to landfill;
- to extend the life of landfill operations in the area; and
- to contribute to environmental and economic sustainability through resource conservation.

Under the NSW Waste Avoidance and Resource Recovery Strategy ("WA&RR") 2003, materials that would otherwise be disposed of should be reclaimed and recycled, for use in projects throughout the region.

The WA&RR Strategy includes an ‘Action Plan’ for local government, detailing the responsibilities and influences of local government in meeting strategy objectives. A DCP requirement for waste management plans as part of the development application process, is identified as a priority for individual councils in the NSW strategy.

LCC’s ‘Waste Minimisation’ requirements should also offer the Construction and Demolition (“C&D”) industry significant savings on waste disposal costs. This Chapter of DCP No.1 will assist both professional and owner builders to adopt waste minimisation in their development projects, and should stimulate a recycling and reuse program for C&D waste, which should more than compensate for time taken to complete the Waste Management Plan (“WMP”).

This Chapter applies to builders and building site associated tradespersons, for all development where a Development Application (DA), and/or Complying Development Consent is required for:

a) The construction of a building for residential (including multi-unit residential), industrial or commercial use; or
b) The demolition, or substantial (defined as at least 50% of existing floor area) modification of a building for residential (including multi-unit residential), industrial, or commercial use.

Compliance with this Chapter is compulsory for commercial, industrial and residential development.

Where compliance is compulsory, a Waste Minimisation Plan must be submitted with the DA.

15.1 Objectives of this Chapter

1. To promote improved project management and to reduce the demand for waste disposal during demolition and construction;
2. To maximise reuse and recycling of building/construction materials and industrial/commercial waste;
3. To encourage building designs and construction techniques that will minimise waste generation;
4. To minimise waste generation to landfill via the waste hierarchy in accordance with the Waste Avoidance and Resources Recovery Act 2001;
5. To assist in achieving Federal and State Government waste minimisation targets; and
6. To provide advice to applicants on preparing a Waste Management Plan.
15.2 Relationship with Legislation
This Chapter has been prepared to meet, and be consistent with, the objectives of the Waste Avoidance and Resources Recovery Act 2001. The two main objectives of the Act are:

1. To promote waste avoidance and waste recovery, rather than just recycling.
2. Establish a scheme to promote extended producer responsibility in place of Industry Waste Reduction Plans.

The Act also establishes Resource NSW, an organisation that is responsible for developing the Waste Minimisation Strategy, and establishing state-wide targets for waste minimisation.

15.3 Handling Waste
All handling, use, and disposal of waste must be in accordance with relevant legislation, regulations, codes of practice and planning provisions.

For example, any disturbance, removal or disposal of asbestos must be in accordance with Worksafe Australia accreditation and licensing requirements, and in compliance with the Code of Practice for the Safe Removal of Asbestos [NOHSC:2002 (1988)], and the Guide to the Control of Asbestos Hazards in Buildings and Structures [NOHSC:3003 (1988)]. Taking account of the current level of information available on asbestos, is necessary to ensure the safe removal of asbestos or asbestos containing materials. Disposal of Asbestos must be to an appropriately licensed waste facility.

15.4 Development and Construction Certificate Application
Any Development Application submitted for the development prescribed in this Chapter shall incorporate a Waste Management Plan

*Information required with a Development Application.*

*The Waste Management Plan (WMP)*

There are three parts to a Waste Management Plan:

1. Project details (see Appendix 2, Part 1);
2. An estimate of the type and volume of waste material generated; reuse/recycling/waste disposal details; and details of waste/recycling contractor/s (see Appendix 2, Part 2); and
3. A site plan illustrating the locations of bin(s), stockpiles and waste sorting and storage areas (see Appendix 2, Part 3).

*Approval*
Waste Management Plans will be considered on their merits. For this reason, this Chapter does not prescribe specific actions, but provides recommended actions.

a. Development Control

i. Demolition of Buildings (including excavation)
This section applies where demolition or significant alteration requiring development consent is proposed as part of the development.
Objectives

- Encourage careful demolition practices that aim to maximise the re-use potential of demolition materials and facilitate sorting.
- Encourage better site management and planning to ensure that building materials are stored and handled to maximise reuse potential, and improve efficiency of transportation and removal.

Complying with the Objectives

Compliance may be achieved where a WMP is satisfactorily completed. An application that addresses as far as practical the following criteria, shall be considered satisfactory.

Site operations should provide for:

- planned staging of work;
- separation, re-use and recycling of materials;
- and appropriate storage, collection and removal/disposal of recycling/waste.

a) A process of selective deconstruction and reuse of materials should replace straight demolition. Careful planning is also required for the correct removal and disposal of hazardous materials such as asbestos (see Section 1.6.3).

b) The site Project Manager must seek firstly to re-use and then secondly to recycle solid waste materials, either on or off site.

c) Waste disposal to landfill shall be restricted to those materials that are not recyclable or reusable.

d) When separated, materials are to be kept uncontaminated to guarantee the highest possible reuse value.

e) Details of waste storage and sorting areas and vehicular access are to be provided on plan drawings.

ii. Construction of Buildings (including excavation)

Controls relating to Specific Development

This section applies where the proposal involves the construction of any of the development listed in Section 1.

Objectives

- To minimise waste generation in the design and construction stage of the development.
- To encourage better site management and ordering of materials to ensure less waste is produced, and any waste produced is reused or recycled where possible.
Complying with the Objectives

Compliance may be achieved where a WMP is satisfactorily completed. An application that addresses, or addresses as far as practical the following criteria shall be considered satisfactory.

a) Manage oversupply and waste of materials by careful assessment of quantities needed.

b) Sorting of material on site into components that can be reused or recycled, and provision of disposal/recycling services as directed by Table 3.3.2.

c) Re-use of materials and use of recycled materials is desirable, where the integrity of the material is not compromised.

Site operations should incorporate the staging of work, to facilitate the separation, re-use and recycling of materials, ensuring appropriate storage areas, educational signage and collection of waste and recyclables.

Information requirements in relation to the type of development are:

1. **Completion of form ‘Development Application Details’**
   (see Appendix 2, Part 1)

2. **Completion of forms ‘Demolition/Deconstruction Waste/Recycling Details’ and/or ‘Construction Waste/Recycling Details’** (see Appendix 2, Part 2)
   - The destination and handling of waste, whether that involves reuse/recycling or disposal, which should comply with the requirements in Section 3.3.1.

3. **Completion of a ‘Site Plan’, indicating the size and location of waste storage facilities for the development, which should comply with Section 3.3.2.** (see Appendix 2, Part 3).

   *iii. Handling of Waste*

The requirements of the Waste Management Plan in terms of handling of waste are as follows:
### Table 1: Waste Management Plan – Requirements for the Handling of Waste

<table>
<thead>
<tr>
<th>Development</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inert Materials</strong></td>
<td>Demolition materials should be taken to the nominated Recovery Facility for processing. Excess construction materials should be returned to supplier, sold for another approved use, or taken to a Recovery Facility for processing.</td>
</tr>
<tr>
<td><strong>(Concrete, bricks, etc.)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Metal</strong></td>
<td>Demolition materials should be taken to an approved Recovery Facility for recycling. Excess construction materials should be returned to supplier, sold for another approved use, or taken to Recovery Facility for recycling.</td>
</tr>
<tr>
<td><strong>Timber</strong></td>
<td>Useable timber should be either sold, or given away for reuse. Non-reusable, untreated timber can potentially be recycled. Contact Council’s Waste Minimisation Officer for advice.</td>
</tr>
<tr>
<td><strong>Excavated Material</strong></td>
<td>Reuse on site in landscaping if possible</td>
</tr>
<tr>
<td><strong>(not including contaminated soil)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mixed Waste</strong></td>
<td>Unusable waste such as fibro, used plasterboard and hazardous materials should be disposed of at an appropriately licensed facility. The WMP shall provide details of waste handling and sorting.</td>
</tr>
</tbody>
</table>

#### iv. On Site Waste Management (during construction / demolition)

The requirements of the WMP in terms of on-site waste management are as follows:
Table 2:  Construction/Demolition – On-site Waste Minimisation Requirements

<table>
<thead>
<tr>
<th>Development</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Dwelling</td>
<td>The WMP shall indicate the number of, type and siting for bins and storage. For demolition and construction, a minimum of 4 bins or storage areas should be provided, for the separation of: o inert materials such as concrete, and bricks; o salvageable/reusable timber; o metal; o and mixed waste. Where reusable fittings can be salvaged, a dry storage area must be provided.</td>
</tr>
<tr>
<td>Multi-unit residential</td>
<td>This area must also take into account the following factors: o accessibility; o litter prevention; o weather protection; and o sediment control.</td>
</tr>
<tr>
<td>Commercial</td>
<td>Additional storage space should be provided for other materials as required by the project.</td>
</tr>
<tr>
<td>Industrial</td>
<td>Skips and other waste/recycling storage or separation areas should be contained within the boundaries of the development site and shown on the site plan (see Appendix 2, Part 3). Any storage of collection vessels off site must have the prior approval of Lismore City Council (LCC), under Section 68 of the Local Government Act, 1993. In addition, any storage of collection vessels off site must not have detrimental impact to the environment or visual amenity of the area.</td>
</tr>
</tbody>
</table>

v. Supporting Information

The following information will assist in completing the Waste Management Plan, however, should you need any additional information or assistance in completing the forms, please do not hesitate to contact the Waste Minimisation Officer on: (02) 6625 0465 or email: lesley.trott@lismore.nsw.gov.au.

ii. Waste Minimisation: How to Minimise Waste

Completing your WMP will require you to consider the Waste Minimisation Hierarchy. The Waste Avoidance and Resource Recovery Act 2001, as a comprehensive basis for reducing waste, proposes the following waste hierarchy:

See Table 1 for more information.
iii. Estimating Quantities of Waste
The Waste Management Plan requires estimates of quantities of waste and recyclables produced, during both construction/deconstruction phases, and for future ongoing waste management for the development.

Volumes of waste/recycling can be estimated by conducting a visual assessment. To convert volume into tonnes, the following guidelines are provided by Resource NSW.

Table 3: Guidelines for Conversion of Tonnages

<table>
<thead>
<tr>
<th>Material</th>
<th>Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber</td>
<td>0.5 tonnes per m³</td>
</tr>
<tr>
<td>Concrete</td>
<td>2.4 tonnes per m³</td>
</tr>
<tr>
<td>Bricks</td>
<td>1 tonne per m³</td>
</tr>
<tr>
<td>Tiles</td>
<td>0.75 tonnes per m³</td>
</tr>
<tr>
<td>Steel</td>
<td>2-4 tonnes per m³</td>
</tr>
</tbody>
</table>

iv. Potential Uses for Waste
Clause 15.5 outlines the steps involved in completing the WMP. The waste minimisation hierarchy is an important guide to managing waste. The following section offers some advice on how to approach the project, to facilitate waste management at all stages of the project.

1. Avoiding Waste
Avoiding generating waste in the first place is the best way to manage waste. Efficient, lightweight designs, which respond well to site characteristics, minimise not only waste, but also often result in cost savings in construction. Such buildings also often have significantly lower long-term operating costs.

Design and Planning Stage
The design stage is a crucial stage for waste avoidance. Significant cost and resource savings can be made by:

- Designing to standard sizes, and utilising modular and prefabricated construction, and requiring minimal earthworks.
- Incorporating recyclable, recycled and reusable products in construction.
- Design for dismantling or deconstruction.
- Consider renovating or refurbishing an existing building, rather than demolishing and rebuilding.
- Designing to reduce future energy use, by orienting the building to utilise passive solar heating and natural ventilation.

Another important consideration is how ongoing waste management will operate on the site. The design should incorporate areas for the sorting and storage of waste resulting from use of the constructed premises.
**Construction Stage**

Most waste generated during the construction stage, can be avoided. Ways to avoid waste are:

- Ordering pre-cut, prefabricated materials that are the correct size for the job.
- Reduce packaging by returning to the supplier, or requesting reusable packaging such as cardboard or metal instead of plastic.
- Bulk-buy to avoid excess packaging (however, ensuring site requirements are not exceeded, avoiding the environmental impact of transportation and excess storage).

**2. Reusing Waste**

Reusing waste is efficient, as it does not require further processing, thereby not requiring further energy use. Efficiency can be improved further by reusing materials on site, eliminating the need for transportation. Opportunities for waste reuse exist in the following stages:

**Demolition Stage**
- Careful demolition can maximise the reuse value of materials, particularly fittings, floorings and timber linings.
- Sort demolition materials and identify the materials that can be reused, and grade accordingly to quality and re-usability. The table in section 3.0 provides some examples of materials suitable for reuse.

**Excavation Stage**
- Reuse rock, soil and vegetation on site for landscaping.
- Stockpile the materials for removal and reuse off site, ensuring adequate provision for sediment and erosion control (ensuring minimal impact to the aesthetic quality of the surrounding environment).

**Construction Stage**
- Reuse materials from the demolition stage.
- Buy used materials from reclamation yards where possible.

**3. Recycling Waste**

Many waste products unable to be reused directly, can be reprocessed into new products. Successful waste minimisation requires the appropriate handling of waste on site. The WMP requires you to address how waste will be handled, and provide appropriate facilities for waste storage. Successful recycling will require you to consider waste handling at all stages of development. In particular, you need to:

- Sort waste according to type, use and quality. Several bins or storage area should be provided, and should be clearly signed. Waste for disposal should be kept separate from recyclables.
- Ensure waste is kept clean and free of contaminants. This can be done by providing dry storage areas, clearly marked bins, and waste management information to contractors and staff.
- Provide for ongoing waste management.
4. Disposing of Waste

Disposal of waste should be considered a last resort, for materials that cannot be reused or recycled in the region. **Unsorted loads may incur a disposal penalty at landfills.** Hazardous materials need to be disposed of correctly. Contact the Environment Protection Authority on 02-6640 2500, for more details.
## Table 4: Suggested End Uses for the Reuse or Recycling of Materials

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>PREPARATION</th>
<th>PROCESS</th>
<th>END USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bricks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole bricks</td>
<td>Cleaned</td>
<td>Reused</td>
<td>Construction</td>
</tr>
<tr>
<td>Broken</td>
<td>Crushed</td>
<td>Recycled</td>
<td>Landscaping, driveways, drains</td>
</tr>
<tr>
<td>Carpet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underfelt - natural</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthetic rubber (underlay)</td>
<td>Shredded</td>
<td>Recycled</td>
<td>Safety barriers, speed humps</td>
</tr>
<tr>
<td>Concrete</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reclaimed</td>
<td>Crushed</td>
<td>Recycled</td>
<td>Fill, levelling, road base</td>
</tr>
<tr>
<td>Surplus pour</td>
<td>Use/return surplus</td>
<td>Recycled</td>
<td>Pavers, slabs</td>
</tr>
<tr>
<td>Containers/Drums</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic/steel</td>
<td>Cleaned</td>
<td>Reused</td>
<td>Reused</td>
</tr>
<tr>
<td>Fittings &amp; Fixtures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doors, windows</td>
<td>Cleaned</td>
<td>Reuse</td>
<td>Second hand market</td>
</tr>
<tr>
<td>Hardware</td>
<td>Cleaned</td>
<td>Reuse</td>
<td>Second hand market</td>
</tr>
<tr>
<td>Glass (unbroken)*</td>
<td>Crushed</td>
<td>Recycled</td>
<td>Aggregate for concrete products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reuse</td>
<td>Repairs, glazing, glass houses</td>
</tr>
<tr>
<td>Green Waste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeds, clippings, branches</td>
<td>Shredded</td>
<td>Recycled</td>
<td>Compost, mulch, fertiliser</td>
</tr>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium, copper, lead, zinc,</td>
<td>Scrap metal</td>
<td>Recycled</td>
<td>New metal products</td>
</tr>
<tr>
<td>steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardboard</td>
<td></td>
<td>Recycled</td>
<td>New packaging</td>
</tr>
<tr>
<td>Paint</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paint tins</td>
<td></td>
<td>Recycled</td>
<td>Tin extracted</td>
</tr>
<tr>
<td>Plasterboard (clean)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reprocessed</td>
<td>Recycled</td>
<td>New plasterboard</td>
<td></td>
</tr>
<tr>
<td>Shredded</td>
<td>Reuse</td>
<td>Insulating material in walls</td>
<td></td>
</tr>
<tr>
<td>Roof Tiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaned</td>
<td>Reused</td>
<td>Roofing, landscaping</td>
<td></td>
</tr>
<tr>
<td>Crushed</td>
<td>Recycled</td>
<td>Landscaping, driveways, drains</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screened</td>
<td>Reuse</td>
<td>Topsoil</td>
<td></td>
</tr>
<tr>
<td>Strapping (metal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bracing material</td>
<td></td>
<td>Reused</td>
<td>Return to supplier</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>PREPARATION</th>
<th>PROCESS</th>
<th>END USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardwood</td>
<td>De-nailed</td>
<td>Reuse</td>
<td>Flooring, furniture, fencing, craft</td>
</tr>
<tr>
<td>Other timber</td>
<td>Cleaned</td>
<td>Reuse</td>
<td>Formwork, bridging, propping</td>
</tr>
<tr>
<td></td>
<td>Wood chipped</td>
<td></td>
<td>Landscaping, woodflour (oil spills)</td>
</tr>
<tr>
<td>Trees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees and shrubs</td>
<td>Relocated</td>
<td>Reuse</td>
<td>Landscaping on or off site</td>
</tr>
</tbody>
</table>

* Construction glass must be separated from other glass products such as drink bottles.
(Source: Resource NSW)
Table 5: Extract from the Lismore Services Directory

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>WHO &amp; WHERE</th>
<th>PHONE</th>
<th>DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos and Hazardous Waste</td>
<td>Richmond Waste Skyline Road, Lismore</td>
<td>(02) 6621 7431</td>
<td>Asbestos, sump oil, greasetrap, septic, hazardous and other specialist waste. Contact for full range of services.</td>
</tr>
<tr>
<td></td>
<td>Lismore City Council Wyrallah Road Waste Facility</td>
<td>(02) 6621 8890</td>
<td>Asbestos waste disposal. Must be pre-booked and comply with all OH&amp;S transport and handling requirements.</td>
</tr>
<tr>
<td>Building Materials – second hand</td>
<td>A. J. Magnay Macauley Street, North Lismore</td>
<td>(02) 6622 2258</td>
<td>All building material, doors, sinks etc.</td>
</tr>
<tr>
<td></td>
<td>Lismore City Council Wyrallah Road Waste Facility</td>
<td>(02) 6621 9671</td>
<td>All building material, timbers, doors, sinks etc.</td>
</tr>
<tr>
<td></td>
<td>Keber Recycled Building Material Taylor Street, South Lismore</td>
<td>(02) 6622 2129</td>
<td>All building material, doors, sinks etc.</td>
</tr>
<tr>
<td>Builders Bins &amp; Skips</td>
<td>Nimbin Building Materials Blade Road, Nimbin</td>
<td>(02) 6689 1644</td>
<td>All building material, doors, sinks, Colourbond etc.</td>
</tr>
<tr>
<td></td>
<td>Phoenix Waste PO Box 1476, Lismore 2480</td>
<td>0423 771 663</td>
<td>Skip bins 2/3/4 &amp; 5 cubic metre – builders rubble; home renovations &amp; garden waste</td>
</tr>
<tr>
<td></td>
<td>Cleanaway Englands Road, Coffs Harbour</td>
<td>(02) 6652 7566</td>
<td>Various sized bins, liquid waste transport and disposal, builders’ bins &amp; skips, waste audits, giant dino bins, asbestos bins, compaction systems, dangerous goods.</td>
</tr>
<tr>
<td>Builders Rubble</td>
<td>Richmond Waste Skyline Road, Lismore</td>
<td>(02) 6621 7431</td>
<td>Separate skips offered for source separation. Contact Richmond Waste for full range of services.</td>
</tr>
<tr>
<td>Drums</td>
<td>Northern Rivers Waste Wyrallah Road Waste Facility Wyrallah Road, Lismore</td>
<td>(02) 6621 9671</td>
<td>Clean, inert builders rubble (bricks/concrete/tiles etc.)</td>
</tr>
<tr>
<td></td>
<td>Coastwide Drums Queensland</td>
<td>(07) 5590 4440</td>
<td>Uncleaned and rinsed drums</td>
</tr>
<tr>
<td>CATEGORY</td>
<td>WHO &amp; WHERE</td>
<td>PHONE</td>
<td>DETAILS</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Glass bottles and jars, cans, plastics &amp; paper &amp; card</td>
<td>Recycling Drop Off Centre Wyrallah Road Waste Facility</td>
<td>(02) 6621 8890</td>
<td>Glass, Plastics, Aluminium &amp; steel cans, Paper &amp; card</td>
</tr>
<tr>
<td></td>
<td>Red Dove Charity Shop Cnr. Keen &amp; Woodlark Sts, Lismore</td>
<td></td>
<td>Drop off clean glass jars (with lids) for re-use</td>
</tr>
<tr>
<td>Green Waste / Organics / Paper &amp; Cardboard / Packaging Recycling</td>
<td>Lismore City Council</td>
<td>(02) 6621 4950</td>
<td>Green waste stockpile</td>
</tr>
<tr>
<td></td>
<td>Summerland Waste</td>
<td>(02) 6624 3283</td>
<td>Wool Bales, paper, cardboard, mixed waste, green waste and packaging recycling (bottles &amp; cans etc).</td>
</tr>
<tr>
<td></td>
<td>Richmond Organics Skyline Road, Lismore</td>
<td>(02) 6621 7431</td>
<td>Commercial green waste, organics, recycling and general waste service</td>
</tr>
<tr>
<td>Oil</td>
<td>Linclean Centenary Drive, Goonellabah</td>
<td>(02) 6624 4311</td>
<td>Sump, motor oils and households and farmers are welcome to dispose of their waste oil at the Linclean collection centre</td>
</tr>
<tr>
<td></td>
<td>Nationwide Oil Brisbane</td>
<td>(07) 3204 0822</td>
<td>Waste oil removal and recovery</td>
</tr>
<tr>
<td></td>
<td>Lismore City Council Wyrallah Road Waste Facility</td>
<td>(02) 6621 4950</td>
<td>Waste oil.</td>
</tr>
<tr>
<td></td>
<td>Richmond Waste Skyline Road, Lismore</td>
<td>(02) 6621 7431</td>
<td>Oil, asbestos, greasetrap, septic, hazardous and other specialist waste. Contact Richmond Waste for full range of services.</td>
</tr>
<tr>
<td></td>
<td>GMB Pty Ltd. Eddie Edge</td>
<td>0427 488507</td>
<td>Oil filters, radiator coolant and solvents</td>
</tr>
<tr>
<td>Paint Tins</td>
<td>Lismore City Council Wyrallah Road Waste Facility</td>
<td>(02) 6621 4950</td>
<td>Empty tin with dried paint residues OK for deposit in scrap metal pile, or in the recycling skip at Wyrallah Road Waste Facility</td>
</tr>
<tr>
<td>Scrap Metal</td>
<td>Lismore City Council Wyrallah Road Waste Facility</td>
<td>(02) 6621 4950</td>
<td>All metals</td>
</tr>
<tr>
<td></td>
<td>Independent Scrap Metal Pty. Ltd.</td>
<td>(02) 6621 4972 0418 830 866</td>
<td>Copper, brass, aluminium, steel, plumbing and electrical waste</td>
</tr>
<tr>
<td>CATEGORY</td>
<td>WHO &amp; WHERE</td>
<td>PHONE</td>
<td>DETAILS</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------------</td>
<td>---------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Metalcorp</td>
<td>Brisbane</td>
<td>(07) 3249 5000</td>
<td>Scrap metal</td>
</tr>
<tr>
<td>Alpine Towing Services</td>
<td>Foleys Road, Lismore</td>
<td>0427 660641</td>
<td>Scrap cars and white goods (24 hour)</td>
</tr>
<tr>
<td>Waste - Specialist</td>
<td>Environmental Recovery Service</td>
<td>(07) 3209 6144</td>
<td>Hazardous liquid and solid waste removal and recovery</td>
</tr>
</tbody>
</table>
Appendix 2 – The Waste Management Plan

Part 1 – Development Application Details

<table>
<thead>
<tr>
<th>Name of Applicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Name</td>
</tr>
<tr>
<td>(if applicable)</td>
</tr>
<tr>
<td>Contact telephone</td>
</tr>
<tr>
<td>number</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brief Description of Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Lismore Development Control Plan – Part A
### Part 2 – Demolition/Deconstruction Waste/Recycling Details

<table>
<thead>
<tr>
<th>Type of Material</th>
<th>Est. Volume ( m^2/m^3/)tonne</th>
<th>Reuse and Recycling</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On-Site Specify proposed reuse or on-site recycling initiatives</td>
<td>Off-Site Specify contractor and recycling outlet</td>
<td>Specify contractor and landfill site</td>
</tr>
<tr>
<td>Excavation Material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garden Organics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bricks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavers/Tiles etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasterboard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asbestos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Waste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other – Please detail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describe systems proposed to minimise noise and dust</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Off site reprocessing may require separate consent – Check with Lismore City Council on 02 6625 0500*
# Construction Waste/Recycling Details

<table>
<thead>
<tr>
<th>Type of Material</th>
<th>Est. Volume m²/m³/tonne</th>
<th>Reuse and Recycling</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>On-Site</strong></td>
<td><strong>Off-Site</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specify proposed reuse or on-site recycling initiatives</td>
<td>Specify contractor and recycling outlet</td>
</tr>
</tbody>
</table>

- **Excavation Material**
- **Garden Organics**
- **Bricks**
- **Concrete**
- **Pavers/Tiles etc.**
- **Timber**
- **Plasterboard**
- **Metals**
- **Asbestos**
- **General Waste**
- **Other – Please detail**

**Describe systems proposed to minimise noise and dust**

*Note: Off site reprocessing may require separate consent – Check with Lismore City Council on 02 6625 0500*
Part 3 – Site Plan

Details of waste storage and sorting areas and vehicular access are to be provided on plan drawings. The plan should also indicate the number of, type and siting for bins and storage.
Appendix 3 – Examples of Completed Waste Management Plans

Example 1 – A Single Unit Residential Development
Completed form: “Construction Waste / Recycling Details”

<table>
<thead>
<tr>
<th>Type of Material</th>
<th>Est. Volume m³</th>
<th>On-Site</th>
<th>Off-Site</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil and overburden</td>
<td>50m³</td>
<td>Landscaping</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Timber formwork</td>
<td>30m²</td>
<td>Reuse on other jobs where possible</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Paper/cardboard and other packaging</td>
<td>Less than 1m³</td>
<td>Lismore Drop Off Centres (DOC’s)</td>
<td>Self haul</td>
<td></td>
</tr>
<tr>
<td>Timber offcuts</td>
<td>2m³</td>
<td>Lengths in excess of 2m to Lismore Revolve</td>
<td>Richmond Waste Skip – approx 1m³ in waste skip to Wyrrallah Road Waste Facility (WRWF)</td>
<td></td>
</tr>
<tr>
<td>Concrete / bricks / pavers</td>
<td>6m³</td>
<td>Reuse approx 2m³ of clean material in drainage trench</td>
<td>4m³ – LCC WRWF crusher</td>
<td>Self haul</td>
</tr>
<tr>
<td>Offcuts of roofing iron</td>
<td>10m²</td>
<td>Scrap metal pile at LCC landfill</td>
<td>Self haul</td>
<td></td>
</tr>
<tr>
<td>Mixed Waste</td>
<td>4m³</td>
<td></td>
<td>Richmond Waste to WRWF</td>
<td></td>
</tr>
</tbody>
</table>

Other – Please detail

Describe systems proposed to minimise noise and dust

Movement of bricks, concrete etc. will be carried out to ensure minimum disturbance to neighbours and airborne dust will be wetted using spray nozzle on hose. Neighbours will be notified in advance of movement of waste materials.

Note: Off site reprocessing may require separate consent – Check with Lismore City Council on 02 6625 0500
Site Plan:

Details of waste storage and sorting areas and vehicular access are to be provided on plan drawings. The plan should also indicate the number of, type and siting for bins and storage.
Example 2 – A Shopping Centre Development
Completed form: ‘Construction Waste/Recycling Details’

<table>
<thead>
<tr>
<th>Materials On-Site</th>
<th>Reuse and Recycling</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Material</strong></td>
<td><strong>Est. Volume m³</strong></td>
<td><strong>On-Site</strong></td>
</tr>
<tr>
<td>Soil and overburden</td>
<td>300m³</td>
<td>Landscaping</td>
</tr>
<tr>
<td>Timber formwork</td>
<td>2m³</td>
<td>Reuse on other jobs where possible</td>
</tr>
<tr>
<td>Paper/cardboard and other packaging</td>
<td>Approx 5m³</td>
<td></td>
</tr>
<tr>
<td>Timber offcuts – reusable timber over 2m in length</td>
<td>300m – approx 120 lengths</td>
<td>Sold to local builders reclamation yard</td>
</tr>
<tr>
<td>Timber – hardwood untreated (non-reusable)</td>
<td>Approx 4m³</td>
<td>Given away locally as wood heater fuel</td>
</tr>
<tr>
<td>Concrete / bricks / pavers etc.</td>
<td>18m³</td>
<td>Reuse approx 8m³ of clean material in drainage trench</td>
</tr>
<tr>
<td>Offcuts of roofing iron and miscellaneous scrap</td>
<td>4m³</td>
<td>Scrap metal pile at LCC landfill</td>
</tr>
<tr>
<td>Green waste</td>
<td>Approx 4m³</td>
<td>Mulched on site and reused on gardens on site</td>
</tr>
<tr>
<td>Mixed waste</td>
<td>12m³</td>
<td></td>
</tr>
</tbody>
</table>

**Other – Please detail**

**Describe systems proposed to minimise noise and dust**
Bricks, concrete etc. will be wetted when moved and spread. Mulching machine will be positioned behind wall to minimise noise. Neighbours will be notified in advance of movement of waste materials and use of mulching machine.

**Note:** Off site reprocessing may require separate consent – Check with Lismore City Council on 02 6625 0500
Completed form: ‘Site Plan’ for 6 unit shopping mall

Lismore Road Shopping Mall

Site Plan:

Details of waste storage and sorting areas and vehicular access are to be provided on plan drawings. The plan should also indicate the number of, type and siting for bins and storage.
Chapter 16

Rural Landsharing Communities
16 Rural Landsharing Community Development

16.1 Objectives of this Chapter
To supplement the provisions of Clause 42 of the Lismore Local Environmental Plan 2000 by providing details and guidelines to assist applicants making a Development Application for a Rural Landsharing Community development on lands shown identified as having potential for Rural Landsharing Community development in the Lismore Rural Housing Strategy.

16.2 Definitions
In this Chapter the following definitions apply:

"expanded dwelling" means a single dwelling house comprising a main building and a maximum of three habitable outbuildings where:
   a) all buildings are contained within a radius no greater than 20 metres from the perimeter of the main building; and
   b) only one kitchen and laundry facility are provided and the kitchen and living area are contained within the main building; and
   c) all outbuildings are connected to the main building by paths with an all-weather surface; and
   d) no separate driveway, car parking area or carport is provided to any outbuilding.

"prime crop and pasture land" means land within an area:
   a) identified, on a map prepared before the commencement of this Clause by or on behalf of the Director-General of the relevant State Government Agency and deposited in an office of the Department of Agriculture, as Class 1, Class 2 or Class 3 or as land of merit for special agricultural uses, or
   b) identified, on a map prepared after the commencement of this Policy by or on behalf of the Director-General of the relevant State Government Agency marked "Agricultural Land Classification Map" and deposited in an office of the relevant State Government Agency, as Class 1, Class 2 or Class 3 or as land for special agricultural uses, or
   c) certified by the Director-General of the relevant State Government Agency, and notified in writing by or on behalf of the Director-General of the relevant State Government Agency to the council, to be prime crop and pasture land for the purposes of this Clause.

16.3 Criteria for identifying land with potential for rural landsharing communities
A key feature of Council's Rural Housing Strategy was the prior identification of lands considered potentially suitable for various forms of rural settlement including rural landsharing communities.

The criteria for identifying such lands are grouped into the following general categories:

- Land use planning objectives
- Land suitability
- Locational suitability
- Availability of services
- Standard of vehicular access
- Potential development conflicts
- Environmental impacts
- Socio-economic impacts
- Community development benefits
- Environmental enhancement
Council will not consider development of rural land for rural landsharing communities unless such land has been identified as being potentially suitable for this particular form of closer rural settlement.

**Landuse planning objectives**

Land considered potentially suitable for future rural landsharing development must accord with the performance criteria for new rural settlement in the Department of Planning’s *Guidelines on Rural Settlement on the North Coast of NSW* and shall be capable of being developed in an economically, environmentally and socially sustainable manner. Locations should reinforce the existing settlement pattern and not result in the fragmentation of prime agricultural land or sterilisation of resources, nor adversely affect existing amenity and the environment. Land has not been identified for future rural landsharing development where it is required for future urban or village development.

**Land suitability**

Land must be able to ecologically sustain the development proposed. The following types of constraint provide a guide to the assessment of land suitability:

**Absolute constraints:** land attributes, which prohibit development and cannot be overcome in the foreseeable future.

**Partial constraints:** land attributes which either allow limited development to take place or for which development potential cannot be determined without further information. In either case, it is likely that development will cost more or have a lower yield in terms of potential number of dwelling sites.

**No constraint:** land attributes, which enable and are potentially suited to development.

These particular criteria have been applied to ensure that unsuitable lands are excluded at a broader scale. At the specific property level it is likely that a parcel of land will contain some areas comprising absolute or partially constrained land which, should not be developed for either residential or infrastructure purposes. However, the land parcel may also contain land that is suitable for a rural landsharing community development at an appropriate size, design and management regime.

It is important that new rural landsharing community development avoids unsuitable lands and minimises adverse environmental impacts. The following are considered as absolute constraints and should be excluded from areas considered to have potential for rural landsharing development:

- land that comprises more than 25% prime crop and pasture land. This includes lands that have been identified as having agricultural land suitability Class 1, 2 and 3 (as classified by NSW Agriculture).
- land that is in excess of 33% (18°) slope. Development on excessively steep slopes is more likely to be subject to hazards such as bushfire risk, soil erosion, mass movement, problems relating to wastewater disposal and provision of infrastructure.
- land that is in a recognised high or extreme bushfire risk area.
- land that is floodprone.
- land that is environmentally significant by reason of the existence of protected, vulnerable and endangered flora and fauna scheduled under both the National Parks and Wildlife Act, 1974 and Threatened Species Conservation Act, 1995. This might include important vegetation communities, rainforest remnants, wildlife habitat, wildlife corridors and links between vegetation remnants.

Infrastructure such as access roads and wastewater disposal areas must not be provided on lands exceeding 33% slope, or recognised as being environmentally sensitive. Dwelling sites should be free of hazards and risks from flooding, bushfire, contaminated land, poor drainage, potential for erosion and landslip and slopes exceeding 20%.
Adequate separation should be provided from areas of environmental, resource or agricultural significance. Areas of heritage or Aboriginal significance must also be avoided. It is expected that virtually all potentially suitable areas will be located within the existing General Rural 1(a) zone, as other rural zones are generally constrained in some way, e.g. flooding, prime agriculture, environmentally sensitive lands, etc.

**Locational suitability**

Land potentially suitable for rural landsharing opportunities shall be readily accessible to at least one of the following types of existing facility that might act as a centre for community focus:

- primary school,
- shop,
- community hall,
- an existing landsharing community where the number of approved dwellings exceeds twenty five, or
- two or more existing landsharing communities where the combined number of approved dwellings exceeds twenty five.

Land should be within walking or cycling distance (maximum 4 km road distance) of at least one of the above facilities or an urban area, village or hamlet, which contains these facilities.

**Availability of services**

Services such as a school bus, postal service, telephone and electricity supply (if required) should be available or be economically capable of being provided to the land. A sufficient on-site potable water supply must be capable of being provided without accessing surface water from any stream or watercourse.

**Standard of vehicular access**

The standard of road access that must be satisfied for localities to be considered suitable for rural landsharing development is described in clause 16.7 - Access.

**Potential development conflicts**

A number of activities in rural areas have potential to impact adversely on residential amenity (e.g. feedlots, quarries, intensive farming, dairies, horticulture, high tension power lines, offensive and hazardous industries, rural industries etc.)

Land in proximity to such uses that may adversely impact on residential amenity is not considered suitable for the siting of dwellings. Chapter 11 - Buffer Areas details buffer widths that need to be provided between dwellings and potentially conflicting land uses. Where tree planting is required for the establishment of planted buffers, a bond will be required for such works for a specified period to ensure that all plantings are maintained until fully established.

Rural landsharing community developments should also be buffered from important flora and fauna habitats, commercial forestry areas, significant wetlands, water catchment/conservation areas and areas of mineral or other resource value. Dwellings and effluent disposal areas should be sited at least 100 metres clear of any watercourses and 250 metres from any potable ground water supply and should satisfy the performance objectives of Council’s On-Site Sewage and Wastewater Management Strategy.

**Environmental impacts**

An assessment must be made of the potential environmental impacts of any proposed rural landsharing development in terms of likely impacts on water quality (both ground and surface), erosion and land stability, fauna, flora, vegetation identified in a Regional Vegetation Management Plan, drainage, other components of the natural system and on views from public roads. Any locations where likely adverse impacts are expected should be avoided.
**Socio-economic impacts**
Future rural landsharing developments generally should occur in areas, which complement existing settlement patterns, maintain or enhance the viability of existing communities, services and facilities and should be acceptable to the local community. Areas developed should not result in adverse economic impacts such as a loss of good quality agricultural land, sterilisation of resources or lead to a restriction on farming practices or reduction in the amenity of existing residents.

Any location considered suitable must also be able to be feasibly developed having regard to land and development costs, including Council levies and requirements relating to services and environmental protection. There should be reasonable certainty that the development will have an adequate cash flow to ensure that costs are met. Locations that require uneconomic extension of services should be avoided.

**Community development benefits**
New rural landsharing community development should make a positive contribution to the community development of the locality. Positive contributions may include reversal of population decline, provision or embellishment of community facilities and services, creation of jobs, improvement in the standard of road access and public transport, enhancement of the quality of life in the area, improved recreational facilities, etc.

The form of development increases opportunity and choice to purchase rural land to provide secure housing. Council’s ‘Lismore Affordable Housing Strategy’ recognises rural landsharing communities as an affordable housing option.

**Environmental enhancement**
Development is traditionally seen to have some adverse impact, or at best a neutral impact, upon the environment.

Council’s Rural Housing Strategy requires that all forms of closer rural settlement create positive environmental impacts. Environmental benefits may include, for example, the restoration of degraded land and stream banks, re-forestation, habitat enhancement, tree planting and landscaping, creation of nature reserves or wildlife corridors or contributions to support conservation projects such as purchase and enhancement of environmentally sensitive lands.

**Areas Where Rural Landsharing Community Development is Permissible**

Map 1 indicates rural land that is potentially suitable for rural landsharing community development and is not affected by physical constraints identified in clause 16.3.

Council’s Rural Housing Strategy recognises the existing historic settlement pattern or hierarchy as the basis for identifying and assessing social servicing catchments. This hierarchy is generally based on the level of services provided in the larger villages of Lismore.

As a part of the servicing criteria for future rural landsharing community development, all lands with development potential identified in the physical and environmental land capability assessment must also satisfy criteria with regard to proximity to facilities and standard of road access.

New rural landsharing communities must be within 4 km road distance of at least one of the facilities identified in clause 16.3.3.
Map 1: Areas Potentially Suitable for Rural Landsharing Communities
16.4 Density Provisions

Council shall not consent to an application for a rural landsharing community unless the number of proposed dwellings on the land, together with any existing dwellings on the land, does not exceed the number calculated in accordance with the formula specified in Table 1.

If the number calculated in accordance with the formula in Table 1 includes a fraction, the number is to be rounded up to the nearest whole number in the case of a fraction of one-half or more, or rounded down to the nearest whole number in the case of a fraction of less than one-half.

### Table 1

<table>
<thead>
<tr>
<th>Area of land</th>
<th>Number of dwellings where A represents the area of the land the subject of the application (measured in hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not less than 10 hectares but not more than 210 hectares</td>
<td>$4 + \frac{(A - 10)}{4}$</td>
</tr>
<tr>
<td>More than 210 hectares but not more than 360 hectares</td>
<td>$54 + \frac{(A - 210)}{6}$</td>
</tr>
<tr>
<td>More than 360 hectares</td>
<td>80</td>
</tr>
</tbody>
</table>

Even if the number of proposed dwellings together with any existing dwellings on the land does not exceed the maximum number of dwellings permitted under Table 1, Council must not consent to the application if those dwellings are so designed that they could, in the opinion of Council, reasonably accommodate in total more people than the number calculated by multiplying that maximum number of dwellings by four (4).

16.5 Development Application Requirements and Performance Standards

**General Requirements**

Development Applications for rural landsharing communities are to be made on the prescribed form, obtainable from Council. Ten copies of the application, plans and Statement of Environmental Effects should be provided.

The Development Application requirements listed in this Section are based upon the assumption that the application will be for the approval of nominated dwelling sites only. Where this is the case subsequent Development Applications (including full plans and specifications) and Construction Certificates will be required for each dwelling house proposed on each approved dwelling site.

Alternatively applicants may wish to submit full plans and specifications (including floor plans) for each dwelling house with the original Development Application. In this case Construction Certificates only will be required for each dwelling house prior to construction on an approved dwelling site.

Where a Development Application is lodged for a development comprising a number of dwelling sites that is less than the number that could potentially be developed on the land according to the density formula in Table 1, any additional dwelling sites may only be approved through the
lodgement of a new Development Application. Such application must address all the matters
outlined in this section.

Applicants are encouraged to approach Council with preliminary concept plans prior to lodgement
of development applications.

It is strongly recommended that applicants who are considering preparing a Development
Application (particularly where more than five dwellings are proposed) consult with persons
qualified and skilled in environmental impact assessment. Some of the areas of expertise
necessary to submit a development application, which meets the requirements of this plan, will
include; engineering, geotechnical, wastewater, water quality testing and hydraulic advice,
agricultural suitability assessments, and flora & fauna assessment.

**Lismore Local Environmental Plan**
Clause 42 of the Lismore Local Environmental Plan 2000 enables consent to be granted to
development for the purpose of three or more dwelling sites (inclusive of any existing dwellings on
the land) on land identified as being suitable for such purpose in the Lismore Rural Housing
Strategy if:

- the land comprises a single allotment, and
- the land has an area of not less than 10 hectares, and
- the part of the land on which any dwelling or structure is to be situated does not have a slope
  in excess of 18°, and
- not more than 25 per cent of the land consists of prime agricultural land, and
- the part of the land on which any structure or work is to be situated is not prime agricultural
  land, and
- the majority of the allotment is within an area nominated as potentially suitable for rural
  landsharing community development in the *Lismore Rural Housing Strategy* (dated February
  2002 and deposited in the office of Lismore City Council), and
  - the land is within 4 km by road of:
    - a primary school, or
    - shop, or
    - community hall, or
    - an existing rural landsharing community development where the number of approved
      dwellings exceeds 25, or
    - two or more existing rural landsharing community developments where the number of
      approved dwellings exceeds 25, and
- the land is within 2 km by road of an arterial, sub-arterial or collector road as identified on
  map 3 of Part B of the *Lismore Rural Housing Strategy* (dated February 2002 and deposited
  in the office of Lismore City Council).
- the application does not involve the subdivision of land unless otherwise permitted under
  clause 36 of the LEP.

**Plans and Statement of Environmental Effects**
A site analysis is to form part of the application and provide the following information on plans and
in documentation (where relevant). Plans are to be drawn to a scale appropriate to the size of land
and proposed development and provide the following detail (where relevant):

With regard to the physical characteristics of the site:
- site dimensions and site area,
- spot levels, contours and north point,
- views to and from the site,
- prevailing winds,
- orientation, micro climates, significant noise sources,
- land with a slope greater than 33% or 18° (dwelling houses and other structures should
  preferably be located on slopes not greater than 20% however all development including
  roads should avoid slopes greater than 33% ),
• watercourses and groundwater resources,
• natural wetlands,
• land subject to pondage, seasonal waterlogging, high watertable or salinity,
• natural drainage,
• any part of the land that is subject to a risk of flooding, bush fires, landslip, erosion (or areas with actual or potential acid sulfate soils) or any other physical constraint to development of the land in accordance with this Plan,
• soil types and, where present, the geology of any rocky outcrops on the site,
• any part of the land that is prime crop and pasture land,
• any parts of the land that contain significant natural vegetation areas, wildlife corridors, refuges or reserves and areas requiring environmental protection or areas where rehabilitation or reforestation will be carried out.
• An assessment under Section 5A of the Environmental Planning and Assessment Act 1979 of the effect on threatened species, populations or ecological communities or their habitats.
• the current situation in relation to the extent of noxious weed infestation, including a report / certificate from the local authority (as defined in the Noxious Weeds Act 1993),
• identification of previous use and any contaminated soils or filled areas,
• location of known resources of mineral or extractive deposits on or adjacent to the proposed development or otherwise potentially sterilised by the development,
• any road reserve areas that impinge on the site,
• identifying existing road standards and traffic flows and required works to bring up to standard,
• location of fences, boundaries and any other notable features (natural or historical),
• any heritage items (including items of Aboriginal heritage), relics and sites, and their curtilages.

With regard to the development details of the site:
• location of dwellings, expanded dwellings, buildings and other structures,
• elevations of each of the proposed dwellings,
• details of any proposed cut and fill associated with the dwellings,
• any areas of the site to be used for development other than dwellings,
• proposed access from a public road to the area or areas in which the dwellings are to be situated including longitudinal sections of the proposed access where grades are in excess of 12% slope (plus other tracks necessary for agricultural use, firefighting or property maintenance and any tracks that cross Crown land or watercourses),
• easements for drainage services,
• source and capacity of any water supply, electricity, telephone and waste disposal systems for the dwellings, plus strategies for dealing with domestic wastewater, areas designated for storage of solid waste. An assessment of water supply flow rate quantity, drought reliability and quality is to be provided.
• areas designated for landfill of solid waste,
• measures aimed at preventing the spread of bushfire.

With regard to the land surrounding the site:
• the heritage significance of surrounding buildings and landscape,
• characteristics of any adjacent public land,
• directions and distances to childcare and education facilities, shops, public halls, sport and recreation facilities, bushfire services, public transport routes,
• a brief description of the land uses on surrounding land.

Environmental Management Plan
Clause 42 of the Lismore Local Environmental Plan requires that an Environmental Management Plan be prepared as part of an application for a proposed rural landsharing community. The management plan should comprise maps and supporting documentation and address the following matters:
a) water management,
b) waste management,
c) prevention, control and management of soil erosion,
d) bush fire management,
e) management of flora and fauna and land repair and enhancement,
f) communal plan for social organisation,
g) provision and maintenance of internal roads, boundary fences, water reticulation, service corridors for telephone and electricity cables and similar matters.

Applicants are encouraged to prepare a comprehensive plan addressing each of the above matters, as much of the information will overlap.

This DCP contains general guidelines to assist in the preparation of an environmental management plan. Refer to:

- Section 4.2.5 – soil erosion control plan,
- Section 4.4.4 – water management plan,
- Section 4.5.4 – wastewater management plan,
- Section 4.6.1 – bushfire management plan, and
- Section 4.6.3 – fauna and flora management

The key aspects of a communal plan for social organisation should be identified and briefly described in the application. The plan may include the issues of:

- ownership of dogs, cats and firearms,
- noise generation,
- maintenance of common facilities and utilities such as roads, water supply, effluent and wastewater treatment, garbage disposal, recycling etc.,
- use of common land,
- internal conflict resolution, and the engaging of a facilitator if required,
- external conflict resolution, including the manner of resolving difficulties with neighbours, and utilisation of the mediation process as established by the Land and Environment Court Act,
- community social bonding etc.

If the development is to occur in stages, the communal plan is an appropriate mechanism to provide this information indicating anticipated timing of stages.

Note: Council recognises the diverse evolutionary nature of rural landsharing communities, and recognises that precise figures and timing are not necessarily binding on the applicant.

Prohibited uses and ancillary development

No land approved for a rural landsharing community may be developed for a purpose prohibited under the provisions of Lismore Local Environmental Plan 2000. The LEP prohibits certain uses in rural zones such as residential flat buildings, shops (other than convenience shops), warehouses, etc.

Other forms of development such as rural tourist facilities, motels, hotels, caravan parks, industries, etc are permissible in certain rural zones subject to the consent of Council being obtained prior to the commencement of that use.

The development of some ancillary uses may be permitted with the consent of Council providing that such uses are intended primarily to serve the needs of people living on the land. Examples of such uses may be schools, community facilities, home and light industries and workshops.

Marking of sites and road locations

All proposed dwelling sites are to be identified by a numbered peg / flag / stake. Internal access roads are to be pegged at twenty metre intervals and the location of water sources are to be identified.
Advertising
All applications for rural landsharing communities are subject to the provisions for advertised development in the Environmental Planning and Assessment Act 1979 (as amended).

All applications shall be notified to adjoining owners and advertised at least once in a local newspaper. This notice advises that the details of the application may be inspected at Council offices for a period of 21 days, and that within that period, submissions will be received either in support of or in objection to proposals. Where an objection is made, reasons for the objection have to be set out in the submission.

The period of exhibition may extend to 30 days where an application involves 10 or more dwellings.

Owners consent and responsibility
It is a requirement that all owners of the property sign the development application form. The communal management body shall be nominated on the application form, and shall be responsible for all commitments and obligations to Council. This body shall receive, on behalf of all owners and tenants, notices issued by Council in respect of the rural landsharing community.

16.6 Access
Direct vehicular access from a rural landsharing community development to a State Highway is not permitted. Where direct vehicular access to an ‘arterial’ road (as identified in the Lismore City Wide Roads Study) is proposed, a Traffic Impact Study is to be prepared to substantiate the access requirements of the development.

Primary road access
The access point to land to be developed for a rural landsharing community must be either to a primary road or within 2 km by road of a ‘primary’ road. Primary roads are those roads identified in the Lismore City Wide Roads Study as ‘arterial’, ‘sub-arterial’ or ‘collector’ roads. The minimum standard for arterial roads is a 7 metre seal on a 9 metre gravel formation. The minimum standard for sub-arterial and collector roads is a 6 metre seal on an 8 metre gravel formation.

Where a development has direct frontage to a primary road, and the standard of the primary road does not satisfy the abovementioned standards, the applicant will be required to upgrade the primary road for a length equivalent to the required sight distance in each direction from the intersection of the driveway with the road. The length of road to be upgraded will be calculated as follows and the upgrade will be to the relevant minimum standard for arterial, sub-arterial or collector roads described above:

- Where there is less than 5 dwelling sites, the length of road to be upgraded is the “approach sight distance” (Austroads) either side of the driveway intersection;
- Where there are 5 or more dwelling sites, “safe intersection distance” (Austroads) either side of the driveway intersection.

Secondary road access
The ‘secondary’ road is the road that provides access from a primary road to the access point of the property. Secondary road access is to be via a constructed road of the following standard:

- For roads where the traffic volumes post development remain very low (less than 150 traffic movements per day), the minimum standard is a 5 metre wide gravel pavement minimum gravel depth 300mm.
- For roads where the traffic volumes post development are between 150 and 300 traffic movements per day, the minimum standard is an 8 metre wide gravel pavement minimum gravel depth 300mm.
• For roads where the traffic volumes post development are in excess of 300 traffic movements per day, the minimum standard is a 6 metre wide seal on an 8 metre wide gravel pavement minimum gravel depth 300mm.
• The length of the ‘secondary’ road to be used from the ‘primary’ road to the development is not greater than 2 km.

Where the secondary road access is below these standards, a development may proceed where the applicant proposes to upgrade the road to meet the required standard.

Where land does not have direct frontage or access to a public road
Any road access between a public road (Council constructed and maintained) and the boundary of land proposed for a rural landsharing community shall be in accordance with Council’s standards.

These roads must have:
• adequate sight distance at the access point to the public road
• a width suitable for two vehicles at the access point onto the public road,
• a width suitable for one-way traffic and provide suitable two lane passing points at intervals which suit topography and traffic visibility points,
• a minimum surface suitable for two-wheel drive and emergency vehicles in wet weather, and
• suitable measures to minimise scouring of table drains and road surface in steeper sections.

Access to the land may be by use of a Right-of-Way providing:
• satisfactory legal opinion supports the use of the Right-of-Way by the proposed rural landsharing community,
• the access is constructed to Council’s adopted road standards, and
• the land has frontage to a public road in accordance with Council’s policy 1.8.2.

Internal road access
The minimum standard for internal access roads shall be a 3.5 metre wide gravel pavement minimum gravel depth 150mm upon a 5.5 metre wide formation. It is recommended that access grades be limited to a maximum grade of 12%, however grades up to 29% shall be accepted provided adequate means to prevent erosion of the access road surface and table drains are provided.

Roads shall be constructed and drained to provide all-weather access and to minimise soil erosion. Where internal access roads are located on existing or potential mass movement areas, geotechnical engineering advice / comments should be provided with the development application.

Where roads are on steep land, it is recommended that the relevant State Government Agency be consulted for advice.

Emergency vehicle access to all dwelling sites must be provided.

16.7 Soil Erosion Control Plan
The soil erosion control plan should show and address the management of on-site soils in particular at building sites and internal access. The plan should address the following (where relevant):

• Site characteristics including:
  ◊ topography,
  ◊ soils (types and limitations)
  ◊ potential problem areas (high erosion areas, wet, slip and slump areas and steep land)
  ◊ environmentally sensitive areas (significant drainage lines, watercourses)
Location of access roads, parking areas and building sites
  ◦ nature and extent of earthworks
Selected erosion control practices
  ◦ temporary during construction and
  ◦ permanent (catch drains, dams, windrows, stabilising techniques, proposed drainage etc.)
Staging of preventative measures
  ◦ integration with vegetation and water management

16.8 Buildings

16.8.1 Approvals
Unless otherwise advised by Council’s Planning and Development Group, no new building can be erected and no existing building can be extended, except where development approval has been granted for the erection or extension of that building as part of the Development Application for a rural landsharing community, and a Construction Certificate has been issued for that building.

Each residential and communal building must comply with the relevant requirements of the Environmental Planning and Assessment Act, the Local Government Act and the Building Code of Australia. A geotechnical assessment of each building site or cluster area is required stating the classification of each site in accordance with Australian Standard No. 2870: Residential Slabs and Footings. All development shall conform with the conditions of the approval.

16.8.2 Building location and height
No building shall exceed 7.2 metres in height, from natural ground level, nor be erected on prominent ridge lines, land liable to flooding, existing or potential landslip or on prime crop and pasture land.

Building setbacks from boundaries should take into account the adjoining land uses. If required, buffer areas shall be provided in accordance with the requirements of Chapter 14 - Buffer Areas.

16.8.3 Temporary accommodation
In order to provide for transitional accommodation during the process of construction of permanent dwellings, Council has a policy and issues licenses for temporary residential occupation of rural land. Licenses are subject to application and will include the following typical requirements:

- owners are to occupy the temporary accommodation,
- licenses are not transferable,
- development consent for dwellings are to be obtained within 12 months of licence date of issue,
- adequate water and sanitary facilities are to be provided prior to temporary accommodation.

Development approval for the rural landsharing community is required prior to the issue of any temporary accommodation licences, in excess of one license.

16.8.4 Construction fire standards
Dwellings located in an area identified as being with a medium, high or extreme category of bushfire attack are to be constructed in accordance with the Housing Provisions of the Building Code of Australia and AS3959 - 1999.

16.9 Water Supply
In the development of land for a rural landsharing community, the impact on water resources should be examined in detail. Developments must not be reliant on creek or river supply for domestic use and should provide stored or ground water reserves for domestic, agricultural and fire protection purposes.
16.9.1 Potable water
Applications for new RLSC development must demonstrate that all proposed dwellings will have access to a secure and adequate source of water for household purposes (including garden watering) without accessing surface water from any stream or watercourse. Sources of water for domestic or household purposes may include rainwater tanks, town water, water from an off-stream dam that satisfies the requirements of ‘harvestable rights’ as defined in the Water Management Act, or from an underground bore licensed by the relevant State Government Agency.

An adequate potable water supply with a demonstrated drought reliability shall be made available to each dwelling. A minimum of 5,000 litres storage per person for domestic use is suggested if the supply is from roof water. It is recommended that water supply quality be tested to ensure it is safe for drinking. Council’s Environmental Health Section can provide suitable testing advice.

16.9.2 Firefighting reserves
Water supply requirements for firefighting purposes, including recommended pipe and tap sizes, are contained in the document ‘Planning for Bushfire Protection’ prepared by the NSW Rural Fire Service.

16.9.3 Water management plan
The water management plan should include the following:
- location of drainage lines, ground water, bores, wells, springs, dams, swamps, floodplains and seasonally wet areas,
- location, source and capacity of water supply for domestic, agricultural and fire protection uses,
- seasonal water needs and storage capacities,
- vegetation buffers between areas of development and waterways,
- erosion and sediment control measures,
- any proposed land clearing and shaping,
- drainage facilities and discharge points.

16.10 Effluent and Waste Disposal

16.10.1 General requirements for effluent disposal
A septic or other approved system, e.g. composting toilet, shall be provided for all dwellings or expanded dwellings. Such systems shall conform with the requirements of Council’s Environmental Health Section, and be of a type approved by the Health Department of NSW (Council has a list of approved systems). Some systems not approved may be permitted after consultation with Council’s Environmental Health Section. Septic systems must have an adequate water supply.

Earth closets and pit toilets will only be considered as a temporary means of effluent disposal. Approved systems shall be in place within one year of issuance of a temporary residential occupation licence or development application for the dwelling.

16.10.2 System location and construction
The location, construction and size of absorption trenches is to be in accordance with Council’s On-site Sewage and Wastewater Management Strategy.

No pit, closet, sullage or septic effluent absorption trench shall be located within 100 metres of any watercourse or 250 metres from any potable groundwater supply.

All grey water (bathroom, laundry, kitchen) is to pass through a holding tank (min. 1200ltr) prior to subsoil disposal in accordance with Council’s On-site Sewage and Wastewater Management Strategy.
No sullage water shall be discharged onto the ground surface. Sullage water may be considered for re-use proposals after being collected in the holding tank. All effluent re-use proposals are to be discussed with and approved by Council’s Environmental Health Section.

16.10.3 Wastewater assessment
At the time of submitting a development application Council requires the provision of an effluent disposal report addressing the following matters:

A contour plan of the proposed dwelling sites at maximum 500mm intervals and to an approved scale. The plan should show significant site features, eg drainage lines and watercourses, escarpments, rock outcrops and significant trees.

Details of site assessment procedures for each individual allotment including reference to AS1547 and to other recognised standards/practices. Effluent loadings, soil characteristics, biomass permeability and the impact of ground and surface water should also be addressed. Potential effluent reduction by water conservation practices or devices may also be included.

Provide information on the long term capability of the land to accept effluent and include minimum design details for effluent disposal systems addressing the following:

- provision of expanded dwelling developments;
- replacement of effluent disposal areas;
- identify preferred areas on each home management area for effluent disposal and proposed house sites. Effluent disposal areas should avoid landslip areas, not be subject to any vehicular traffic and be clear of areas to be used for recreation purposes;
- details of surface and subsoil drainage in relation to effluent disposal areas;
- management practices to ensure optimum long term operation of site disposal systems.

The use of the standard porosity test in assessing the long term acceptance rate for effluent disposal is to reflect the sodium absorption ratio of the soil. The test must be done with an effluent or liquid chemically similar to laundry effluent to determine the effectiveness of any land disposal system.

16.10.4 Wastewater management plan
The water management plan should include assessment and management of the following (where relevant):

- flood potential,
- site exposure,
- slope,
- soils (depth, permeability, fragmentation, pH, density, conductivity, sodicity, cation exchange, phosphorus sorption, dispersiveness)
- landform,
- run-on and upslope seepage,
- erosion potential,
- site drainage,
- fill on the land,
- buffer distances,
- land area and
- geology

The wastewater management plan shall have regard to Council’s On-Site Sewage and Wastewater Management Strategy as well as the NSW State Groundwater Policy Document.

16.10.5 Solid Waste disposal
In order to reduce health hazards to occupants, all non-recyclable solid wastes shall, where possible, be stored in fly proof containers and preferably taken to Council’s tip.
Any common area used to store contained waste shall be in a location that:
- is not in direct view from any public road, adjoining property, main community access road or dwelling house;
- is located so as to avoid contamination of any water source or watercourse;
- is concealed by topography or existing vegetation;
- has adequate vehicular access; and
- is operated in accordance with directions of Council’s Environmental Health Section.

Composting of organic wastes is encouraged. Council’s Environmental Health Section should be contacted for advice and location of rural recycling pick-up points and centres.

16.11 Land Management Issues

16.11.1 Bushfire Management
A bushfire management plan is to be submitted with all Development Applications. The bushfire management plan is to be prepared in accordance with the Rural Fires Act 1997 and the document titled ‘Planning for Bushfire Protection’ prepared by the NSW Rural Fire Service. The bushfire management plan can be incorporated into the statement of environmental effects for the DA and should address the following:
- development and maintenance of Asset Protection Zones on the hazard side of the development;
- provision and maintenance of adequate access;
- design, staging and siting of the development; and
- provision of appropriate water supply and availability during times of bushfire emergency.

The Asset Protection Zone acts as a buffer zone between the development and the bushfire hazard. The primary purpose of the Asset Protection Zone is to ensure that a progressive reduction in bushfire fuels occurs between the bushfire hazard and all habitable structures within the development. The width of the Asset Protection Zone will vary depending upon the slope and vegetation type. The document ‘Planning for Bushfire Protection’ contains information concerning the design of Asset Protection Zones, standards of access, building design and siting criteria and water supply requirements. All dwellings within a rural landsharing community development are to comply with the requirements set out in this document.

16.11.2 Protection of prime crop and pasture land
Rural landsharing communities are not permitted where more than 25% of the holding consists of prime crop and pasture land.

No dwelling houses, expanded dwelling houses, solid waste disposal or waste collection points shall be permitted within any area of “prime crop and pasture land” as defined. These areas shall be reserved for agricultural and horticultural uses only. Sheds associated with these uses may be permitted on “prime crop and pasture” land if other appropriate sites are not available.

An agricultural suitability assessment including maps shall be provided where the holding comprises any “prime crop and pasture land”. Council will forward a copy of the development application and assessment to DPI for comment.

16.11.3 Fauna and flora management and environmental repair
No structure or work should be situated on land that is a wildlife refuge, wildlife corridor or wildlife management area nor should the management of the rural landsharing community adversely affect any area identified as a wildlife refuge, wildlife corridor or wildlife management area.

An Environmental Management Plan must be prepared which should include the following with respect to flora and fauna management and environmental repair:
- vegetation and wildlife habitat mapping, including identification of any potential koala habitat as defined under SEPP No 44,
- existing forest cover and type,
• existing and proposed agricultural land use,
• an assessment of priority areas for rehabilitation and reforestation,
• planting strategy and timeframe,
• location of planting areas
• proposed site preparation – clearing of competitive grasses and weeds
• species to be planted – having regard to rainfall, slope, soils, existing native vegetation with a preference to local species and diversity,
• water supply and plant irrigation,
• maintenance including fertilising, fencing to exclude animals, replacement of dead plants,
• control of noxious weeds,
• mapped scenic management zones.

Plans should show:
• existing native vegetation,
• wildlife corridors and vegetation connecting significant areas of native vegetation,
• watercourses,
• proposed planting locations,
• common agricultural areas.

Information concerning fauna management should include:
• list of native and exotic animal species known to exist,
• control of feral animals and
• control and management of domestic animals (especially dogs and cats)

16.11.4 Potential land use conflicts
To determine and avoid any potential land use conflicts the applicant shall consider adjoining agricultural uses and have undertaken an adjoining land owner survey. This information should be included in the statement of environmental effects and address issues such as:
• natural features (hills, vegetation, watercourses, etc),
• distances between the proposed development and adjoining land uses,
• competing water demands,
• noise,
• agricultural spray and chemical application,
• control of domestic animals,
• intensive agricultural land use (dairies, piggeries, horticulture, etc),
• quarries,
• fencing etc. and
• noxious weed and feral animal control.

Buffer areas are to be provided within the subject land in accordance with requirements of Chapter 12 - Buffer Areas.

16.11.5 Establishment of cemeteries
Approval of Council is required prior to the establishment of cemeteries and interments on private land. The following includes typical requirements:
• accurate details to an approved scale showing the precise location of the cemetery in relationship to permanent existing observable landmarks. Council reserves the right to require that the location of the cemetery be set out and verified by a registered surveyor.
• accurate details to an approved scale showing the layout of the cemetery including each grave site and proposed dimensions of same.
• the land on which the cemetery is to be located must not be located in a drinking or domestic water supply catchment area.
• any proposed community cemetery must be sited a minimum of 100 metres from the boundary of the land and any habitable buildings on the land.
• the boundaries of the cemetery must be permanently marked with posts, fencing or other approved method.
• the operation of the cemetery and the interment of deceased persons must be carried out in accordance with all statutory requirements.

16.12 Utility Services
Connection of telephone and electricity supply to rural landsharing community development is optional. Where connection to a service is proposed, written evidence from the relevant supply authority should be provided with the development application indicating availability of supply and the proposed location of the reticulation system.

16.13 Developer Contributions
The development of new rural landsharing communities creates an increase in demand for public facilities and services and a contribution for the upgrading of such facilities will be required under Section 94 of the Environmental Planning and Assessment Act 1979 as expressed in Council’s Section 94 Contribution Plans.

The type of public facilities and services referred to above may include:
• Rural road upgrading,
• Community and recreation facilities,
• Public open space,
• Bush fire fighting facilities and
• State emergency services.

A water supply headworks will be payable if the land is connected to a Council or Rous Water water supply.

Council’s Section 94 Rural Roads Plan indicates that occupants of dwellings on rural landsharing communities do not generate traffic at a rate equivalent to occupants of dwellings on other forms of closer rural settlement.

Contributions attributed to each dwelling will be payable at the time of submission of a Construction Certificate for that dwelling. Contribution rates are adjusted annually in line with the Consumer Price Index (CPI).

Council may give consideration to the dedication of land or ‘in kind’ works as partial or full satisfaction of the contribution required only if such works are identified in the applicable Section 94 Contribution Plan.

Updated: 20/8/08
Chapter 17

Acid Sulfate Soils
17 Acid Sulfate Soils

This Chapter applies to land identified as Classes 1, 2, 3, 4 and 5 in the sheets of the Acid Sulfate Soils Map marked - “Lismore City Council Acid Sulfate Soil Planning Map”

NOTE: Land-use tables contained within Lismore Local Environmental Plan 2000 still apply. Although development consent may not be required within the land-use tables, consent may be required for other purposes as provided by Clause 28A of the Lismore Local Environmental Plan 2000. Applicants should contact Council’s Planning and Development Group prior to commencing proposed works.

17.1 Objectives of this Chapter

1. To ensure effective management of areas affected by acid sulfate soils;

2. To provide guidance to landowners, consultants and the general community on the procedures involved in the management of areas affected by acid sulfate soils;

3. To ensure that activities located within an area of acid sulfate soils risk are identified;

4. To require a preliminary acid sulfate soil assessment be undertaken to clarify the extent of risk;
   - provide exceptions to the provisions for Council and County Councils for emergency works, routine maintenance and minor works;
   - to require, where necessary, an acid sulfate soil management plan to be prepared where the nature of development poses an acid sulfate soil risk.

17.2 Definitions

In this Chapter the following definitions apply:

“acid sulfate soils” means actual acid sulfate soils or potential acid sulfate soils.

“Acid Sulfate Soils Planning Map” means the series of sheets of the map prepared by the Department of Land and Water Conservation marked “Lismore Local Environmental Plan 2000 (Amendment No. 5) - Acid Sulfate Soil Planning Map” kept in the office of the Council;

“actual acid sulfate soils” are soils containing highly acidic soil horizons or layers resulting from the aeration of soil materials that are rich in iron sulfides, primarily sulfide. This oxidation produces hydrogen ions in excess of the sediment’s capacity to neutralise the acidity resulting in soils of pH of 4 or less when measured in dry season conditions.

“agricultural-related works” means any farming or land management activities which will materially alter the shape or natural form of the land or which may alter groundwater levels and includes any of the following:

- drainage works;
- construction and maintenance of open drains;
- excavation works;
- extractive industries and mines;
- construction of dams, stock water holes, aquaculture ponds and the like;
- site levelling;
- flood mitigation works, including construction of levees (artificial waterbodies);
- topsoil removal and turf farming;
- laying of pipes, cables, conduits, etc;
- dewatering of wetlands, dams, and the like

**NOTE:** Definition does not include ploughing, scarifying, tiling or deep ripping (less than 30cm) below natural ground level.

"council works" means such works as are owned or controlled by Council.

"county council" has the meaning as in the Local Government Act 1993.

"drain" means man-made depression, ditch or channel deeper than 30cm, used to convey water from one area to another.

"drainage management plan" means a document that contains a full description of the management procedures to be applied to a site regarding existing drains and proposed drains. The Drainage Management Plan must comply with the requirements of the Acid Sulfate Soils Manual.

"engineering works" means works carried out under the supervision of a suitably qualified engineer and using equipment or plant. Such works may include any of the following:

- construction of roads, bridges, buildings, levees, dams, railways, drains
- laying of pipes, cables or conduits
- levelling of the ground
- extractive industries and mines
- dewatering of the ground
- flood mitigation works
  or the like, and may include an agricultural-related work.

"emergency work" means the repair or replacement of any part of Council works or the works of a county council:

a) because it has been (or is being) damaged by a natural disaster, an accident, an act of vandalism or a like occurrence, or
b) because it has ceased to function or suddenly ceased to function adequately.

"Environment Protection Authority’s Guidelines" mean ‘Environmental Guidelines: Assessing and Managing Acid Sulfate Soils’, published by the New South Wales Environmental Protection Authority, as amended from time to time.

"existing drains" means a drain lawfully constructed prior to 26 August 1999 (being the date of exhibition of the Lismore Local Environmental Plan 2000 (Amendment No. 5).

"flood mitigation works" means structural measures intended to reduce flood damage by either reducing flood levels or the lateral extent of flooding and includes any of the following:

- levees
- flood mitigation drains
- retarding or detention basins
- bypass floodways
- flood gates on drains
- channel improvement.

"maintenance of existing drains" refers to any works that will disturb or remove soil within existing drains.
“minor work” means new work effected by Council or a county council, but not drainage work, which has a value not greater than twenty thousand dollars ($20,000).

“pH” refers to the scale of measurement for acidity or alkalinity. A pH of 7.0 denotes neutrality, higher values indicate increasing alkalinity, and lower values indicate increasing acidity.

“potential acid sulfate soils” are soils which contain iron sulfides or sulfidic material which have not been exposed to air and oxidised. The field pH of these soils in their undisturbed state is pH 4 or more and may be neutral or slightly alkaline.


“routine maintenance” means the periodic inspection, cleaning, repair and replacement of Council works or the works a county council, but does not include work that would result in an increase in the design capacity of any part of those works or necessitate the deepening of any existing works capacity, except where one (1) tonne, or less, of soil is disturbed.

“soil management plan” means a full description of the management procedures to be applied to a site. The Management Plan must comply with the requirements of the Acid Sulfate Soils Manual.

“the Plan” means the Lismore Local Environmental Plan 2000.

“works that may alter groundwater levels” means drainage works, ground water bores, wells, ground dewatering or the like on or adjacent to land containing acid sulfate soils which may lower the groundwater level in the general area.

17.3 Assessment

17.3.1 Local Environmental Plan - Acid Sulfate Soils Map

The Department of Natural resources has prepared, on behalf of Council, a series of sheets of the map marked “Lismore Acid Sulfate Soil Planning Map”. Clause 28A of Lismore Local Environmental Plan 2000 (clause inserted by Amendment No. 5), requires proponents to seek development consent for specific works in five principal land classes. The table below indicates where development consent will be required for each of the classes of land.

<table>
<thead>
<tr>
<th>Class</th>
<th>Development Control Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Any Works.</td>
</tr>
<tr>
<td>2</td>
<td>Works below the natural ground surface Works by which the watertable is likely to be lowered.</td>
</tr>
<tr>
<td>3</td>
<td>Works beyond 1 metre below natural ground surface Works by which the watertable is likely to be lowered beyond 1 metre below natural ground surface.</td>
</tr>
<tr>
<td>4</td>
<td>Works beyond 2 metres below natural ground surface Works by which the watertable is likely to be lowered beyond 2 metres below natural ground surface.</td>
</tr>
<tr>
<td>5</td>
<td>Works within 500 metres of adjacent Class 1, 2, 3 or 4 land which are likely to lower the watertable below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land.</td>
</tr>
</tbody>
</table>

In Table 1, “works” is defined in the Lismore Local Environmental Plan 2000 as:

a) any disturbance of more than one (1) tonne of soil, such as occurs in carrying out agriculture, agricultural-related works, the construction or maintenance of drains, engineering works,
b) any other works which may alter ground levels.

The onus is on the landowner, contractor and proponent proposing to undertake any works to check which class their land falls within and whether a Development Application is required under these or any other planning provisions. Land not classified on the Acid Sulfate Soils Planning Map may still require development consent in accordance with the land-use tables of the particular zone. Applicants are advised to check with Council’s planning staff prior to commencing works to determine whether a development application is required.

17.3.2 What types of Development Require Council’s Consent?

The following activities, works, development and the like are subject to the need to obtain development consent if the land falls within Classes 1 - 5 inclusive and the relevant criteria are met:

- agriculture
- agricultural-related works
- flood mitigation works
- foundations
- works that may alter groundwater levels
- construction or maintenance of existing drains
- building and structures
- construction of roads
- aquaculture ponds
- sand and gravel extraction
- dewatering of dams, wetlands, or quarries
- land forming works
- engineering works
- construction of artificial waterbodies (including canals, dams and detention basins)

17.3.3 Public Authorities

Generally, public authorities are exempt from requiring development consent for certain works under the provisions of Clause 35 of the Environmental Planning and Assessment Model Provisions 1980. Due to the environmental significance of Acid Sulfate Soils some of these provisions have been revoked, in Clause 28A(7) of the Lismore Local Environmental Plan 2000. Therefore, public authorities previously relying on items 2 and 11 of Schedule 1 to the 1980 Model Provisions will now require consent for earth works where that consent is required by Clause 28A of the Plan.

Notwithstanding Clause 28A(7), Clause 28A(8) of the Lismore Local Environmental Plan 2000 provides that the development may be carried out without the consent by Council or a County Council for the following works:

a) development consisting of emergency works;

b) development consisting of routine maintenance; and

c) development consisting of minor works,

and development ancillary to that development, such as the carrying out of excavation work, the construction of accessways and the provision of power supplies.

Despite these works not requiring consent under Part 4 of the Environmental Planning and Assessment Act 1979, such activities may require assessment under Part 5 of the Act. In addition, Clause 28A(10) of the Lismore Local Environmental Plan 2000 requires that where a Council or
County Council encounters acid sulfate soils the Council or the County Council shall properly deal with those soils in accordance with the *Acid Sulfate Soils Management Guidelines* so as to minimise the actual or potential impact to the environment arising from disturbance to the soils.

### 17.3.4 Development Application Procedures

Table 2 provides a flow-diagram outlining the general procedure landowners, applicants and proponents will need to follow when proposing to undertake certain works within lands classed 1 - 5 inclusive on the acid sulfate soils map.

During the preparation of a soil assessment or management plan, applicants are advised to liaise with the local offices of the relevant State Government Agency:

Applications accompanied by copies of correspondence from the above agencies, which provide comments on the Soil Assessment or Management Plan, will be determined by Council more expeditiously than those applications not providing this information. Applications not accompanied by relevant advice will be referred to the relevant Departments for comment prior to consideration by Council.

### 17.3.5 Soils Assessment and/or Soil Management Plan

Where it is proposed to carry out any works requiring development consent under Clause 28A of the Plan, the application must be lodged with a preliminary soils assessment and/or soil management plan.

A preliminary soils assessment **must** be prepared by a suitably qualified person. The assessment must include the matters outlined in the Acid Sulfate Soils Manual prepared by the NSW Acid Sulfate Soil Management Advisory Committee, August 1998. As illustrated in Table 2, all applicants have the opportunity to assume that a proposed development site contains Acid Sulfate Soil and bypass the need to undertake a preliminary soils assessment. However, this will still necessitate a soil management plan to be undertaken.

### 17.3.6 Joint Applications

Where a development involves, or may impact upon, a number of properties in the one locality, Council encourages the proponents to prepare and lodge a joint Development Application for the proposed works and ongoing management. Examples where joint Development Applications would prove advantageous would be where a development may involve maintenance of new and/or existing drains that traverses two or more properties or where proposed flood mitigation works may impact upon a specific area.
Table 2 - Development Application Process for Proposed Works within ASS and PASS

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>Is a DA required under Clause 28A of the Lismore LEP? Check Acid Sulfate Soils Planning Map, Clause 28A and this Chapter - identify class/es of subject land and determine if proposed works require a DA to be lodged</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Check whether DA consent is required elsewhere within the Plan or by other statutory provisions. Note Part 5 assessment may still be required</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEP 2</td>
</tr>
<tr>
<td></td>
<td>Check whether other aspects of the proposal require DA consent and prepare DA inclusive of any relevant information</td>
</tr>
<tr>
<td></td>
<td>Proceed with (1.) or (2.)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Undertake a preliminary soil assessment to Determine extent of ASS (Assessment to be undertaken in accordance with Clause 2.4 of this plan and the Acid Sulfate Soil Assessment Guidelines)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEP 3</td>
</tr>
<tr>
<td></td>
<td>Is ASS Present?</td>
</tr>
<tr>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>ASS or PASS are known to exist on the proposed site or for the purposes of the process it is assumed that PASS or ASS exist</td>
</tr>
<tr>
<td></td>
<td>Prepare ASS Management Plan for proposed works to be undertaken pursuant to Acid Sulfate Soil Manual</td>
</tr>
<tr>
<td></td>
<td>Lodge DA with Council together with the preliminary soil assessment and the ASS management plan (and any other documentation from STEP 2) for Council’s determination.</td>
</tr>
<tr>
<td></td>
<td>Lodge Preliminary Soil Assessment documentation with Council for exception to lodgement of DA</td>
</tr>
</tbody>
</table>

ASS = Acid Sulfate Soils
PASS = Potential Acid Sulfate Soils
17.3.7 Drainage Management Plans

Where a property contains a series of drains or works that would require development consent for each individual section, the owner is encouraged to submit a drainage management plan for the whole property. This plan would form part of the Development Application. Such a management plan would cover all the drains on that specific property, including their maintenance and rehabilitation details, as needed.

Council encourages this approach by landowners as it promotes better overall management and provides Council with a more complete overview of the location, ongoing maintenance and interaction of such drains.

A property owner who has prepared a drainage management plan may also enter into a joint application, however, the applicant should be aware that in the case of a joint development consent any amendment to the drainage management plan would require the written support of each landowner involved in the consent.

17.3.8 Determination by Council

In the case of a joint application or a drainage management plan Council will determine the application in accordance with the provisions of the Plan and this DCP. Where development consent is given, no further development application will be required for those works provided any ongoing maintenance and management is carried out in accordance with the terms and conditions of the consent. For example, if an approved drain is to be deepened, widened, extended, etc and the original consent did not allow for that work, then further development consent would be required. Likewise, if the applicant continued maintaining the drain in accordance with the consent, then no further application would be required.

An applicant working under a joint development consent or drainage management plan is encouraged to contact Council’s Development Directorate if there is any question as to the terms and conditions of consent. New owners of land should also contact Council’s Development Directorate regarding the terms and conditions of any development consent issued by Council and which apply to the property. When a property is bought or sold the consent stays with the property. The new owner must comply with the consent or where an amendment is sought, have support, in writing, of all the joint applicants.

17.3.9 Consultation

Proponents, applicants and developers are advised to consult with the following government agencies when preparing a soil assessments or soil management plan.

When considering a Development Application, Council shall consult with:

1. the relevant State Government Agency - where no management plan is submitted unless written advice from the relevant State Government Agency is submitted with the application; or
2. the relevant State Government Agencies - where a management plan is submitted.
3. the relevant State Government Agency- where the development specifically relates to agricultural purposes which involves enhancing and/or maintaining agricultural production.

The matters on which the Departments shall be consulted are the adequacy of the soil assessment and/or management plan, the conclusions of those assessments and in the case of the relevant agricultural department, its likely impact on the agricultural production.

Council shall give Government agencies 21 days to respond to the consultation. If no response is forthcoming within that period Council may proceed to finalise assessment of the application. It should be noted that major applications may take longer than 28 days for a response from
Government Agencies. Minor applications may, at Council’s discretion, be dealt with without consultation.

In deciding whether to grant consent to the application, Council shall take into consideration the likelihood of the development resulting in the oxidation of acid sulfate soils and the adequacy of any management plan having regard to any government department’s comments.
Bibliography


Chapter 18

Extractive Industries
18 Introduction

18.1 Objectives of this chapter

1. Ensure that extractive industries do not adversely impact on the environment and surrounding land uses;
2. Identify and protect mineral and extractive resources of significance and associated extractive industries;
3. Identify preferred haulage routes and desired road standards;
4. Ensure continued efficient, appropriate and responsible operation of extractive industries of regional and local significance;
5. Provide for adequate “buffer areas” around quarries and resources of significance, so as to prevent encroachment of inappropriate land uses such as residential and rural-residential development and to minimise land use conflicts;
6. Identify quarries which have been exhausted of resource, or are no longer required and encourage effective rehabilitation of these sites;
7. Outline requirements and information needed for obtaining development consent to establish new quarries and extend or intensify existing quarries;
8. Provide guidelines for preparation and implementation of management plans for operating and rehabilitating quarries, so as to minimise adverse environmental impacts.

18.2 Definitions

In this Chapter the following definitions apply:

“Buffer Area” means the area around an extractive industry which may be affected by quarrying activities eg noise, dust visual intrusion etc and which is created for the purposes of mitigating these impacts on adjoining land uses of a residential nature.

“Extractive Industry” means –
   a) the winning of extractive material; or
   b) an undertaking, not being a mine, which depends for its operations on the winning of extractive material from the land upon which it is carried on, and includes any washing, crushing, grinding, milling or separating into different sizes of that extractive material on that land.

“Extractive Material” means sand, gravel, clay, turf, soil, rock, stone or similar substances.

“Primary Haulage Route” means a road which carries in excess of 10,000m$^2$ of extractive material annually, as shown on Map No. 4.

“Secondary Haulage Route” means a road which carries between 2,000m$^3$ and 10,000m$^2$ of extractive material annually, as shown on Map No. 4.

18.3 Extractive Resources in Lismore

Extractive resources, and in particular mineral and construction resources, are of fundamental importance to the development of our community, particularly in areas of high growth such as the North Coast and Gold Coast regions. The potential pressures of this high population growth and development will result in an increasing need for road base etc, a large proportion of which is likely to go outside our area.

Mineral resources are defined as “all known or undiscovered earth derived materials and ores (including liquids and gases) used in industry, commerce or construction”. Such resources are usually classified into categories of Energy Commodities, Minerals and Construction Materials.
Minerals can be metallic (eg gold, zinc, tin) or non-metallic – industrial (eg brick clay, gemstones, decorative building stone). Their value lies in their chemical, physical or decorative nature. Construction materials are those earth derived materials used in construction (eg sand, aggregate, dimension stone) or earthworks (eg shale, gravel, coarse aggregate).

The exploration, discovery, assessment and viable economic extraction of a mineral resource basically hinges upon its potential commercial value at any particular time. The physical nature (ie bulk, mass, weight) and locational nature (access and distance to markets in relation to transport costs) of the mineral resource, the actual costs of extraction, as well as the existence and strength of the market, are factors determining the commercial value of a resource commodity.

A substantial component of the price of construction material is the cost of transporting the material from the site where it is extracted, to the site where it is used. Hence it is imperative to minimise the distance between the resource and end-user construction sites. Where resource sites are sterilised by the encroachment of inappropriate development, construction projects in that area will have to rely on resources from less accessible extraction sites, with a consequent increase in costs. Transport of resources over longer distances also increases road construction and maintenance costs, because of extra wear and tear on roads.

The identification and assessment of mineral and extractive resource is intimately tied in with the geology of the area. Geological survey is an ongoing process, managed in NSW by the relevant State Government Agency. It is beyond the scope of this chapter to describe in detail, the geology of the City of Lismore. The attached Map No. 1 depicts in broad summary form, the region’s geology and potential resources.

Production of extractive material varies considerably from year to year generally following highs and lows in the economy and the construction industry. The Lismore area on average, produces about 300,000 tonnes of extractive material per annum, the bulk of which comprises construction materials. In the busier years production has exceeded 400,000 tonnes per annum. The relevant State Government Agency estimates that average production levels will steadily increase by 1% to 5% per annum, over the next ten to fifteen years, as demand increases.

There are a number of quarry and resource sites in Lismore which are of regional significance and a further 30 or 40 sites which are of local significance, some of which may also become regionally important in the future. Map No. 2 shows the location of some 130 active and inactive quarry and resource sites which have been identified in Lismore. Map No. 3 identifies those sites which are of regional or local significance.

18.4 Extractive Industries – Haulage Routes

Efficient and safe movement of extractive material from the source of supply to the end user is of critical concern to the quarry operator, consumer, community and Council. The impact of quarry trucks on road surfaces (particularly when loaded), the safety of other road users and the amenity of residents living along haulage routes are of particular concern to Council.

Map No. 4 illustrates the main haulage routes to and from quarries in Lismore. Generally Council requires that primary haulage routes and routes servicing larger quarries (production greater than 10,000m³ pa) have a sealed road width of 6 metres. Where average daily traffic rates are less than 500 and quarry production is of an intermittent nature, a seal width of 5.5 metres for a haulage road to larger quarries would be acceptable. Where average traffic counts exceed 1,000 vehicles per day, a minimum road seal width of 6.5 metres should be provided along the haulage route.

In the case of secondary haulage routes and routes servicing smaller quarries (with annual production in the range of 5,000m³ to 10,000m³ per annum), Council requires a sealed road width of at least 3.6 metres, where average daily traffic counts are less than 150, increasing to a seal width of 5.5 metres where such traffic exceeds 500 vehicles per day. An unsealed gravel road formation may be acceptable to Council where quarry production is intermittent, and traffic counts are less than 150 vehicles per day, with few dwellings located along the haulage route.
The change in classification of a non-haulage road to become a secondary haulage road, or a secondary haulage road to become a primary haulage road can only be dealt with upon the receipt of a development application for either the establishment of, or the enlargement of, an existing extractive industry.

Classification of haulage routes may change if a large new quarry or major expansion of an existing quarry is proposed. A significant increase in haulage may, for example, require a secondary haulage route to be upgraded to a primary haulage route. The EIS or Statement of Environmental Effects accompanying a development application shall include an assessment of the need for, and impact of, additional secondary haulage routes or reclassification of secondary haulage routes to primary routes.

Development applications must specify the haulage routes to be utilised and the expected number of laden and unladen truck movements on each route. Where haulage routes do not meet Council’s road standard requirements, a development application may be refused, or a levy applied, either in a lump sum or by quarterly payment per tonne of production, to fund upgrading of the haulage road. The amount of the levy will be assessed in relation to the amount of quarry production and the extent of road upgrading works required.

All quarries will be levied a road maintenance levy to fund additional road maintenance costs associated with extra wear and tear created by quarry trucks on local roads. Road maintenance levies are payable quarterly and are calculated as a rate per tonne per kilometre of material extracted. The larger the tonnage and the longer the distance hauled on local roads, the greater is the amount that is payable to Council for road maintenance. Council may consider negotiating an “average levy” applying to material hauled from a quarry, based on the average distance that material is hauled.

Calculation of the levy is based on a percentage of the RTA Standard Truck Hire Rates multiplied by the tonnage and distance (calculation of road levies for quarries are identified within Council’s Section 94 Contribution Plan). As a guide, the current recommended maintenance levy charge is around 4.0 cents per tonne kilometre for a main road. A quarry producing 10,000 tonnes of material and hauling this material over a distance of 10 kilometres, would pay an annual road maintenance levy of $4,000 in four quarterly instalments, each of $1,000. Production figures may be described in cubic metres provided that the nature of the material is identified, so that a tonnage calculation may be made.

### 18.5 Buffer areas around Extractive Industry sites

Extractive industries involve the use of an extensive range of plant and equipment which creates noise, dust and even odour, as material is won from the quarry face and then crushed and screened for loading and transport. In some cases blasting is necessary to extract the material. Quarrying activities are incompatible with many land uses, particularly those of a residential nature. Even some farming activities may also experience problems, when located close to a quarry. It is therefore desirable to provide a buffer area around quarries to minimise land use conflicts.

In fast growing and intensively settled areas like Lismore, extractive industries and resources may be sterilised as a result of the encroachment of residential land uses. It is therefore desirable to identify significant quarries and resources and provide an appropriate buffer to prevent encroachment of residential and other land uses, which may sterilise a resource or lead to community pressures to restrain or cease production.

The extent of buffer required depends on the size of the quarry, whether blasting is utilised, nature of production methods, extent of crushing and screening operations, topography and site conditions and the intensity of surrounding development and land uses. A two level buffer standard has therefore been implemented, with a primary and a secondary buffer area established.

Urban/village-residential and rural-residential development is excluded from both the primary and secondary buffer area. Farmhouses on agricultural holdings may be permitted in the secondary
buffer area (but generally not in the primary buffer area), if no alternative suitable location is available. All other non-residential land uses are permitted in the secondary buffer area. As a general rule only bushland, rural industries, or agricultural and forestry uses and rural outbuildings will be permitted in the primary buffer area. The following table summarises the minimum radii of buffer areas required by Council around extractive industries and resources:

<table>
<thead>
<tr>
<th>Quarry Size</th>
<th>Primary Buffer Zone</th>
<th>Secondary Buffer Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Quarries</td>
<td>500 metres</td>
<td>800 metres</td>
</tr>
<tr>
<td>(10,000m³ pa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium Quarries</td>
<td>400 metres</td>
<td>600 metres</td>
</tr>
<tr>
<td>(5,000m³ – 10,000m³ pa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor Quarries</td>
<td>300 metres</td>
<td>400 metres</td>
</tr>
<tr>
<td>(&lt; 5,000m³ pa)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Buffer areas may be reduced where topographic, climatic, site conditions or production techniques are favourable to reducing distance separation. For example a quarry located within a confined and enclosed basin, or a quarry which operates only on an intermittent basis, may enable a reduction in the extent of the buffer. Very small quarries, essentially used only as borrow pits, and minor quarries with intermittent use may require a buffer of only one or two hundred metres. A section of buffer zone could be reduced where a hill or ridge separates the quarry from a potential development area, or where the quarry is downwind of the development area (i.e. less affected by noise and dust).

In some cases buffer zones may need to be increased where, for example, the topography is very flat or a development site is located upwind of a quarry. Where blasting is utilised at a quarry, a primary buffer zone of at least 800m – 1,000m is desirable. This buffer could be reduced to 400m – 500m, or even less, depending on blasting technique and where blasting is infrequent and/or only small “staggered” blasts are used.

Whilst buffer zones are not required along haulage routes, Council will encourage a maximum building setback to haulage roads, to reduce noise and dust nuisance. Residential and rural-residential development will generally not be approved along or near unsealed quarry haulage routes. Such development should even be discouraged along or near sealed haulage routes servicing major quarries (production in excess of 50,000m³ with 50 truck movements daily) unless an adequate buffer can be provided to the haulage road. Individual dwellings fronting unsealed haulage roads should be setback at least 50 to 60 metres from the road and be provided with a planting buffer to minimise dust nuisance.

18.6 Rehabilitation of Quarries

Extractive industries are acknowledged as ‘temporary’ land uses, and controls as imposed by conditions of consent indicate the life expectancy of a quarry. The imposed conditions require that at the end life of the quarry, appropriate rehabilitation measures are carried out within 12 months.

Quarries should be progressively rehabilitated by initially removing and storing topsoil for replacement onto worked out areas. These worked areas should be reshaped, stabilised, topsoiled and replanted to prevent erosion and sedimentation and enable the land to be returned to agricultural or other appropriate uses. Stock should not have access to areas being rehabilitated.

Exhausted and disused quarries must not be left in an unrestored state. Such quarries can result in land and water degradation because of increased incidence of erosion and sedimentation and they may become a danger to both humans and stock. Quarries that have ceased operation prior to this DCP coming into force and which did not have a requirement for rehabilitation, may apply to Council to permit removal of additional extractive material from a disused quarry to finance its
restoration. Owners of unrestored, disused quarries may also be eligible for specific Federal or Statement environmental grants to assist in the cost of rehabilitation.

Guidelines for the rehabilitation of quarries are included with the Rehabilitation Guidelines and Environmental Management Plans for Extractive Industries Section attached as Annexure 4. Further advice is obtainable from the relevant State Government Agency. Council has identified those exhausted or disused quarries which it believes warrant a high priority for rehabilitation. Locations of these quarries are shown on Map No. 5.

18.7 Obtaining Development Consent for Extractive Industries

All extractive industries without a current valid development approval from Council are required to obtain Council’s development consent for an increase in production or for any lateral extension of the area quarried. Existing unauthorised quarries and new extractive industries require submission and approval of a development application and environmental impact statement prior to any site works commencing, or production continuing in the case of unauthorised quarries.

Development consent may not be required where material is extracted for ‘on farm’ use on the property on which material is extracted (ie for purposes ancillary to the agricultural use of the land eg stockyards driveways etc). In this regard, should the farmer be of the opinion that the extractive activities are wholly ancillary to the agricultural pursuits of the land, then Council should be advised, in writing, that the extractive activities are for agricultural purposes only with material not removed from the farm and justification for this conclusion provided. Should Council be of the opinion that those extractive activities do not require development consent, the Council will supply written verification of that fact.

In the above situation, Council reserves the right to require the farmer to use and operate the extractive area in an environmentally sensitive manner, and implement such rehabilitation works as may be required by Council.

Annexure 2 – “Guidelines for Preparation of Development Application”, lists Council’s requirements for preparation and submission of a development application and Statement of Environmental Effects or EIS, where appropriate, for extractive industries. Even when an EIS is not required, a thorough assessment of potential environmental impacts must be made and details of protection measures included. Extractive industries if not properly designed and managed, can create erosion, degrade water quality, create noise and dust nuisance, damage roads, destroy habitat and leave a scar on the landscape.

Further guidelines on identifying and assessing the impact of proposed quarries are contained in the Department of Planning’s public “Extractive Industry – Environmental Impact Assessment Guidelines”.

18.8 Extractive Industry Management Plans

An extractive industry management plan is a document which describes how extractive activities are to be carried out, machinery, processes and methods to be utilised, staging of quarrying and rehabilitation, transport of materials, site management, and measures by which adverse environmental impacts are to be minimised.

Council, as a condition of development approval for all extractive industries, requires the developer to prepare a management plan for the continuing operation and rehabilitation of the extractive industry and site. This management plan must be consistent with the EIS or Statement of Environmental Effects and development consent, and must be approved by Council prior to any site works commencing.

The management plan should be prepared in consultation with Council and relevant government agencies. Council will require submission of a rehabilitation bond (as a bank guarantee) as part of the approval of the Management Plan. Management Plans shall also provide for periodic site
inspection (every one to five years depending on quarry size) by Council Officers, to ensure compliance with the management plan. Council’s requirements for the form and content and preparation of management plans are summarised in Annexure 4.
State Environmental Planning Policy
(Exempt and Complying Development Codes) 2008
(the Codes SEPP)

The NSW State Government has introduced State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP), which was gazetted on 12 December 2008, and commenced operation on 27 February 2009.

The SEPP applies to the whole State.

The Codes SEPP specifies certain development under that Policy as being 'exempt' from the need to obtain development consent. It also specifies certain types of housing development as complying development.

Under the arrangements in the Codes SEPP:

- if the same development type is specified as exempt development in the General Exempt Development Code and in the council’s existing LEP or DCP, then the Codes SEPP prevails and the development must be carried out in accordance with the General Exempt Development Code

- if the General Housing Code specifies a development type as complying and the council’s LEP or DCP nominates it as complying, applicants can, until 27 February 2010, choose to use whichever provisions they prefer as the basis on which to prepare an application for a complying development certificate;

- if the General Exempt Development Code specifies a development type as exempt and the Council’s LEP or DCP nominates it as complying, applicants can, until 27 February 2010, choose to use whichever provisions they prefer as the basis for being considered and to carry out their development as exempt development;

- if the same development type is specified as complying development in the General Housing Code and as exempt development in the council’s LEP or DCP, then the provisions of the Codes SEPP prevails and the development must be carried out as complying development in accordance with the Codes SEPP;

- if a LEP or a DCP nominates a development type as exempt or complying and the Codes SEPP does not deal with that development type, then the Council’s current provisions prevail.

During the transition period between commencement of the Codes SEPP and 27 February 2010, applicants will be required to nominate on their application for a complying development certificate which planning controls they will be relying on.

In circumstances where a complying development type is nominated in a council’s LEP or DCP but is not covered by the Codes SEPP then the LEP or DCP provisions will continue to apply after 27 February 2010 until those development types are covered by future amendments to the Codes SEPP.

A copy of the Codes SEPP is available at: www.planning.nsw.gov.au/housingcode

Further information on the General Housing Code is available at: www.planning.nsw.gov.au/housingcode
19 **Exempt Development**

19.1 **Objectives of this Chapter**

1. To provide criteria under which certain identified development, that has a minimal impact on the environment, may be carried out without the prior consent of Council, in compliance with the Environmental Planning and Assessment Act 1979.

2. To encourage a high standard of design, both functional and aesthetic, which takes due regard of the needs of occupants, neighbours and the availability of local amenities.

3. To encourage development that is sympathetic to the topography of the land and the scale and character of the surrounding development.

4. To ensure that the development identified as exempt development has a minimal impact on the environment.

19.2 **How to Use this Chapter**

The Schedule to this Chapter contains seventy-nine (79) types of development that can be considered for exempt development under the Lismore Environmental Plan. A person wishing to carry out development of a type nominated in the Schedule to this Chapter will be considered to have complied with the provisions of this Plan if it satisfies all the criteria listed for each development type.

19.3 **Definitions**

In this Chapter the following definitions apply:

“agriculture” means horticulture, the cultivation of land, including crop raising, forestry, stock raising and the use of land for any purpose of animal husbandry, including the keeping or breeding of livestock, poultry, or bees, and the growing of fruit, vegetables and the like. But does not include animal establishments.

“dwelling” means a room or number of rooms occupied, or used, or so constructed or adapted so as to be capable of being occupied or used as a separate domicile.

“dwelling house” means a single building containing one dwelling, not attached to another dwelling.

“flood liable” means land that is subject to flooding by a one in one hundred year flood event.

“height” means the distance measured vertically from any point on the ceiling of the top most floor of the building to the ground level immediately below that point. Where there is a cathedral ceiling height is measured to the top plate.

“stockyards” means cattle yards erected for the purpose of temporarily confining cattle for transportation, treatment, branding or similar handling”.

“sufficient written notice” to Council, required for a change of use, must be given by the owner of the building, or the occupier of the building with the consent of the owner and contain a statement that it is so given by that owner. The notice must also contain a description of the building sufficient to identify the building and a statement of the particular purpose for which the building will be used after the notice has been given, and must be accompanied by the appropriate fee.
19.4 Limitations

The proposed development:

- is permissible under any environmental planning instrument that applies to the land.
- is not in an area identified in an environmental planning instrument applying to the land, as land that is a critical habitat, is, or is part of a wilderness area (vide Wilderness Act 1987), subject to subsidence slip, erosion or acid sulphate soils.
- complies with any relevant conditions of development consent previously issued on the land,
- has the relevant approval for water and sewer services, including the disposal of trade wastes and the on-site disposal of human wastes,
- complies with the provisions listed in the Development Standards for Exempt Development and the attached schedule.

Development Standards for Exempt Development

Exempt development must be carried out in accordance with the following, where relevant to the particular development.

Building code

1. All building work must be carried out in accordance with the provisions of the Building Code of Australia’s deemed to comply provisions.

Site Control

2. Prior to any site works:
   a) Run-off and erosion controls are to be installed, to prevent soil erosion, water pollution or the discharge of loose sediment onto surrounding land by:
      i. diverting uncontaminated run-off around cleared or disturbed areas,
      ii. erect a silt fence to prevent debris escaping into drainage systems or waterways,
      iii. prevent tracking of soil by vehicle onto roads,
      iv. stockpile topsoil, excavated material, construction and landscaping supplies and debris within the silt fence.

   During building work any necessary measures must be taken to ensure the amenity of the neighbourhood, by employing measures to reduce the creation of dust and offensive odours.

Retaining walls

3. If soil conditions require it:
   a) retaining walls, or other approved methods of soil retention, must be provided in association with the erection or demolition of a building, and
   b) adequate provision must be made for drainage.

Location of building

4. a) The proposed building is a minimum of 1.5 metres clear of any sewer main or stormwater drainage line, or the equivalent of the invert depth of the pipe, whichever is the greater.
   b) Any building, and associated earthworks on the site, is to be clear of all easements and sewer mains.

Hours of work

5. Any building work which has the potential to generate offensive noise, dust or odours, or which may have an impact on the amenity of the area, must be carried out between 7.00
a.m. and 6.00 p.m., Monday to Friday and 8.00 a.m. to 5.00 p.m. Saturdays, excluding public holidays.

Note: i. This provision does not exempt a person from compliance with the POEO Act.
   ii. Compliance with this clause does not absolve persons from the need to comply with any of the relevant pollution control legislation.

Compliance
6. The works comply with the manufacturer’s instructions, where applicable, and any relevant Australian Standards.

New materials
7. The building is constructed of new materials.

Trees
8. The development does not require the removal of any tree, as defined under Chapter 14 – Tree Preservation Order.

Site coverage
9. Including the proposed development and all existing development on the site; any limit provided in an Environmental Planning Instrument, Act or Regulation applying to the land is not exceeded.

Boundary setback
10. The development is located wholly within the subject allotment boundaries, except in the case of side and rear fencing.

Sum of existing exemptions and prior exemptions
11. The development does not involve an addition to a structure erected under this plan or the previous Local Approvals Policy of Council; which results in an increase in total height or area, over an above the stated exemption criteria in this plan.
## SCHEDULE - EXEMPT DEVELOPMENT PROVISIONS

<table>
<thead>
<tr>
<th>TYPE OF ACTIVITY</th>
<th>EXEMPTION CIRCUMSTANCES REQUIREMENTS</th>
<th>ADVISORY NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACCESS RAMPS FOR THE DISABLED</strong>&lt;br&gt;Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan.</td>
<td>Siting: Not to be erected between a building and Public Road&lt;br&gt;Construction: To be erected in accordance with AS 1428.1 ‘General requirements for access - Buildings’. Maximum grade 1:14 Maximum height 1.5m</td>
<td></td>
</tr>
<tr>
<td><strong>AIR CONDITIONING UNITS FOR DWELLINGS</strong> - Including any noise attenuation structures&lt;br&gt;Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan.</td>
<td>Siting: Located a minimum of 4m from any wall of a residential building on an adjoining lot. Attached to an external wall or ground mounted&lt;br&gt;Construction: Building work must not reduce the structural integrity of the building. Any opening created is to be adequately weatherproofed.</td>
<td>The air conditioner shall not give rise to an &quot;offensive noise&quot; under the Protection of Environment Operations Act 1997.</td>
</tr>
<tr>
<td><strong>ALTERATION of a building or work.</strong>&lt;br&gt;Excluding development of a heritage item, or in a conservation area or historical archaeological area or scenic protection area</td>
<td>Changes to the internal fabric or appearance of a building or work, whether or not involving structural alterations; or&lt;br&gt;Changes to the external fabric or appearance of the building or work that involve repair or renovation, or painting, plastering or other decoration.</td>
<td></td>
</tr>
<tr>
<td><strong>ANCILLARY OR INCIDENTAL DEVELOPMENT to a purpose for which land may be used.</strong>&lt;br&gt;Excluding development of a heritage item, or in a conservation area or historical archaeological area or scenic protection area.&lt;br&gt;Excluding land used for entrance, exit, parking, loading or manoeuvring of vehicles, or landscaping if development would prevent or restrict the use of that part of the land</td>
<td>Parking, loading facilities, drainage, workers' amenities, pollution control, security or other similar purpose;</td>
<td></td>
</tr>
<tr>
<td><strong>ANTI-BIRD AND FRUIT BAT NETTING</strong> - To orchards within properties zoned Rural under a Lismore Environmental Planning Instrument.</td>
<td>Siting: Wholly within the property boundaries. Located clear of any registered easements.</td>
<td></td>
</tr>
<tr>
<td>AUTOMATIC TELLER MACHINES (ATM).</td>
<td>Installation: Wholly within a Shopping Centre Development or a Shopping Arcade. The installation must not reduce a fire egress width or impede pedestrian or vehicle movement within the Shopping Centre. Adequate litter receptacles are to be provided immediately adjacent the machine and a cleaning program is to be instituted. The installation must not alter the effectiveness of any fire safety measure. Defined queuing area be marked on the paving or delineated by other means.</td>
<td></td>
</tr>
<tr>
<td>AVIARY- Other than poultry houses and pigeon coops - Excluding commercial purposes.</td>
<td>Size: Maximum 10m² x 2.1m high. Construction: To be constructed from low-reflective materials. Siting: Not to be erected between a dwelling and a frontage to a public road. A minimum of 900mm from any boundary. Located a minimum of 1.5m clear of a sewer main, or the equivalent of the depth of the sewer main, whichever is the greater.</td>
<td></td>
</tr>
<tr>
<td>AWNINGS AND CANOPIES TO DWELLINGS</td>
<td>Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Local Environmental Plan. Size: Maximum area 10m². Siting: Located wholly within property boundaries. A minimum of 900mm from any boundary. Construction: Compatible in design with the existing dwelling. Not to be enclosed. Located behind the building line setback from any road boundary.</td>
<td></td>
</tr>
<tr>
<td>BARBECUE AREAS AND ENTERTAINMENT AREAS associated with dwellings</td>
<td>Size: Maximum of 10m² and 2.4m high Siting: Not to be erected between a dwelling and a frontage to a public road. A minimum of 900mm from the side or rear boundary. Located a minimum of 1.5m clear of a sewer main, or the equivalent of the depth of the sewer main, whichever is the greater. Not to encroach onto any easement.</td>
<td></td>
</tr>
<tr>
<td>BUILDING SITE SHEDS, OFFICES AND AMENITIES (For use in conjunction with a current Development Consent).</td>
<td>Siting: Erected wholly within the boundaries of the allotment. Period: To be removed immediately after completion of the development and prior to occupation or use.</td>
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</tr>
</tbody>
</table>

The possible noise arising from an aviary should be considered when locating the building in respect of adjoining dwellings.

Aviaries to be constructed to minimise vermin and odour problems and to ensure the roof and floor drainage do not cause a nuisance to adjoining dwellings.

All birds to be kept in accordance with Council’s Orders Policy - ‘Keeping of Animals’
**Structure:** Supported on suitable substructure and tied down to suitable ground anchors or footing pads. To be constructed so that the buildings can be removed from the site within 24 hours notice.

**Plumbing and Drainage:** All sanitary drainage fixtures are to be connected to Council's service mains, where available, at a point of connection provided by Council. Where no sewer connection is available, an on-site storage toilet is to be provided and the wastes disposed of into a reticulated sewer system. All work is to be carried out in accordance with the requirements of the NSW Plumbing and Drainage Code, by a licensed plumber and drainer. There is to be no unauthorised alteration or cutting in to Council's mains.

**Electrical:** Any electrical connection is to be in accordance with the requirements of the Electrical Supply Authority.

**BUSH FIRE HAZARD REDUCTION - Within properties zoned other than 7(a) and 7(b) under a Lismore Environmental Planning Instrument.**

The work must be:
- Authorised under the Rural Fires Act 1997, or the State Emergency and Rescue management Act 1989, in relation to an emergency within the latter Act.
- Carried out by an owner or occupier of a lawful dwelling, of vegetation likely to present a significant fire hazard within a “fuel free zone” calculated in accordance with the publication “Planning for Bushfire Protection” published by the NSW Rural Fire Services.

**BUSHFIRE HAZARD REDUCTION - Within properties zoned 7(a) Environmental Protection (Natural Vegetation and Wetlands) and 7(b) Environmental Protection (Habitat) Zone under a Lismore Environmental Planning Instrument.**

Work must be authorised under the Rural Fires Act 1997, or the State Emergency and Rescue Management Act 1989, in relation to an emergency within the latter Act.

**BUS SHELTERS**

**Construction:** Must be constructed by or for Council. Must reflect the character and amenity of the area. Must be structurally adequate. Low reflective surface finishes. No advertising to be displayed.

**Size:** A maximum height of 2.7m above footpath level. Maximum area of 10m².

**Siting:** Not to obstruct the line of sight of vehicular traffic.
| CARPORT AND EXTENSIONS TO CARPORTS associated with dwellings | Size: Maximum 25m² and maximum 2.4m high.  
Construction: Roof sheeting to be other than zinalume and to be non-reflective. Finish to be compatible with the dwelling. Not to be enclosed.  
Siting: Minimum of 900mm from side or rear boundary. Not to be erected between a dwelling and a Public Road. Located a minimum of 1.5m clear of a sewer main or the equivalent depth of the sewer main, whichever is the greater.  
Drainage: Stormwater to be conducted to the street drainage system or a drainage easement. |
<table>
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</thead>
<tbody>
<tr>
<td>Excluding Items of Environmental Heritage and Heritage Conservation Areas as Identified in Schedules 1 and 2 of the Lismore Environmental Planning Instrument</td>
<td></td>
</tr>
</tbody>
</table>
| CLOTHES HOIST AND LINES | Siting: To be erected within the boundaries of the allotment. Not to be erected between a building and a frontage to a public road.  
Construction: Installed to manufacturer's specifications. |
| COMMUNITY OR CULTURAL CENTRE, SOCIAL OR SPORTING CLUB | Where a building is lawfully used, or has been lawfully constructed to be used, for the purposes of a social or sporting club, or a community or cultural centre, the building may be used for any other of those purposes upon sufficient written notice being given to the Council.  
Consent conditions imposed on the previous use of the building and relating to the maintenance of landscaping, the parking of vehicles or space for loading and unloading of vehicles, will apply to the new use. |
| Excluding a club registered under the Registered Clubs Act, 1976 |  |
| CUBBY HOUSES AND PLAYGROUND EQUIPMENT - At ground level - for domestic use. | Size: Maximum height 2.1m. Maximum area 10m².  
The playground equipment should comply with AS 1924 -- 'Playground equipment for parks, schools and domestic use - Design and construction - Safety aspects'. |
| DECKS AND PATIOS TO DWELLINGS - (Not roofed and attached to dwellings). | Size: Maximum 20m². Finished floor level no higher than 500mm above existing ground level, at any point.  
Construction: To be compatible in design, finish and colour with the existing building.  
Siting: Not to be erected between a dwelling and frontage to a public road. A minimum of 900mm from any rear or side boundary. The structure is to be located clear of any sewer main or stormwater main, by a minimum distance of 1.5m, or the equivalent of the invert depth of the main, whichever is the greater. Not to encroach onto any registered easement.  
Roofing of decks and patios requires Council approval.  
Timber should be treated or of a durability Class 1 or 2. |
<p>| DEMOLITION | Approval is not required where Council has consented to demolition as a condition of subdivision or development consent, or an order to demolish has been issued by Council under Section 121 of the Environmental Planning and Assessment Act 1979. Approval is not required for demolition of any building (other than a retaining wall) in a category under this DCP for which approval to erect that building would not be necessary (whether erected before or after this DCP took effect). Demolition to be carried out to AS 2601 - 1991 “Demolition Code”. | Care should be taken in work involving the removal of lead paint to avoid lead contamination of the air and soil. The Workcover “Guidelines for Practices Involving Asbestos Cement” should be referred to for any work involving asbestos cement. Disposal of asbestos at Council Wyallah Road Refuse Disposal Facility to be in consultation with Council’s Waste Supervisor. The disconnection of water and sewer services to the lot to be carried out to the requirements of Council’s Water and Wastewater Department. |
| Excluding Items of Environmental Heritage and Heritage Conservation Areas identified in Schedule 1 and 2 of the Lismore Local Environmental Plan 1992. Excluding Category 1 buildings and sites under SEPP N° 55. | |
| DOMESTIC OIL OR SOLID FUEL HEATING APPLIANCES. | Installation: To be in accordance with AS 1691 Domestic oil-fired appliances, or AS 2918 Domestic solid fuel burning appliances, or AS 1200 Boiler and pressure vessels. The installation is also to be in accordance with the manufacturer’s recommendations and Volume 2 of the Building Code of Australia. A separate approval may be required from Council under the Local Government Act 1993 for a place of public entertainment. | |
| EXCAVATION OF LAND - Within a Zone N° 2(a), 2(f) and 2(v) under a Lismore Environmental Planning Instrument. In conjunction with an existing development consent, excluding subdivisions. Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan. | Construction: Maximum of one metre deep. Excavations must not be closer to an allotment boundary and any building on the subject lot, than the depth of the excavation. Erosion protection must be maintained until the excavation is stabilised and/or revegetated. The excavation must not occur over easements or sewer mains. Drainage: The flow of surface water must not be obstructed or diverted onto adjoining properties. | Retaining walls greater than 600 mm high require development consent. |
| EXTERNAL EQUIPMENT SHELTER and Ancillary Works. For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. Within land zoned Residential 2(a), 2(f), 2(v) under a Lismore Environmental Planning Instrument. | Size: Maximum 2.1m. high Maximum base area of 7.5m². Construction: Colour to match the background or to be of a colour agreed to in writing between the carrier and Council. Construction: Complies with the Australian Communications Authority recognised regulatory standards. | The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes, must not exceed the maximum emission criteria for a site. |</p>
<table>
<thead>
<tr>
<th>EXTERNAL EQUIPMENT SHELTER and Ancillary Works. For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. Within land zoned Industrial 4, Rural 1(a), 1(b), Business 3(a), 3(b), 3(f), or Special Use 5 under a Lismore Environmental Planning Instrument</th>
<th>Size: Maximum 3m. high Maximum base area of 7.5m² Construction: Colour to match the background or to be of a colour agreed to in writing between the carrier and Council. Construction: Complies with relevant Australian Standard</th>
<th>The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes, must not exceed the maximum emission criteria for a site.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FARM SHEDS AND ADDITIONS TO FARM SHEDS - Within a Rural 1(a), 1(b), 1(d) or 1(r) zone under a Lismore Environmental Planning Instrument.</td>
<td>Size: Maximum 60m² in area. Height: Maximum of 3.6m to top of columns. Siting: A minimum of 10 metres from any boundary. Not to be sited on or near any ridgeline visible from any public road. Not to be erected within the building line setback. Located clear of any registered easement. Construction: To be designed and constructed to withstand wind loadings likely to be imposed on the structure. The building to be founded on original ground, clear of any slip area, fill or unstable ground. Wall and roof sheeting are not to be zincalume and are to be compatible with the landscape Use: The building is only to be used to store or repair agricultural machinery or equipment and the garaging of private motor vehicles used in conjunction with the particular land, or to store agricultural produce grown or used on the particular land. The building must be used as a rural outbuilding only, ancillary to the agricultural use of the land and must not be used for residential, commercial or industrial purposes without the prior consent of Council. A toilet, shower or sink is not to be installed.</td>
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</tr>
<tr>
<td>FENCES -Within a Zone 2(a), 2(r), and 2(v) under a Lismore Environmental Plan. Other than those fences covered by the Swimming Pools Act 1998.</td>
<td>Fronting a Public Road &amp; Within the Building Line Setback: Maximum height 1m. Located within the property boundaries. Adjoining a Public Reserve: Maximum height 1.5m. Located within the property boundaries. Between Adjoining Properties: Maximum height 1.8m.</td>
<td>These requirements do not set aside the provisions of the Dividing Fences Act 1991. You are advised to talk to your neighbours at an early stage and to consult a copy of the Act. The location of sewer mains.</td>
</tr>
</tbody>
</table>
| **Excluding Items of Environmental Heritage and Heritage Conservation Areas identified in Schedule 1 and 2 of the Lismore Local Environmental Plan 1992** | Located on the boundary between allotments.  
**Construction:**  
The natural flow of surface water is not to be obstructed.  
Constructed of lightweight materials.  
No second hand materials.  
Electric or barb wire fences excluded.  
Drainage lines and services, such as water, telephone and electricity should be ascertained to ensure that there is no damage to these facilities during construction.  
Masonry fences over 600mm high require Council approval. |  |
| **FENCES** - Within a Zone 1(a), 1(b), 1(c), 1(d), 1(f), and 1(r) under a Lismore Environmental Plan.  
Other than those fences covered by the Swimming Pools Act 1998. | **Construction:** Post and rail fencing and wire strand fencing to 1500mm high. |  |
| **FERN HOUSES** See Garden Sheds |  |  |
| **FILLING OF LAND** - Within a Zone No 2(a), or 2(v) under a Lismore Environmental Planning Instrument  
Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan. | Size: Maximum depth of 300 mm.  
**Siting:** The fill to be no closer to a property boundary than the depth of the fill.  
Filling must not occur over easements or sewer mains.  
**Drainage:** Surface water must not be directed onto adjoining property, or the flow of surface water obstructed.  
Erosion protection must be maintained until the fill is stabilised and/or revegetated.  
**Fill material:** Filling to be clean soil and not to contain any waste materials or putrescible matter.  
Retaining walls greater than 600 mm high require development consent. |  |
| **FISH PONDS** See Wading Pools |  |  |
| **FLAG POLES** | Size: Maximum height 6m above ground level.  
**Siting:** Clear of power lines in accordance with Energy Authority guidelines.  
The structure is to be clear of services, such as power, water, telephone and drainage lines.  
**Construction:** To be designed and constructed to withstand wind loads imposed on the structure.  
Free standing.  
If flag poles are to project over a public road they must:  
a) Be 3.6m clear over the footpath level.  
b) Not project over the carriageway of the road.  
c) Not interfere with any public services.  
Etiquette relating to flags should be observed.  
Metal poles have a potential noise risk and attenuation measures may be required. |  |
| **FOWL PENS** - Within a Residential 2(a), Village 2(v) and Rural Residential 1(c) zone under a Lismore Environmental Planning Instrument.  
In conjunction with an existing approved residential use of land.  
Excluding Heritage Items | Size: Maximum 10m$^2$ roost area.  
Maximum 2.1m high.  
**Siting:** Wholly within the allotment boundaries.  
Not to be erected between a dwelling and a frontage to a Public Road.  
A minimum of 10 metres from any dwelling, public hall, school or premises used for the manufacture, preparation, sale or storage of food.  
Drainage from fowl pens should not be directed towards neighbouring property and should not cause a nuisance.  
Fowl pens require regular cleaning to reduce odour nuisances.  
Poultry yards must be enclosed to prevent the |
| and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan. | **Construction:** Concrete or paved area to be provided beneath roost.  
**Capacity:** A maximum of ten birds is permitted. | escape of poultry onto adjoining land.  
The keeping of roosters is not considered appropriate in residential areas.  
Poultry to be kept in accordance with Council’s Orders Policy - ‘Keeping of Animals’. |
|---|---|---|
| FOWL PENS - Non commercial use -Within a Rural 1(a), 1(b), 1(d), 1(c) or 1(r) zone and an Environmental Protection zone 7(a) or 7(b) under a Lismore Environmental Planning Instrument. | All cases. | To be selectively located so as not to cause any nuisance to adjoining properties as a result of stormwater runoff or visual intrusion.  
Poultry to be kept in accordance with Council’s Orders Policy - ‘Keeping of Animals’. |
| FUEL STORAGE - Within a Rural 1(a), 1(b), 1(d), 1(r) or an Industrial 4(a) zone under a Lismore Environmental Planning Instrument. | **Size:** Maximum 2500 litres.  
**Construction:** Above ground.  
**Siting:** Not to be erected between a building and the front boundary. | Siting and construction to be in accordance with AS 1940 - “The storage and handling of flammable and combustible liquids”. |
| GARDEN SHEDS -GREEN HOUSES -Excluding commercial or industrial use.  
Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan. | **Size:** Maximum floor area 10m$^2$.  
Maximum height 2.4m.  
**Siting:** Not to be erected between a dwelling and a public road.  
The structure to be located clear of any sewer main, by a minimum of 1.5m or the equivalent of the invert depth of the main, whichever is the greater. | To be selectively located so as not to cause any nuisance to adjoining properties as a result of odour, noise or drainage runoff or visual intrusion. |
| GAS STORAGE TANKS Within a Rural 1(a), 1(b), 1(d), 1(c) or 1(r) zone and an Industrial zone 4(a) or 7(b) under a Lismore Environmental Planning Instrument. | **Size:** Maximum 1000 litres  
**Siting:** Not to be erected between a building and the front boundary. | Installation to comply with AS 1596-1989“LP Gas - Storage and Handling”. |
| GAZEBO  
Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan. | **Size:** Maximum 10m$^2$ x 3m high.  
**Siting:** Not to be erected between a dwelling and a frontage to a public road.  
The structure to be located clear of any sewer main, by a minimum of 1.5m or the equivalent of the invert depth of the main, whichever is the greater.  
Not to encroach over any registered easement. | |
| **GOAL POSTS and similar ancillary sporting structures on sporting fields. Excluding grandstands, amenities dressing sheds, kiosks, lighting poles and similar structures.** | **Siting:** Location on sporting or playing fields for use in the playing or performance of sporting events.  
**Construction:** Construction by or for Council or sporting organisations. Construction to be in accordance with the relevant SAA standards and/or the Building Code of Australia. | Where the building to be erected or demolished is situated a distance of twice the height of the structure from any boundary or public place. A non-solid barrier may be provided, subject to appropriate signage being provided and provision made to minimise dust escaping from the site. |
| --- | --- | --- |
| **HOARDINGS** | **Siting:** Not to encroach onto a public footway, road or thoroughfare. The minimum distance between the structure to be demolished or erected and a boundary with a public place, is to be a minimum of the height of the structure. With a maximum height of the building being erected or demolished, of 8 metres.  
**Construction:** Any hoarding must comply with any Workcover Authority requirements. Any necessary measures must be made to protect the health and safety of the general public. A hoarding is to be constructed of solid materials to a minimum height of 1.8m above the level of the footpath, road or thoroughfare. The hoarding is to be structurally adequate. Appropriate signage is to be provided in accordance with AS 1319 ‘Safety Signs for the Occupational Environment’. | |
| **HOME OCCUPATION** | Compliance with the ‘home occupation’ definition under a Lismore Environmental Planning Instrument | |
| **INDUSTRY AND LIGHT INDUSTRY**  
Excluding light industry requiring more than 500m² floor space.  
Excluding a building which does not have rear service access or access to off-street loading facilities. | Where a building has been used, or has been lawfully constructed to be used, for the purpose of an industry other than a light industry, the building may be used for the purposes of a light industry upon sufficient written notice being given to the Council.  
Where a building has been used, or has been lawfully constructed to be used, for the purpose of a light industry of a particular kind, the building may be used for the purposes of another kind of light industry upon sufficient written notice being given to the Council.  
The curtilage of the building shall not be used for storage or display purposes. The hours of operation shall not extend outside the hours of the previous industry or extend outside the hours between 6 am and 6 pm. Consent conditions imposed on the previous industry relating to the maintenance of landscaping, the parking of vehicles or space for loading and unloading of vehicles, will apply to the new light industry. | |
**INTERNAL RENOVATIONS**  
- Minor alterations to dwellings.

Applies only to alterations or renovations to previously approved and completed dwellings.

Non-structural work, such as:
- replacement of doors; wall, ceiling or floor linings; or deteriorated frame members with equivalent or improved quality materials.
- renovation of bathroom, kitchen or built-in fixtures, such as cupboards and wardrobes.
- Work is not to include structural changes to the configuration of any room, whether by the removal of existing walls, partition or by other means.
- Work is not to cause reduced window arrangements for light and ventilation needs, reduced doorway widths for egress purposes or involve the enclosure of open spaces.

There is to be no alteration to plumbing and drainage except for minor relocation of fixtures and fittings. Any alteration to plumbing and drainage is to be carried out by a licensed plumber and drainer.

The alteration should not affect the structural strength and stability of the building. You are advised to consult a structural engineer, architect or building surveyor before commencing the alterations; to ensure the work will comply with the Building Code of Australia.

Any work involving asbestos cement should comply with the Workcover guidelines. The disposal of asbestos cement is to be done in consultation with Council’s Waste Supervisor.

Any work involving lead paint removal must not cause lead contamination of the air or soil.

The work must not create separate occupancies of an existing single dwelling.

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<table>
<thead>
<tr>
<th><strong>LATTICE OR BATTEN ENCLOSURE</strong></th>
<th><strong>Sitting:</strong></th>
<th><strong>The gap between battens or lattice must be a minimum of 25mm.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Existing approved verandah, sub-floor area, deck, pergola, patio, carport or the like.</td>
<td>A minimum of 900mm from the allotment boundary.</td>
<td></td>
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<tr>
<td>Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan.</td>
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<thead>
<tr>
<th><strong>LETTER BOXES</strong></th>
<th><strong>Sitting:</strong></th>
<th><strong>Australia Post advises that letterboxes should be accessible so that the delivery officer does not have to leave the footpath or dismount from a bicycle or motorcycle. The delivery aperture should be between 900-1200mm above the ground. The street number should be displayed on the letterbox.</strong></th>
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<tbody>
<tr>
<td>- The structure must not be erected over any service main.</td>
<td>To be erected within the allotment boundaries.</td>
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<tr>
<td><strong>Multi-Dwelling Sites.</strong></td>
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<tr>
<td>- The letter boxes must be located on common property.</td>
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<tr>
<td>- The letter boxes must be contained in one structure, sufficient in number to provide one box for each occupancy.</td>
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<tr>
<td>- Provision to be made for a letter box for the Body Corporate mail.</td>
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</table>
### NATURAL THERAPIES
**SOLE PRACTITIONER**
Excluding acupuncture and any other natural therapy requiring skin penetration.
Including naturopathy, massage, herbal medicine, counselling, homeopathy, etc

- (a) one car parking space is available for clients (in addition to the parking space/s for the residents);
- (b) the business does not employ anyone other than the residents of the house;
- (c) the business does not interfere with the amenity of the neighbourhood;
- (d) the business does not entail the display of goods or advertising material (other than a notice on the dwelling to indicate the name and occupation of the resident);
- (e) the business does not involve the sale of items other than those used in the natural therapy practiced; and
- (f) acupuncture or other skin penetration activities are not carried out.

### NOXIOUS WEEDS REMOVAL
- Must be authorised under the Noxious Weeds Act 1993.
- Must be carried out by means not detrimental to the native ecosystem.

### PARK FURNITURE - Including seats, bins, picnic tables minor shelters and the like less than 20m² on land classified as Community Land.
**Construction:** Constructed by or for Council and designed, fabricated and installed in accordance with the relevant SAA Standard and/or the Building Code of Australia.
**Siting:** Located on land under the control of Council. Work must be in accordance with any Plan of Management for the particular reserve.

### PATIO OR PAVING - Erected at natural ground level abutting a dwelling.
**Excluding Items** excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan.

- **Size:** Maximum 20m².
- **Siting:** Wholly within the allotment boundaries.
- Not to be erected between a dwelling and a frontage to a Public Road.
- Not to be erected over sewer main or drainage easements.
- **Drainage:** Stormwater from the paved surface is not to be directed onto adjoining property.

**Construction:** Sufficient step-down is to be provided to prevent the entry of water into the dwelling.

### PERGOLA OR TRELLIS
Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan.

- **Size:** Maximum 20m² and 2.7 high.
- **Construction:** Cladding - shade cloth and timber battens or lattice with a minimum gap of 25mm.
  The structure must be compatible in design and finish with other buildings on the allotment.

**Siting:** The structure is to be wholly within the allotment boundaries.
Not to be erected between a dwelling and the frontage to a public road.
The structure to be located clear of any sewer main, by a minimum of 1.5m or the equivalent of the invert depth of the main, whichever is the greater.

**Pergolas or trellises roofed or enclosed with materials other than shade cloth, battens or lattice, require approval.**
<table>
<thead>
<tr>
<th>PLAYGROUND EQUIPMENT - on land classified as Community Land and on land owned by the NSW Department of Education used for the purposes of a school.</th>
<th>Construction by or for Council or NSW Department of Education and designed, fabricated and installed in accordance with AS 1924 - ‘Playground equipment for parks, schools and domestic use’, AS 4422 ‘Playground surfacing’ and AS 4486 ‘Playgrounds and playground equipment’.</th>
<th>“Community Land” is defined under the Local Government Act 1993.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC ENTERTAINMENT LICENCE - Temporary - Change of Use of an Existing Building Where the Use is Not Consistent With the Current Classification</td>
<td>The building does not exceed 25 metres in height. Where required, any necessary consent required under the Environmental Planning and Assessment Act 1979 for the use of the building has been given. The use of the building for public entertainment conforms with the provisions of the Act or any environmental planning instrument applying to the land. The duration of the new use does not exceed 24 hours</td>
<td>A separate approval may be required from Council under the Local Government Act 1993 for a place of public entertainment.</td>
</tr>
<tr>
<td>PUBLIC MEETINGS - In Class 9b Buildings</td>
<td>All circumstances where the building is the subject of current classification as a Class 9b building under the Building Code of Australia and meets the requirements of the Environmental Planning and Assessment Act.</td>
<td>Note: A separate approval may be required from Council under the Local Government Act 1993 for a place of public entertainment.</td>
</tr>
<tr>
<td>RECLADDING of an existing dwelling (see window, glazed areas and external glazed doors in this chapter). Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedule 1 and 2 of the Lismore Local Environmental Plan.</td>
<td>Walls: Accredited lightweight product, not concrete or masonry. No alteration to services. No alteration to the size or shape of existing building. New windows to be the same size as existing windows. Low reflective finish. Roof: Accredited material of similar or less weight than exiting cladding. Fixed in accordance with the manufacturer’s recommendation and relevant Standards. Roofwater to be connected to the street watertable or a drainage easement. Roof sheeting to be other than zincalume.</td>
<td>Brick veneering of existing buildings requires Council prior approval. Galvanised iron is permitted; however reflective surfaces, such as zincalume require Council consent. Underfloor ventilation is to be maintained with wall recladding, in accordance with the Building Code of Australia. The work is to be carried out by licensed trades’ persons and the required insurance premiums are to be paid to the Department of Consumer affairs. The Workcover Authority’s ‘Guidelines for Practices Involving Asbestos Cement’ must be referred to for any work involving asbestos cement removal.</td>
</tr>
</tbody>
</table>
| **RESTUMPING AN EXISTING DWELLING** | The height of stumps is not to exceed 900mm at any point. Termite barriers are to be maintained or provided.
Timber stumps to be in accordance with AS 1684 -1992 'National Timber Framing Code'.
The general floor height is to remain unaltered.
There is to be no alteration to existing plumbing and draining.
Any repairs to defective plumbing and draining to be carried out by a licensed plumber and drainer.

In the case of a building listed as a Heritage Item or included in a Heritage Conservation area under a Lismore Environmental Planning Instrument, the same materials as the existing stumps, bracing and infill are to be used. |
| **RETAINING WALLS** | **Size:** Maximum height 600mm  
**Construction:** Masonry walls to comply with:  
AS 3700 - Masonry Code  
AS 3600 - Concrete Structures  
AS 1170 - Loading Code  
Timber walls to comply with:  
AS 1720 - Timber Structures  
AS 1170 - Loading Code  
**Drainage:** All retaining walls are to be constructed so that they do not prevent the natural flow of stormwater drainage/ run off or direct the flow of surface water onto adjoining property.  
**Siting:** The structure to be located clear of any sewer main, by a minimum of 1.5m or the equivalent of the invert depth of the main, whichever is the greater.
Not to encroach onto any registered easement.
Not to result in additional fill over a sewer main or drainage easement.

Any retaining wall must be no closer to an existing or proposed building, or to a lot boundary, than the height of the retaining wall.  

Maximum depth of fill permitted without development consent is 300mm. |
| **ROADWORKS - As defined under the Roads Act 1993.** | The maintenance, reconstruction and repair of existing roads within the existing alignment- including the repair and replacement of bridges, causeways and drainage systems etc associated with the road design.  
The sealing of existing gravel roads or the conversion of sealed road surfaces to gravel surfaces.  
Roads under the care and control of Council |
| SCAFFOLDING | Siting: Not to encroach onto the footpath or public thoroughfare.  
Construction: To have sufficient structural strength to withstand any imposed load and be impenetrable to the impact of falling materials. Must adequately enclose the work area. Must comply with AS 1576.3 ‘Prefabricated and Tube-and-coupler Scaffolding’ or 1576.4 ‘Suspended Scaffolding’. Must be removed immediately after the purpose for which it was initially provided has concluded and no safety issues will result due to removal. | All scaffolding shall meet relevant Workcover Authority requirements |
| --- | --- | --- |
| SCHOOL SITES OR BUILDINGS: Use outside school hours for a public meeting or for community purposes | The premises are to comply with the relevant provisions of the BCA and the Environmental Planning & Assessment Act. 
The activity does not involve the operation or use of a loudspeaker or sound amplifying device after midnight unless it is within a building or place licensed as a place of public entertainment. |  |
| SECURITY FENCING | Chain wire type fencing around Council owned compounds and depots. | Landscaping to be provided to reduce the visual impact at street frontages. |
| SHOP FITOUT | The shop is not to be used as a food premises. 
The fittings are not structural or effect the building structure. 
Applies only to previously approved and completed buildings. 
Egress widths are not to be reduced or egress travel distances lengthened. 
No change in classification under the Building Code of Australia is required. | Components and fittings below the 1 in 100 year flood level must be flood compatible. |
<table>
<thead>
<tr>
<th>SHOPS AND COMMERCIAL PREMISES</th>
<th>Where a building is lawfully used, or has been lawfully constructed to be used, for the purposes of a shop of a particular kind, the building may be used for the purposes of a shop of another kind upon sufficient written notice being given to the Council.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluding: a shop or commercial premises in which restricted publications (within the meaning of the Indecent Articles &amp; Classified Publications Act 1975) are shown, exhibited, displayed, sold or otherwise made accessible to the public; or</td>
<td>Where a building is lawfully used, or has been lawfully constructed to be used, for the purposes of commercial premises of a particular kind, the building may be used for the purposes of commercial premises of another kind upon sufficient written notice being given to the Council.</td>
</tr>
<tr>
<td>a business to which Section 10 of the above Act applies is conducted; or</td>
<td>The curtilage of the building shall not be used for storage or display purposes. The hours of operation shall not extend outside the hours of the previous shop or commercial premises. Consent conditions imposed on the previous shop or commercial premises relating to the maintenance of landscaping, the parking of vehicles or space for loading and unloading of vehicles, will apply to the new shop or commercial premises.</td>
</tr>
<tr>
<td>a business is conducted that is primarily concerned with sexual behaviour, but is not printed matter.</td>
<td>Advice from Council’s Environmental Health Section is required prior to a food shop fitout. Registration as food premises is also required.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>SKYLIGHTS, VENTILATION SHAFTS AND ROOF WINDOWS</th>
<th>Sitting: In non-habitable roof spaces must be a minimum of 900mm from any boundary or ‘separating wall’.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedule 1 and 2 of the Lismore Local Environmental Plan.</td>
<td>Construction: Must be installed by a licensed contractor in accordance with the manufacturer’s recommendations. The opening must be adequately weatherproofed.</td>
</tr>
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<td></td>
<td>The building work must not reduce the structural integrity of the building or involve structural alterations.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>SOLAR PANELS AND SOLAR HOT WATER UNITS</th>
<th>Installation to be carried out by a licensed person in accordance with the manufacturer’s recommendations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedule 1 and 2 of the Lismore Local Environmental Plan, where the unit is visible from a public street.</td>
<td>The roof upon which the system is installed is structurally adequate to support the additional load.</td>
</tr>
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<td>Any opening created by the installation to be adequately weatherproofed.</td>
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<td></td>
<td>You are advised to consult a structural engineer, architect or building surveyor before commencing the installation, to ensure the structural integrity of the building is not affected.</td>
</tr>
</tbody>
</table>
| STOCKYARDS | Size: Maximum 500m²  
Siting: To be erected within the boundaries of the allotment. Not to be within 50m of any dwelling and 40m from an intermittent watercourse, 100m from a permanent watercourse and 250m from a groundwater bore, spring or well. Not to encroach onto any registered easement.  
Drainage: Surface water drainage is not to cause a nuisance to adjoining premises or be directed to the street watertable or a natural watercourse. |
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<tr>
<td>STREET FURNITURE - Comprising seats, bins tables and the like - Excluding Bus Shelters.</td>
<td>Constructed and erected by or for Council. Must be structurally sound and installed in accordance with the relevant SAA standards.</td>
</tr>
<tr>
<td>STREET SIGNS - Comprising name plates, directional signs, tourist signs, advanced warning signs, traffic signs and the like.</td>
<td>Constructed and erected by or for Council. Must be structurally sound and installed in accordance with the relevant SAA standards.</td>
</tr>
</tbody>
</table>
| SUBDIVISION for the purposes of:  
Widening a public road  
Rectifying an encroachment on an allotment  
Creating a public reserve  
Consolidating allotments  
Excising an allotment for the public purposes of drainage, rural fire brigade or other rescue service, or public conveniences | Subdivision Certificate must be obtained from Council for all forms of subdivision without consent |
| SUNSHADE SAILS | Size: Maximum 10m² and 3m high.  
Construction: Erected in accordance with the manufacturer’s recommendation and the relevant Australian Standard. Stormwater not to cause a nuisance to adjoining property.  
Siting: Not to be erected between a dwelling and frontage to a public road. A minimum of 900mm from any rear or side boundary. |
| SUNSHADE SAILS                                                                 | Size: Maximum 30m² and 3m high.  
Within an area zoned 3(a), 3(b), 3(f), and 4(a) under a Lismore Environmental Planning Instrument. | Construction: Erected in accordance with the manufacturer’s recommendation and the relevant Australian Standard.  
Stormwater not to cause a nuisance to adjoining property.  
Colours to be compatible with the existing buildings.  
Siting: To be erected wholly within the subject site. |  |
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<tbody>
<tr>
<td><strong>TELECOMMUNICATIONS FACILITIES</strong></td>
<td><strong>Use:</strong> For domestic use only.</td>
<td>**Clearance from power lines to be in accordance with the requirements of the Electrical Supply Authority.</td>
<td></td>
</tr>
</tbody>
</table>
| **AERIALS, ANTENNAE, MICROWAVE ANTENNAE** (Not including satellite dishes - see below). | **Construction:** To project a maximum of 3m above the ridge height.  
To be supported off an existing building.  
Microwave reflector element not to exceed 700mm² or 0.7m². |  |  |
| **DIRECTIONAL ANTENNA AND INSTALLATIONS**                               | **Location:** To service roads, tunnels, railway terminals and railway stations.                                     | **The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes must not exceed the maximum emission criteria for a site.** |  |
| For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. | **Construction:** Complies with the Australian Communications Authority recognised regulatory standards.               |  |  |
| Within land zoned Industrial 4, Rural 1(a), 1(b), Business 3(a), 3(b), 3(f) or Special Use 5 under a Lismore Environmental Planning Instrument |  |  |  |
| **EXTENSION TO AN EXISTING APPROVED TOWER.**                             | **Size:** Maximum height of extension 7m.                                                                          | **The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes, must not exceed the maximum emission criteria for a site.** |  |
| For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. | **Construction:** Complies with the Australian Communications Authority recognised regulatory standards.               |  |  |
| Within land zoned Industrial 4, Rural 1(a), 1(b), Business 3(a), 3(b), 3(f) or Special Use 5 under a Lismore Environmental Planning Instrument |  |  |  |
| **MICROCELLS**  
For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. | **Size:** Maximum cabinet size one cubic metre.  
Maximum antenna length 1.2m  
**Construction:** Complies with the Australian Communications Authority recognised regulatory standards. | The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes must not exceed the maximum emission criteria for a site. |
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<tbody>
<tr>
<td>Within land zoned Industrial 4, Rural 1(a), 1(b), Business 3(a), 3(b), 3(f) or Special Use 5 under a Lismore Environmental Planning Instrument</td>
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</table>

| **OMNIDIRECTIONAL AND DIRECTIONAL ANTENNA**  
For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. | **Size:** Maximum 4.5m long.  
An antenna attached to an existing structure may not extend vertically more than 6.5m above the existing approved structure or horizontally a maximum of 3m from the external face of the structure.  
**Construction:** Complies with the Australian Communications Authority recognised regulatory standards. | The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes must not exceed the maximum emission criteria for a site. |
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<tbody>
<tr>
<td>Within land zoned Industrial 4, Rural 1(a), 1(b) Business 3(a), 3(b), 3(f) or Special Use 5 under a Lismore Environmental Planning Instrument</td>
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</table>

| **PANEL ANTENNA attached to an approved structure.**  
For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. | **Size:** Maximum antenna length 2.8m  
The panel is not to extend horizontally more than 3m from the structure.  
The top of the antenna must not extend more than 5m above the structure at the point at which it is attached or extend more than 3m above the highest point of the structure.  
**Construction:** The colour of the panel is to match the background colour of the structure to which it is attached, or be of a colour agreed to in writing between the carrier and Council.  
**Construction:** Complies with the Australian Communications Authority recognised regulatory standards. | The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes must not exceed the maximum emission criteria for a site. |
| Within land zoned Industrial 4, Rural 1(a), 1(b) Business 3(a), 3(b), 3(f) or Special Use 5 under a Lismore Environmental Planning Instrument | | |

| **RADIO ANTENNA OR DISH**  
for the purpose of a carriage service provider as defined under the Telecommunications Act 1997. | **Size:** Maximum antenna diameter 1.8m  
Maximum 4m at any point of the dish or antenna above the roof of the building upon which it is mounted.  
**Siting:** The antenna or dish is to be located on the roof of an existing building. Where the antenna or dish is not flush mounted and it is more than 3m. above the roof, it shall be set back a minimum of 2m from the outermost wall of the building. | The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes, must not exceed the maximum emission criteria for a site. |
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<tbody>
<tr>
<td>Within land zoned Industrial 4(a), Rural 1(a), 1(b) Business 3(a), 3(b), 3(f), or Special Use 5 under a Lismore Environmental Planning Instrument</td>
<td></td>
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<tr>
<td>Planning Instrument</td>
<td><strong>Construction</strong>: Complies with the Australian Communications Authority recognised regulatory standards.</td>
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</tr>
</tbody>
</table>
| **SATellite DisHes - Domestic** | **Use**: For domestic use only.  
**Size**: Dishes not to exceed 900mm diameter.  
If free-standing to be a maximum of 1.8m in height.  
**Siting**: Dish installation not to project above ridgeline of building or to be mounted on the facade or roof having a frontage to a road boundary.  
The dish is to be matt finish and where possible to match the roof colour of the dwelling. |
| Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedule 1 and 2 of the Lismore Local Environmental Plan. |
| **SATellite DisHes – Commercial** | **Use**: For commercial use only.  
**Size**: Dishes not to exceed 2m diameter.  
If free-standing to be a maximum of 1.8m in height.  
**Siting**: Dish installation not to project above ridgeline of building or to be mounted on the façade or roof having a frontage to a road boundary.  
Not to be visible from a public place or public road.  
Situated a minimum of 900mm from a boundary if the adjoining property is residential.  
To be located wholly within the property boundary  
One installation per building and property.  
The installation to be clear of sewer mains, easements, and services.  
Access to services and building components is not to be obstructed.  
The dish is to be matt finish and where possible to match the roof colour of the dwelling. |
| Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedule 1 and 2 of the Lismore Local Environmental Plan. |
| **TOWer, MAST or POle. For the purpose of a carriage service provider as defined under the Telecommunications Act 1997.** | **Size**: Maximum 12m above the natural ground level.  
Must not extend outside the property boundary.  
**Construction**: Complies with the Australian Communications Authority recognised regulatory standards.  
The cumulative radiation emissions created by the installation of additional aerials, antennae or dishes must not exceed the maximum emission criteria for a site. |
| Within land zoned Industrial 4, Rural 1(a), 1(b), Business 3(a), 3(b), (3f), or Special Use 5 under a Lismore Environmental Planning Instrument |
| UNDERGROUND CONDUIT OR CABLE DEPLOYED BY NARROW TRENCH OR DIRECT BURIAL. For the purpose of a carriage service provider as defined under the Telecommunications Act 1997. | **Size:** Maximum 500m long. Trenching maximum 450mm wide.  
**Construction:** Complies with relevant Australian Standard | All surfaces to be made good and any damaged, or destroyed landscaping to be replaced. |
<table>
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<tr>
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</thead>
<tbody>
<tr>
<td><strong>Within land zoned Industrial 4, Rural 1(a), 1(b), Business 3(a), 3(b), 3(f), or Special Use 5 under a Lismore Environmental Planning Instrument</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **TEMPORARY EVENTS/USES** | The event or use does not:  
Involve the operation or use of a loudspeaker or sound amplifying device after 12pm midnight, unless it is within a building or place that is licensed as a place of public entertainment;  
Require the erection of a temporary or permanent structure greater than 60m²  
Involve the provision of overnight camping or accommodation;  
Have, in Council’s opinion as determined after the applicant has conferred with Council, a significant impact on traffic, parking or the management of waste;  
Be opened to the general public. | Approval under S68 of the Local Government Act must be obtained. |
| **TEMPORARY STRUCTURES AS A PLACE OF PUBLIC ENTERTAINMENT** | The land on which the temporary structure is to be erected is the subject of current approval for such use.  
The temporary structure is accredited under the provisions of the Environmental Planning and Assessment Act, 1979. Any conditions applicable to the accreditation are complied with while the temporary structure is being used as a place of public entertainment. The provisions of Schedule 2 of the Local Government (Approvals) Regulations, 1993 are complied with at all times while the temporary structure is being used as a place of public entertainment. | |
| **TEMPORARY TRANSPORTABLE CLASSROOMS and other portable school buildings.** | **Siting:** Must be located within school grounds in accordance with any prior Development Consent.  
**Construction:** Must be structurally adequate. Installation must accord with a design by a suitably qualified engineer. Must comply with the Building Code of Australia. Stormwater must be connected to a stormwater drainage system. Must be serviced by a sewerage system, where human waste facilities are to be provided. Adequate public utility services are to be provided. | These buildings are of a temporary nature and installation under this exemption is only permitted for a maximum of 5 years. Council must receive written notification of the date on which the building(s) are to be placed on site. |
|---|---|---|
| **TENTS**  
Private Functions - Not for Public Entertainment or habitable purposes | **Size:** Maximum size 160m²  
**Construction:** To be erected in accordance with recommendations of the manufacturer and supplier. To be erected for a maximum of seven days. | Siting should take into consideration any noise nuisance that may arise from the use of the tent. |
| **WADING POOLS AND FISHPONDS**  
Fishponds not to be used for commercial breeding. | **Size:** Maximum depth of water 300mm  
**Siting:** To be erected within the boundaries of the allotment. The structure to be located clear of any sewer main, by a minimum of 1.5m or the equivalent of the invert depth of the main, whichever is the greater. Not to encroach onto any registered easement. | |
| **WATER HEATERS**  
Excluding solar systems | All cases. To be installed by licensed person in accordance with the manufacturer’s recommendations. | |
| **WATER STORAGE TANKS**  
Within a Zone Residential 2(a), 2(f) or Village 2(v) under a Lismore Environmental Planning Instrument.  
Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedule 1 and 2 of the Lismore Local Environmental Plan. | **Size:** Maximum capacity of 22,500 litres. Maximum height of 2.4 m above natural ground level.  
**Construction:** Installation to manufacturer’s recommendations. Prefabricated or installed by an established manufacturer and finished in a colour compatible with other buildings on the allotment.  
**Siting:** Located wholly within the allotment boundaries. A minimum of 900mm from a side or rear boundary. Not located between a dwelling and a road boundary. The structure to be located clear of any sewer main, by a minimum of 1.5m or the equivalent of the invert depth of the main, whichever is the greater. Not to encroach onto any easement. Interconnection of the tank with a Public Water supply requires a Section 68 approval under the Local Government Act and a plumbing permit from Council.  
The tank inlet and overflow pipes are to be screened to prevent the entry of animal and foreign matter and to prevent the breeding of mosquitoes. A ‘first flush’ system should be provided to reduce the chance of contamination of the water. | |
<table>
<thead>
<tr>
<th>Drainage: The overflow is to be controlled by piping to: (a) the street gutter (b) a drainage easement.</th>
<th>Note the connection of a tank to a roof surface flashed with lead may constitute a health hazard.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER STORAGE TANKS Within a Zone Rural 1(a),1(b), 1(d), 1(r) and Rural Residential 1(c) under a Lismore Environmental Planning Instrument.</td>
<td>Construction: Installation to manufacturer’s recommendations.</td>
</tr>
<tr>
<td>Sitting: Not to be located between the building line setback and a road boundary. Located clear of any registered easements.</td>
<td>Interconnection of the tank with a Public Water supply requires a Section 68 approval under the Local Government Act and a plumbing permit from Council.</td>
</tr>
<tr>
<td>Drainage: Overflow to be directed downhill, 3 metres clear of any building and not to be directed onto any adjoining property.</td>
<td>The tank inlet and overflow pipes are to be screened to prevent the entry of animal and foreign matter and to prevent the breeding of mosquitoes.</td>
</tr>
<tr>
<td>WEED REMOVAL Environmental Weeds as listed in DCP 17 Vegetation Management Order</td>
<td>A ‘first flush’ system should be provided to reduce the chance of contamination of the water.</td>
</tr>
<tr>
<td>Noxious Weeds</td>
<td>Note the connection of a tank to a roof surface flashed with lead may constitute a health hazard.</td>
</tr>
<tr>
<td>• Must be authorised under the Noxious Weeds Act 1993</td>
<td></td>
</tr>
<tr>
<td>• Must be carried out by means not detrimental to the native ecosystem</td>
<td></td>
</tr>
<tr>
<td>WINDMILL PUMPS Within a Zone Rural 1(a), 1(b),1(d), 1(f), 1(r) and Rural Residential 1(c) under a Lismore Environmental Planning Instrument.</td>
<td>Sitting: To be erected wholly within the allotment boundaries. Not to encroach onto any registered easement.</td>
</tr>
</tbody>
</table>
| WINDOWS, GLAZED AREAS AND EXTERNAL GLAZED DOORS. Excluding Heritage Items and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan. | Replacement in dwellings with materials that comply with AS 1288 - “Glass in Buildings - Selection and Installation” and AS 2208 - “Safety Glazing materials- for use in buildings (Human Impact Consideration)”.
No reduction in the area of glazing provided for light and ventilation is permitted.
Structural support members in the wall concerned cannot be removed.
No material alteration in the size of the existing window is permitted. |
| | Consult a structural engineer, architect or building surveyor to ensure the proposed windows comply with the Building Code of Australia and that structural support will not be reduced. Consult one of the above professions or a recognised glazier to ensure the appropriate quality of glazing is selected, especially as to safety glass requirements and the wind loading for your area. |
| WINDOW AWNINGS AND WINDOW HOODS | **Size:** Maximum 6m².  
**Siting:** Located wholly within the allotment.  
**Construction:** Compatible in design and colour with the existing dwelling.  
Not to be enclosed.  
To be supported by brackets off the dwelling. |

**Updated:** 26/2/08

Not in use where LEP 2012 applies
Chapter 20

Complying Development

Not in use where LEP 2012 applies
State Environmental Planning Policy
(Exempt and Complying Development Codes) 2008
(the Codes SEPP)

The NSW State Government has introduced State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP), which was gazetted on 12 December 2008, and commenced operation on 27 February 2009.

The SEPP applies to the whole State.

The Codes SEPP specifies certain development under that Policy as being ‘exempt’ from the need to obtain development consent. It also specifies certain types of housing development as complying development.

Under the arrangements in the Codes SEPP:

- if the same development type is specified as exempt development in the General Exempt Development Code and in the council’s existing LEP or DCP, then the Codes SEPP prevails and the development must be carried out in accordance with the General Exempt Development Code

- if the General Housing Code specifies a development type as complying and the council’s LEP or DCP nominates it as complying, applicants can, until 27 February 2010, choose to use whichever provisions they prefer as the basis on which to prepare an application for a complying development certificate;

- if the General Exempt Development Code specifies a development type as exempt and the Council’s LEP or DCP nominates it as complying, applicants can, until 27 February 2010, choose to use whichever provisions they prefer as the basis for being considered and to carry out their development as exempt development;

- if the same development type is specified as complying development in the General Housing Code and as exempt development in the council’s LEP or DCP, then the provisions of the Codes SEPP prevails and the development must be carried out as complying development in accordance with the Codes SEPP;

- if a LEP or a DCP nominates a development type as exempt or complying and the Codes SEPP does not deal with that development type, then the Council’s current provisions prevail.

During the transition period between commencement of the Codes SEPP and 27 February 2010, applicants will be required to nominate on their application for a complying development certificate which planning controls they will be relying on.

In circumstances where a complying development type is nominated in a council’s LEP or DCP but is not covered by the Codes SEPP then the LEP or DCP provisions will continue to apply after 27 February 2010 until those development types are covered by future amendments to the Codes SEPP.

A copy of the Codes SEPP is available at: www.planning.nsw.gov.au/housingcode

Further information on the General Housing Code is available at: www.planning.nsw.gov.au/housingcode

For further information please email planningreform@planning.nsw.gov.au or call the Department of Planning’s Information Centre on Freecall: 1300 305 695 or 02 9228 6333.
20 Complying Development

The purpose of this Chapter is to provide criteria for complying development within the area of the Lismore City Council.

20.1 Objectives of this Chapter

1. To encourage a high standard of design, both functional and aesthetic, which takes due regard of the needs of occupants, neighbours and the availability of local amenities.

2. To encourage development that is sympathetic to the topography of the land and the scale and character of the surrounding development.

3. To encourage building design and siting which takes advantage of climatic factors and reduces household energy requirements.

4. To ensure that the development has a minimal impact on the environment, including minimising waste to landfill.

5. To provide a criteria for development which may be carried out, without the prior consent of Council for certain nominated development; subject to the issue of a ‘Complying Development Certificate’, by Council or a private accredited certifier.

20.2 How to use this Chapter

The Schedule to this Chapter contains eight (8) types of development that can be considered for complying development under the Lismore Environmental Plan. A person wishing to carry out development of a type nominated in the Schedule to this Plan will be considered to have complied with the provisions of this Plan if it satisfies all the criteria listed for each development type and the conditions of approval.

20.3 Definitions

In this Chapter the following definitions apply:

“common open space” means the open space area, which is available and accessible to all residents.

“dwelling” means a room or number of rooms occupied, or used, or so constructed or adapted so as to be capable of being occupied or used as a separate domicile.

“dwelling house” means a single building containing one dwelling, not attached to another dwelling.

“flood liable” means land that is subject to flooding by a one in one hundred year flood event.

“functional open space” means the main area of private open space, and it is that part of the primary open space area which is directly accessible to the living area of a dwelling and is capable of being landscaped or screened to ensure that the area has privacy from adjoining development.

“height” means the distance measured vertically from any point on the ceiling of the top most floor of the building to the ground level immediately below that point. Where there is a cathedral ceiling height is measured to the top plate.

“primary open space” means the part of the site or building which is designed, or developed, or capable of being maintained and used as lawn, courtyard or planted gardens and is available for use and enjoyment of the occupants of the development and,
includes rooftop spaces, swimming pools, walk ways, tennis courts, balconies, gazebos or other similar structures, where Council deems such to be appropriate in terms of accessibility, treatment and appearance, but excludes drying yards, garbage handling and storage areas, areas used for movement or parking of vehicles, and any setback or open space which is less than two metres in width.

20.4 Limitation
The proposed complying development:

- is permissible under any environmental planning instrument that applies to the land.
- is not State Significant Development, designated development or development which requires the concurrence of persons or authorities, other than Council or the Director General of National Parks and Wildlife, under section 79B(3) of the Environmental Planning and Assessment Act 1979.
- is not on land that is critical habitat, a wilderness area under the Wilderness Act 1987 or is identified in a plan as an environmentally sensitive area, is not in an area identified in an environmental planning instrument applying to the land, as land that is bushfire prone, flood liable, potentially contaminated, subject to subsidence, slip, erosion or acid sulphate soils; and is not on a site that has previously been used as a service station, for intensive agriculture, mining or extractive industries, sheep or cattle dips, or for the manufacture of chemicals,
- complies with any relevant conditions of development consent previously issued on the land,
- has the relevant approval for water and sewer services, including the disposal of trade wastes and/or the on-site disposal of human wastes, prior to the issue of a Complying Development Certificate,
- complies with the criteria listed for each type of development,
- complies with the conditions attached to the complying development certificate.

20.5 Complying Development Conditions
All complying development is to meet the following conditions, where relevant to the site and development.

**Building code**
1. All building work must be carried out in accordance with the deemed to satisfy provisions of the Building Code of Australia and the complying development certificate.

**Notification**
2. Two days before any site works, building or demolition begins, the applicant must forward Form 7 (see attached) of the Regulation to Council (notice of commencement of work and appointment of Principal Certifying Authority).

**Home Building Act**
3. Residential building work, within the meaning of the Home Building Act, 1997, must not be carried out unless the principal certifying authority:

   a) in the case of a licensed person under the Act:
      i) has been informed in writing of the licensee’s name and licence number, and
      ii) is satisfied that compliance with Part 6 of Act (insurance provisions) has been met.

   b) in the case of an owner-builder:
      i) has been informed in writing of the owner-builders name and permit number, or
      ii) has been given a declaration, signed by the land owner, that the cost of labour and materials involved in the work is less than the amount prescribed as ‘owner-builder work’ in Section 29 of the Act.
c) is given appropriate information and declarations where any arrangements for doing the work are changed.

d) has been provided with a certificate of Builders’ Indemnity Insurance from an approved insurer, where applicable.

Site management
4. Prior to any site works:
Run-off and erosion controls are to be installed, to prevent soil erosion, water pollution or the discharge of sediment onto surrounding land by:

i. diverting uncontaminated run-off around cleared or disturbed areas,
ii. erecting a silt fence to prevent debris escaping into drainage systems or waterways,
iii. preventing tracking of soil by vehicle onto roads,
iv. stockpiling topsoil, excavated material, construction and landscaping supplies and debris within the silt fence.

During building work any necessary measures must be taken to ensure the amenity of the neighbourhood, by employing measures to reduce the generation of offensive emissions (dust, odours and noise etc). The development shall be so managed, that all activities are undertaken in accordance with acceptable environmental standards. Activities include:
   a) The processing, handling, movement and storage of materials and substances; and
   b) The treatment, storage and disposal of wastes (including solid and liquid wastes).

Acceptable environmental standards in the case of the treatment, storage and disposal of wastes shall include compliance with the provisions of Chapter 15 – Waste Minimisation.

Site safety
5. (a) All excavations and backfill associated with the erection or demolition of a building must be executed safely and in accordance with appropriate professionally recognised standards.

(b) All excavations and work associated with the erection and demolition of a building, which may be dangerous, must be guarded and protected to prevent them from being dangerous to life and property.

Retaining walls
6. If soil conditions require it:
   (a) retaining walls, or other approved methods of soil retention, must be provided in association with the erection or demolition of a building, and
   (b) adequate provision must be made for drainage.

Adjoining building work
7. If the soil conditions require it:
   (1) if an excavation associated with the erection or demolition of a building that extends below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation to be made:
       (a) must preserve and protect the building from damage, and
       (b) if necessary, must underpin and support the building in an approved manner, and
       (c) must, at least 7 days before excavating below the level of the base of the footings of a building on an adjoining allotment, furnish particulars of the excavation to the owner of the building being erected or demolished.

Note: (1) The owner of the adjoining allotment of land is not liable for any part of the cost of work carried out for the purposes of this clause, whether carried out on the allotment of land being excavated or on the adjoining land.
(2) In this clause, “allotment of land” includes a public road and any other public place.
Public safety and convenience

8. 1) If the work involved in the erection or demolition of a building:
   a) is likely to obstruct or inconvenience pedestrian or vehicular traffic in a public place, or
   b) involves the enclosure of a public place, a hoarding or fence must be erected between the work site and the public place. An application to erect a hoarding or fence must be submitted to and approved by Council.

2) If necessary, an awning is to be erected, sufficient to prevent any material from, or in connection with the work, falling into the public place.

3) The work site must be kept lit between sunset and sunrise, if it is likely to be hazardous to persons in the public place.

4) Any such hoarding, fence or awning is to be removed when the work has been completed.

Signage

9. 1) A sign must be erected in a prominent position on any work site involved in the erection or demolition of a building is being carried out:
   a) stating that unauthorised entry to the work site is prohibited, and
   b) showing the name of the person in charge of the work site and a telephone number at which that person may be contacted outside working hours.

2) Any such sign is to be removed when the work has been completed.

3) This clause does not apply to:
   (a) building work carried out inside an existing building, or
   (b) building work carried out on premises that are to be occupied continuously (both during and outside working hours) while the work is being carried out.

4) Any advertising signs to be in accordance with the requirements of Council’s Local Environmental Plan.

Toilet facilities

10. 1) Toilet facilities are to be provided, at or in the vicinity of the work site on which work is involved in the erection or demolition of a building is being carried out, at the rate of one toilet for every 20 persons or part of 20 persons employed on the site.

   Note: Toilet facilities are not to be located on footpaths or other public land.

2) Each toilet provided:
   a) must be a standard flushing toilet, and
   b) must be connected:
      i) to a public sewer, or
      ii) if connection to a public sewer is not practicable, to an accredited sewage management facility approved by Council, or
      iii) if connection to a public sewer or an accredited sewage management facility is not practicable, to some other sewage management facility approved by Council.

   Note: ‘Porta-potti’ and similar on-site treatment and storage sanitary facilities are acceptable, where connection is not available to the sewerage system, if the wastes are disposed of satisfactorily into a reticulated sewage system.
**Stormwater**
11. Stormwater from the building and surface water from the land surrounding any structure must be diverted to the street drainage system or an easement to drain water.

**Location of building**
12. (a) The proposed building is a minimum of 1.5 metres clear of any sewer main or stormwater drainage line, or the equivalent of the invert depth of the pipe, whichever is the greater.
   (b) Any building, and associated earthworks on the site, is to be clear of all easements and sewer mains.

**Inspections**
13. The Council or an accredited certifier is to be notified 24 hours in advance, to inspect the following, where applicable:
   (a) erosion controls, site works and site set out, before building starts
   (b) steel reinforcement to footings or slab before pouring concrete
   (c) framework of structure before lining or cladding is fixed
   (d) sewer and stormwater drainage and on-site retention before backfilling
   (e) the building on completion, prior to occupation

**Hours of work**
14. Any building work which has the capacity to generate offensive noise, odours or dust, or which will have an impact on the amenity of the area, must be carried out between 7.00 a.m. and 6.00 p.m., Monday to Friday and 8.00 a.m. to 1.00 p.m. Saturdays, excluding public holidays.

   **Note:** (i) This provision does not exempt a person from compliance with the Noise Control Act.
   (ii) Compliance with this clause does not absolve persons from the need to comply with any of the relevant protection of the environment legislation.

**Vehicular access**
15. Driveways are to be a minimum of 500 mm clear of all drainage structures in the kerb and guttering and are not to interfere with the existing public utility infrastructure, including Council drainage structures, unless prior approval is obtained from the relevant authority.

   Vehicular access to a site is to be in accordance with Chapters 5 & 6 – Subdivision and Infrastructure ‘Design and Construction Manual’ provisions.

**Section 94 Contributions, Levies, Bonds and Charges**
16. Any contribution payable under Council’s ‘Section 94 Contributions Plan’ has been paid to Council.
   The levy for S.E.S contribution, if applicable, has been paid to Council.
   The bonds for vehicular crossing and stormwater connection have been paid to Council.
   The charge for a water connection has been paid to Council.
   The long service levy has been paid to Council or the Long Service Payments Corporation.

**Approvals**
17. Council has granted approval for the connection of the premises to the water supply, sewer main and stormwater drainage system.

**Sum of proposed exemptions and prior exemptions**
18. The development does not involve an addition to a structure, or the subdivision of land, additional to any previous development carried out under this Chapter which will result in an increase in total height or area, over and above the stated complying criteria in this Chapter, or which exceeds any limitation imposed by a development standard.
**Bed and Breakfast Accommodation - Registration**

18. Note that the premises are required to be registered in Council’s Commercial Premises Register as a Bed and Breakfast establishment, prior to the commencement of business activities.

**Certificate**

19. (a) A Complying Development certificate application is made on the required form to Council or an accredited certifier and is accompanied by the necessary details.

(b) A complying development certificate is issued by Council or an accredited certifier, prior to the work commencing.

*Note: A person is taken to have been issued with a complying development certificate for the subdivision of land that does not involve the carrying out of subdivision work, if a subdivision certificate is endorsed on the relevant plan of subdivision under Part 4A of the Act.*

**SCHEDULE – Complying Development Criteria**

<table>
<thead>
<tr>
<th>Development</th>
<th>Criteria to be Met</th>
</tr>
</thead>
</table>
| 2.1. Dwelling houses and additions and alterations or ancillary development, incidental to dwellings, on a lot more than 400 and less than 2500 square meters | **Dwelling Entitlement**  
- The allotment has a dwelling entitlement pursuant the Lismore Environmental Plan.  
**Streetscape**  
- Any part of the structure:  
  ◊ Complies with the building line provided in an environmental planning instrument or development control plan applying to the land  
  ◊ Is set back at least 6 metres from the front lot boundary.  
Or the set-back must be an average of the setback of like structures on land either side of the subject property; whichever is the greater  
- Carports and garages facing a public street, are not more than 6 metres or 50 percent of the frontage width; whichever is the lesser  
**Energy Efficiency**  
- The new dwelling has at least a 3.5 star rating under the Housing Energy Rating Scheme (NatHERS) or complies with Council’s Energy Efficiency policy.  
- The water closets are provided with 6/3 litre dual flush toilet suites  
- Showers and taps are provided with fixed flow regulators in accordance with Chapter 1 - ‘Residential Development’.  
- Permanently installed dishwashers are AAA rated  
- Sarking is provided under all tile roofs  
**Bulk and Scale**  
- The ground floor level of the structure at any point is not more than 500 mm above the natural ground level  
- The distance between the floor level and the underside of the eaves is not more than 2.4 metres, in the case of single storey dwellings ancillary structures and additions and 5.5 metres in the case of two-storey dwellings ancillary structures and additions  
- The roof pitch is not more than 24 degrees and any openings |

Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedules 1 and 2 of the Lismore Environmental Plan.
do not extend more than 600 mm above the roof surface
- The adjoining property’s main area of private open space or any habitable room is not in shadow between 10 a.m. and 3 p.m. on 21 June, as a result of the development.
- The external wall of any structure is not less than 900 mm from a side or rear boundary, in the case of single storey dwellings and additions and 1.5 metres, in the case of two-storey dwellings and additions.
- The eaves and guttering to be a minimum of 675 mm from the boundary.
- The proposed structure will not affect the view from any adjoining dwelling.

Privacy and Security
- Windows in a habitable room that allow an outlook to a window to a habitable room in the neighbouring dwelling and are within 9 metres:
  ◇ are offset from the external edge of one window to the external edge of the other, by a distance of 500 mm, or
  ◇ have sill heights of 1.7 metres above the floor level, or
  ◇ have fixed obscure glazing in any part of the window below 1.7 metres above floor level

Open Space and Landscaping
- A minimum of 20 percent of the site must be soft landscaped, that is, not hard surfaced
- No more than one-third of the front setback is paved or sealed

Flooding
- The site is not “flood liable” land.

Landslip
- The building site is not subject to landslip

Sewer Mains, Stormwater Drainage and Easements
- The proposed building is a minimum of 1.5 metres clear of any sewer main or stormwater drainage line, or the equivalent of the invert depth from the pipe, whichever is the greater distance
- Any building, and associated earthworks on the site, is clear of all easements and sewer mains
- The building can be connected by gravity drainage to Council's sewer mains.

Pollution Control
- Vacuum breaker devices are provided to all external taps.

Vehicle Access
- The vehicular access grade is to be hard surface, dust free and in accordance with Chapters 5-6 ‘Subdivision’ - ‘Design & Construction Specification - Vehicular Access’ provisions.
- Vehicle accommodation is provided in accordance with Chapter 1 - Residential Development.
- Vehicle access for vehicle accommodation on site or for construction purposes does not require the removal or lopping of any Council street trees.
Cut and/or Fill
• The cut and fill on the site is in accordance with the provisions of Chapter 1 - Residential Development.

Cattle Dips
• The building is outside a 200 metre radius of any cattle dip, or the application is supported by a report prepared by an Environment Protection Authority accredited auditor.

Retaining Walls
• Details are provided of all retaining walls in respect of the subject building and the retaining walls are in accordance with Chapter 1 - Residential Development.

Trees
• The development, including access for construction purposes, does not require the removal of any trees on the allotment, other than those located within the footprint of the proposed building or the proposed vehicular access.

Sedimentation Control
• Provision has been made for erosion and sedimentation control in accordance with Chapter 1 - Residential Development.

Buffer Areas
• The required buffer area set back and landscape planting is provided, where applicable, in accordance with Chapter 11 - Buffer Areas.

Stormwater
• Roofwater, subsoil drainage and surface water drainage from paved surfaces can be connected to the street drainage system or to an easement to drain water, in accordance with AS 3500.3 ‘Stormwater Drainage’.

Roof Sheeting
• The roof sheeting is not zincalume.

Construction
• The dwelling, alteration or addition, or ancillary development, complies with the deemed-to-satisfy provisions of Volume One, or section 3 of Volume Two (Housing Provisions), of the Building Code of Australia.

2.2 Dwelling houses and additions and alterations, or ancillary development to dwellings on a lot 2500 square metres and over

Within a Zone No 2(a), or 2(v) under a Lismore Environmental Planning Instrument

Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedules 1 and 2 of the

Dwelling Entitlement
• The allotment has a dwelling entitlement pursuant to the Lismore Environmental Plan.

Streetscape
• Any part of the structure:
  ◊ Complies with a building line provided in an environmental planning instrument or development control plan applying to the land, and
  ◊ Is set back at least 15 metres from the front boundary, or an average of the setback of like structures on land either side of the subject property, whichever is the greater. Where the property has frontage to a ‘Classified Road’ the setback shall be at least 28 metres.
<table>
<thead>
<tr>
<th>Lismore Environmental Plan.</th>
<th>Energy Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The new dwelling has at least a 3.5 star rating under the Housing Energy rating Scheme (NatHERS) or complies with Council’s Energy Efficiency policy.</td>
</tr>
<tr>
<td></td>
<td>The water closets are provided with 6/3 litre dual flush toilet suites</td>
</tr>
<tr>
<td></td>
<td>Showers and taps are provided with fixed flow regulators in accordance with Chapter 1 - Residential Development.</td>
</tr>
<tr>
<td></td>
<td>Permanently installed dishwashers are AAA rated.</td>
</tr>
<tr>
<td></td>
<td>Sarking is provided under all tile roofs</td>
</tr>
<tr>
<td><strong>Bulk and Scale</strong></td>
<td>All structures are within a building envelope of not more than 500 square metres. The building envelope can be made up of a number of smaller envelopes that total not more than 500 square metres.</td>
</tr>
<tr>
<td></td>
<td>The ground floor level of the structure, at any point, is not more than 1.2m above natural ground level.</td>
</tr>
<tr>
<td></td>
<td>The distance between the floor level and the underside of the eaves is not more than 2.7 metres for a single storey building and 5.5 metres for a two-storey building.</td>
</tr>
<tr>
<td></td>
<td>The roof pitch is not more than 24 degrees and any openings do not extend more than 600 mm above the roof surface.</td>
</tr>
<tr>
<td></td>
<td>The external wall of any structure is at least 10 metres from a side or rear boundary.</td>
</tr>
<tr>
<td><strong>Open Space and Landscaping</strong></td>
<td>A minimum of 20 per cent of the site must be soft landscaped, that is, not hard surfaced in accordance with Council’s “Landscape Guidelines”.</td>
</tr>
<tr>
<td><strong>Flooding</strong></td>
<td>The site is not “flood liable” land.</td>
</tr>
<tr>
<td><strong>Landslip</strong></td>
<td>The building site is not subject to landslip.</td>
</tr>
<tr>
<td><strong>Vehicle Access</strong></td>
<td>The internal vehicle access is in accordance with Chapters 5-6 Subdivision and Infrastructure ‘Design &amp; Construction Specification - Vehicle Access’.</td>
</tr>
<tr>
<td></td>
<td>Vehicle accommodation is provided in accordance with Chapter 1 - Residential Development.</td>
</tr>
<tr>
<td></td>
<td>All weather two-wheel drive vehicular access is available from the Council maintained road pavement to the building site.</td>
</tr>
<tr>
<td></td>
<td>Vehicular crossing over the water table drainage is provided in accordance with Chapters 5-6 Subdivision and Infrastructure - ‘Design &amp; Construction Specification - Vehicle Access’.</td>
</tr>
<tr>
<td></td>
<td>Vehicle access for vehicle accommodation on site or for construction purposes does not require the removal or lopping of any Council street trees.</td>
</tr>
<tr>
<td><strong>Cut and/or Fill</strong></td>
<td>The cut and/or fill on the site is in accordance with the provisions of Chapter 1 - Residential Development.</td>
</tr>
</tbody>
</table>
### Easements and Sewers
- The proposed building is a minimum of 1.5 metres clear of any sewer main or stormwater drainage line, or the equivalent of the invert depth from the pipe, whichever is the greater distance.
- Any building, and associated earthworks on the site, is clear of all easements and sewer mains.
- The building is able to be connected by gravity drainage to Council’s sewer mains, or

### Pollution Control
- Vacuum breaker devices are provided to all external taps, where connection is to a reticulated water supply.

### Cattle Dips
- The building is outside a 200 metre radius of any cattle dip.

### Retaining Walls
Details are provided of all retaining walls in respect of the subject building and the retaining walls are in accordance with Chapter 1 - Residential Development.

### Trees
- The development, including access for construction purposes, does not require the removal of any trees on the allotment, other than those located within the footprint of the proposed building or the proposed vehicular access.

### Sedimentation Control
Provision has been made for erosion and sedimentation control of the building site in accordance with Chapter 1 - Residential Development.

### Buffer Areas
- The required buffer area set back and landscape planting is provided, where applicable, in accordance with Chapter 11 - Buffer Areas.

### Stormwater
- Roofwater, subsoil drainage and surface water from paved surfaces can be connected to a street drainage system, or to a drainage easement, in accordance with As 3500.3 ‘Stormwater drainage’.

### Roof Sheeting
- The roof sheeting is not zincalume.

### Construction
- The building complies with the deemed-to-satisfy provisions of Volume One, or Section 3 of Volume Two (Housing Provisions) of the Building Code of Australia.

### 2.3. Swimming Pools, ancillary to a dwelling for private use only and on a lot more than 400 square metres

### Streetscape
- Any part of the structure is not within the building line setback provided by Chapter 1 - Residential Development.

### Bulk and Scale
- Any coping or decking around the pool is not more than 500 mm above the natural ground level.

### Amenity
- The noise level of the filtration equipment or pumps does not exceed 5 dBA above the ambient background level measured 1.5m from the external wall of any adjoining dwelling.

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<table>
<thead>
<tr>
<th>2.3. Swimming Pools, ancillary to a dwelling for private use only and on a lot more than 400 square metres</th>
<th>Streetscape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluding Items of Environmental Heritage and Heritage Conservation Areas as identified in Schedules 1 and 2 of the</td>
<td>Any part of the structure is not within the building line setback provided by Chapter 1 - Residential Development.</td>
</tr>
<tr>
<td></td>
<td>Bulk and Scale</td>
</tr>
<tr>
<td></td>
<td>Any coping or decking around the pool is not more than 500 mm above the natural ground level.</td>
</tr>
<tr>
<td></td>
<td>Amenity</td>
</tr>
<tr>
<td></td>
<td>The noise level of the filtration equipment or pumps does not exceed 5 dBA above the ambient background level measured 1.5m from the external wall of any adjoining dwelling.</td>
</tr>
</tbody>
</table>
### Lismore Environmental Plan.

**The Swimming Pool Act**
- All aspects of the structure comply with the deemed-to-satisfy provisions of the Swimming Pool Act 1998 and Regulations, and AS 1926.1 “Swimming Pool Safety”.

**Landslip**
- The swimming pool site is not subject to landslip.

**Sewer Mains and Stormwater Drainage**
- The proposed swimming pool is a minimum of 1.5 metres clear of any sewer main or stormwater drainage line, or equivalent of the invert depth from the pipe, whichever is the greater distance.
- The swimming pool is able to be connected by gravity drainage to Council’s sewer main, or

**Cut and Fill**
- The structure and associated earthworks are clear of all easements and sewer mains.
- The cut and fill on the site is in accordance with the provisions of Chapter 1- Residential Development.

**Trees**
- The development does not require the removal of any trees on the allotment, other than those located within the footprint of the proposed swimming pool.

**Sedimentation Control**
- Provision has been made for erosion and sedimentation control in accordance with Chapter 1 - Residential Development.

**Installation and Construction**

### 2.4. Industrial and warehouse buildings - additions and alterations involving a maximum of fifty per cent, or 300 m² increase in floor area, whichever is the lesser, in 4(a) Industrial Zones.

**Streetscape**
- Any part of the structure:
  - complies with a building line provided in an environmental planning instrument or development control plan applying to the land, and
  - is set back at least 6 metres from the front boundary or an average of the setback of like structures on land either side of the subject property, whichever is the greater.

**Energy Efficiency**
- The water closets are provided with 6/3 litre dual flush toilet suites.

**Amenities**
- Where applicable, additional toilet facilities to be provided for increased staff and for disabled persons, in accordance with the Building Code of Australia.

**Building Height**
- The roof height is no greater than the existing structure.
- The site is not cut or filled greater than 500 mm.

**Open Space and Landscaping**
- The landscaping is in accordance with Council’s “Landscape Guidelines”.

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*Note: Lismore Development Control Plan - Part A 2012 applies.*
### Flooding
- The site is not “flood liable” land.

### Sewer Mains and Stormwater Drainage
- The building is a minimum of 1.5 metres clear of any sewer main or stormwater drainage line, or equivalent of the invert depth from the pipe, whichever is the greater distance.
- The building can be connected by gravity drainage to Council’s sewer main.
- The building and any associated earthworks on the site are clear of any easements and sewer mains.

### Pollution Control
- Vacuum breaker devices are provided to all external taps.
- Backflow and cross connection controls are installed in accordance with the National Plumbing and Drainage Code AS 3500.1.
- Pollution control measures are in accordance with Council’s policy on “Pollution and Hazardous Waste Control”.
- An application to Council for approval to dispose of Trade wastes to the sewer or stormwater drainage system is not required.

### Vehicular Access, Car parking, Loading and Unloading
- The vehicle access is in accordance with Chapters 5-7 Subdivision and Infrastructure - ‘Design & Construction Specification - Vehicle Access’ provisions.
- Vehicle accommodation is provided in marked bays, behind the building line setback, in accordance with Chapter 7 - Off Street Carparking.
- Parking on site is to be provided at a rate no less than required by Chapter 7 - Off Street Carparking.
- Loading and unloading to be carried out within the site.
- Vehicle turn-around is provided within the site.
- Driveway widths and turning circles on-site comply with the Roads and Traffic Authority standards.
- Vehicle access for vehicle accommodation on site or for construction purposes does not require the removal or lopping of any Council street trees.

### Garbage and Storage Areas
- Garbage and storage areas are to be on-site, behind the building line and not visible from the street.

### Trees
- The development, including access for construction purposes, does not require the removal of any trees or landscaping on the allotment.

### Sedimentation Control
- Provision has been made for erosion and sedimentation control of the building site in accordance with Chapters 5-6 Subdivision and Infrastructure - ‘Design and Construction’ provisions.

### Stormwater
- Roof water, subsoil drainage and surface water from paved surfaces can be connected to a street drainage system, or to a drainage easement, in accordance with AS 3500.3 ‘Stormwater Drainage’.
- The drainage system is designed for a 20-year return period, with excess flows designed to flow overland, on the subject property, to the street.
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
</table>
| 2.5. Sunshading Addition to existing commercial premises in conjunction with existing approved use. | Construction  
- Freestanding sun protection erected in accordance with the manufacturer’s recommendation and the relevant Australian Standards.  
- Maximum 40m².  
- Maximum 4 metres high.  
- Colours compatible with existing building(s).  
| Landscaping  
- Existing landscaping is not affected. |
| 2.6. Commercial Buildings - existing buildings - minor internal alterations to buildings with prior development consent for the existing use. | Internal Fitouts  
- There is no increase of the floor area for commercial use.  
- The work does not require any alteration to the fire safety measures.  
- The work does not involve any increase in fire egress travel distance to a required exit.  
- The area is not to be used for the preparation, sale or storage of food intended for human consumption.  
- There is no change in Class under the Building Code of Australia. |
| 2.7 Commercial Buildings - To be used as certain food premises - minor internal alterations to buildings with prior development consent for the existing use. | Internal Fitouts  
- There is no increase of the floor area for commercial use.  
- The work does not require any alteration to the fire safety measures.  
- The work does not involve any increase in fire egress travel distance to a required exit.  
- The food premises complies with the Food Act 1989 the Food (General) Regulation 1992 and Council’s guidelines “Food Premises Code” and “Food Hygiene Standards”.  
- There is no change in Class under the Building Code of Australia. |
| 2.8 Bed and Breakfast Accommodation in an approved dwelling. | Accommodation  
- There is a maximum of 3 guest rooms and 6 guests at any one time.  
- The dwelling is to be permanently occupied by a resident.  
- Each guest room is to be provided with space and facilities to store clothes and travel gear. |

- On-site stormwater retention is to be provided in accordance with the Environmental Protection Agency manual ‘Managing Urban Stormwater’ and/or Council’s ‘Stormwater Management Plan’.  
- The building cladding matches the existing building in material and colour. The roof sheeting is not zincalume  
- The building complies with the deemed-to-satisfy provisions of Volume One, of the Building Code of Australia.  
- The development to comply with Chapter 3 -Industrial Development.  
- There is no change of use of the building.
- Accommodation must be only for short-term guests.
- Facilities available to the guests include:
  (1) a kitchen sink and facilities for the preparation and cooking of food
  (2) a bath or shower
  (3) clothes washing facilities
  (4) a closet pan and wash basin

**Signs**
- Signage is to be a maximum of 0.5m² indicating the premises is a bed and breakfast establishment and the name of the proprietor.

**Food Preparation**
- The kitchen and food storage areas comply with Council’s guidelines “Food Premises Code” and “Food Hygiene Standards”.

**Fire Protection**
- The smoke detection and alarm system complies with AS 3786 ‘Smoke alarms’.
- A fire extinguisher and fire blanket are provided in the kitchen in accordance with AS 2444.
- No key release dead locks are to be installed on guest bedroom doors and exit doors.

**Parking & Vehicular Access**
- One off street parking space is to be provided, per each guest room, in addition to exiting owner/resident’s parking space(s). Car parks are to be behind the building line setback, and in accordance with Chapter 7 - Off Street Carparking.
- Vehicles must be able to exit the site in a forward direction.
- Vehicular access or egress must not be to or from the Bruxner Highway or Bangalow Road, where the speed limit is more than 80 km/h.

**Registration**
- The premises is to be registered in Council’s Commercial Premises Register as a Bed and Breakfast establishment, prior to the commencement of business activities.

**Building Work**
- No building work, other than that exempted under Chapter 19 - Exempt Development is required.

**Construction & Maintenance**
- Each guest room is to be provided with natural light and ventilation (either natural or mechanical ventilation) in accordance with the Building Code of Australia provisions.
- All parts of the premises and all appliances and fittings (including furniture, fittings, beds and bed linen) must be kept in a clean and healthy condition.
- Linen and manchester shall be changed after each individual guest visit and changed after two days of occupation by the same guest.

**Approval**
- Approval has been obtained from the owners’ corporation, or the community, precinct or neighbourhood association, where a dwelling is subject to the Strata Schemes Management Act 1996 or the Community Land management Act 1989.
2.9. Subdivisions - for the purposes of:
- Adjusting a boundary between lots.
- Correcting an encroachment on a lot

**Setbacks**
- The setback of any existing building to a new boundary is in accordance with the Building Code of Australia and Chapter 1 – Residential Development.

**Number of Lots**
- There is no increase in the number of lots.

**Area of Lots**
- The area of the newly created lots will be in accordance with the provisions of the Lismore Environmental Plan and the difference in area between the lots to be created is not more than ten percent of the original lots.

**Battle-axe Subdivisions**
- Boundary adjustments must not minimise the access width of a battle-axe subdivision or result in the relocation of a battle-axe access handle.

**Maximum Boundary Adjustment**
- A minimum of ninety percent (90%) of either original lot area must be retained.

**Vehicular Access**
- Vehicular access to any lot is in accordance with Chapters 5-6 Subdivision and Infrastructure – Design & Construction Specification - Vehicular Access’ provisions.

**Buffer Areas**
- Buffer areas required by a prior Development Consent must not be reduced by a boundary adjustment.

**Effluent Disposal**
- The minimum effluent disposal area and boundary setback, required under Council's effluent disposal guidelines must be retained.

**Dwelling Entitlement**
- The boundary adjustment does not create any new dwelling entitlement.

**Services**
- The subdivision does not require the relocation, extension or alteration of any water main, sewer main or Council stormwater drainage line.
- The subdivision does not require the relocation, extension or alteration of any water main, sewer main or Council stormwater drainage line.

**Note:**
Boundary adjustments resulting from subdivisions allowed by this item require a subdivision certificate under the EP & A Act in order to be registered at the Land Titles Office.
| 2.10. Subdivisions - for the purpose of strata title of dual occupancies and attached dwellings | • The building or buildings were erected pursuant to a development consent granted by the Council.  
• The building or buildings have been completed and a certificate issued for it or them under Part 4 of Chapter 7 of the Local Government Act 1993 or Part 8 of the Environmental Planning and Assessment Act 1979. |
| 2.11. Acupuncture Treatment Premises | • The business meets the requirements of the NSW Health Skin Penetration Guideline. |
Chapter 21

Public Art
21 Public Art

This Chapter applies to commercial and retail development in the Business zones and to tourist development in the Business and 2(a) Residential zones where the value of the development is greater than $2 million.

21.1 Benefits of Public Art
Public art is an important element in the urban environment and can help to promote the diverse and unique characteristics of a city. The provision of public art can assist in creating more liveable and enjoyable urban spaces. A city’s history and local identity can be reflected through public art, which can increase civic pride, community cohesion and develop a sense of place.

Encouraging public art can add interest and vitality to public spaces and can also encourage the revitalisation of the built environment. This can create a focal point for social and cultural activities and can increase opportunities for community development. The inclusion of public art in the urban environment also creates a positive image of the city, making it more attractive to tourists, visitors and investors.

21.2 Provision of Public Art
New commercial, retail and tourist development to which this Chapter applies must either provide public art as a component of that development or else enter into an arrangement with Council to contribute towards the funding of public art at a location other than the development site.

Provision of public art on the site of the development
Where public art is to be provided as a component of new development on the development site it must:

- Be to a value of at least $15,000,
- Be provided in a location that is readily accessible to members of the public, and
- Be of a permanent and durable nature.

Documentation showing details of the proposed art work must be submitted with the development application. Documentation is to include:

- Scaled plans showing the location of the proposed work.
- A sketch of the proposal.
- Information on approximate dimensions
- Information on the type of materials and finish to be used.
- A statement concerning the intent of the art work

Provision of public art other than on the development site
Where the applicant prefers not to provide the art work on the site of the development, the applicant may enter into an agreement with Council to contribute an amount of at least $12,000 towards the provision of public art on public land.

21.3 Assessment of Proposals
Where public art is to be provided on the development site, documentation on the proposed art work that is submitted with the development application will be reviewed by the Public Art Reference Group prior to the determination of the Development Application.
Chapter 22

Water Sensitive Design
22 Water Sensitive Design

22.1 Introduction

This Chapter contains Lismore City Council’s requirements for the application of Water Sensitive Design (WSD) principles to developments in the Lismore local government area.

WSD is a multidisciplinary approach for integrating landuse and water management (water supply, stormwater, wastewater and groundwater) planning, with the aim of minimising the impacts of development on the natural water cycle. The main emphasis of this Chapter is stormwater management and water supply.

Development increases the area of impermeable surfaces (i.e. roads, buildings, driveways), leading to increases in the frequency, volume and magnitude of stormwater flows into natural waterways. Impermeable surfaces reduce the quantity of stormwater that can infiltrate into the soil, which results in an increase in stormwater runoff. The increase in stormwater runoff impacts on the natural water cycle and can lead to stream erosion, increased flooding, reduced groundwater recharge and increased pollution and sedimentation of waterways.

Improving water management in the design of developments, with particular emphasis on stormwater management, helps to protect aquatic ecosystems located both within the development and downstream. WSD seeks to ensure that developments are designed, constructed and maintained so as to minimise impacts on the natural water cycle.

Traditionally, stormwater management involved piped discharge from a site and the provision of stormwater detention for flood mitigation and drainage asset protection purposes. By contrast, contemporary management of the urban water cycle regards stormwater as a resource that can be reused and ensures appropriate treatment and attenuation of stormwater prior to discharge to receiving waterways.

WSD promotes a more decentralised approach to water management and gives greater emphasis to on-site collection, treatment and utilisation of water flows as part of an integrated ‘treatment train’. WSD provides the opportunity for water management measures to achieve multiple objectives. For example, customised rainwater tanks can provide reuse and detention of stormwater, as well as benefits in regard to reducing reticulated water demand and reducing the frequency and pollutant load of stormwater discharge.

This Chapter sets bench marks for design and performance outcomes at the subdivision, street and lot scales. For the purposes of this Chapter, proposed land use changes are divided into two categories, namely ‘developments’ and ‘subdivisions’, and specific requirements for each category are provided. The provisions are designed to be applied to all developments and to be compatible with the Building Sustainability Index (BASIX).
22.2 Objectives

The objectives of this Chapter are:

1. To ensure that WSD techniques are incorporated in new developments.
2. To reduce the demand for reticulated water from the town water supply.
3. To ensure that stormwater discharged from new development minimises adverse impacts on the environment and receiving waters.
4. To utilise natural surfaces and landforms as stormwater flow paths and to allow for on-site treatment where suitable.
5. To ensure that water management is a key consideration in the urban design process to maximise opportunities for water reuse and ensure stormwater management infrastructure, in particular, is appropriately integrated with the site design.
6. To protect and restore aquatic ecosystems within the development site and downstream.
7. To ensure the function of the stormwater drainage and flood protection elements of designs are not compromised by incompatible or inappropriate WSD designs.

22.3 Applicability

This chapter applies to developments and subdivisions, unless otherwise excluded by this Chapter.

Developments
Development may include residential development, commercial development, industrial development, tourist development, recreational development and car parks that have an impervious area greater than 300 m².

Developments are classified as either minor development or major development for the purpose of this Chapter. Developments are required to satisfy the WSD performance criteria in Table 1 and meet the objectives of this Chapter.

For the purposes of this Chapter development is classified as follows:

Minor Development
- Development site area less than 2,500 m²; and
- Impervious area greater than 300 m².

Minor developments are required to satisfy the performance criteria in Table 1 by either implementing the ‘deemed to comply’ solutions, or preparing a Water Management Plan that demonstrates how the development satisfies the performance criteria in Table 1 and objectives of this Chapter.

Major Development
- Development site area greater than 2,500 m²; and
- Impervious area greater than 300 m².

Major developments are required to prepare a Water Management Plan that demonstrates how the development satisfies the WSD performance criteria in Table 1 and the objectives of this Chapter.
This chapter does not apply to the following developments:

- A single dwelling-house
- A dual occupancy development
- Development which creates an additional impervious area of less than 300 m².

If works that required consent have previously been conducted on a site without Council’s consent, the area of unapproved works will be added to the area of the proposed works to determine the requirements for WSD associated with this Chapter.

**Subdivisions**

Subdivisions are required to:

1. Meet the performance criteria listed in Table 1 and the objectives of this Chapter, and
2. Be designed in accordance with the Northern Rivers Local Government Development and Design Manual.

This chapter does not apply to:

- Subdivision for residential purposes where the total land area is less than 2500 m²
- Subdivision where no additional lots are created
- Strata subdivision
- Subdivision where no road works or drainage works are required

### 22.4 Performance Criteria

Developments and subdivisions are required to achieve the performance criteria specified in Table 1.

**Table 1: Water Sensitive Design Performance Criteria**

<table>
<thead>
<tr>
<th>Component</th>
<th>Performance Criteria</th>
<th>Intent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potable Water Consumption</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reticulated water consumption for residential</td>
<td>40% reduction in the consumption of reticulated water compared to baseline (to be</td>
<td>Increase the level of water recycling, reduce the demand for</td>
</tr>
<tr>
<td>development</td>
<td>consistent with BASIX</td>
<td>reticulated water from the bulk water supply network, and help to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>alleviate the need for upgrades to bulk water infrastructure</td>
</tr>
<tr>
<td>Reticulated water consumption for all other</td>
<td>40% reduction in the consumption of potable water for staff and customer facilities</td>
<td>Minimise the risk of water quality degradation in</td>
</tr>
<tr>
<td>development</td>
<td>and outdoor use compared to baseline</td>
<td>downstream waterways and thereby protect aquatic ecosystems</td>
</tr>
<tr>
<td><strong>Stormwater Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>75% reduction in the mean annual load compared to baseline</td>
<td>Minimise the risk of water quality degradation in downstream</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>65% reduction in the mean annual load compared to baseline</td>
<td>waterways and thereby protect aquatic ecosystems</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>40% reduction in the mean annual load compared to baseline</td>
<td></td>
</tr>
<tr>
<td>Gross Pollutants</td>
<td>90% reduction in the mean annual load compared to baseline</td>
<td></td>
</tr>
</tbody>
</table>
**Stormwater Quantity**

| Flow rates (environmental protection) | Limit the post-development peak 1 year average recurrence interval (ARI) discharge from the site to the pre-development peak 1 year ARI discharge. | Reduce the likelihood of increased rates of bed and bank erosion and damage to benthic habitat in waterways |
| Flow rates (infrastructure protection) | Limit the post-development peak 10 year average recurrence interval (ARI) discharge from the site to the pre-development peak discharge for the same ARI and assess the capacity of existing flow paths to accommodate the post development 100 year average diversion of stormwater to a discharge location where the increased frequency of discharge will not have a detrimental impact on aquatic ecosystems. Reduce discharge from the site and provide necessary attenuation / infrastructure upgrade to ensure flow paths can accommodate anticipated flows. | Ensure that the development does not result in increased stormwater flows that exceed the capacity of the external stormwater drainage infrastructure and / or exacerbate overland flow problems |

WSD measures constructed or approved as part of a broader scheme can be credited towards the achievement of the performance criteria for a subsequent development. For example, the design of an industrial subdivision may incorporate WSD measures designed to achieve the stormwater quality performance criteria based on an assumed impervious figure for the developed lots. The WSD measures implemented at the subdivision stage will be credited towards satisfying the performance criteria for the subsequent industrial development on the subject lot.

There may be circumstances in which there is no benefit in applying the Stormwater Quantity performance criteria listed in Table 1. In such instances, Council must agree that the relevant criteria are not applicable.

For some developments, particularly infill developments, it may be difficult to implement the WSD measures required to meet the performance criteria listed in Table 1. In these instances, Council may approve a request to adopt less stringent performance criteria where appropriate justification is provided eg. through MUSIC modelling.

Designs should aim to divert runoff from all impervious areas to the stormwater management device(s). If this cannot be achieved, Council may accept designs which allow runoff from a small portion of the impervious area to bypass the stormwater management device(s). However, the stormwater management device(s) must still be sized based on the whole development site area.

### 22.5 Suggested Solutions

#### 22.5.1 Developments

Minor developments are required to meet the performance criteria specified in Table 1 by either:

- Implementing the relevant ‘deemed to comply’ solutions listed in Table 2 for Residential Developments or Table 3 for Other Developments; or
- Preparing a Water Management Plan that demonstrates how the development will meet the relevant performance criteria specified in Table 1.
### Table 2: ‘Deemed to Comply’ Solutions – Residential Developments

<table>
<thead>
<tr>
<th>Component</th>
<th>‘Deemed to Comply’ Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reticulated Water Consumption</td>
<td>Provide BASIX certificate with development application</td>
</tr>
<tr>
<td><strong>Stormwater Quality</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One, or a combination, of the following:</td>
</tr>
<tr>
<td></td>
<td>▪ Bioretention system(s), with a filter media area sized at 1.5% of the contributing catchment area.</td>
</tr>
<tr>
<td></td>
<td>▪ Constructed stormwater wetland(s), with a macrophyte zone area sized at 6.5% of the contributing catchment area.</td>
</tr>
<tr>
<td></td>
<td>▪ Proprietary stormwater treatment product that achieves the performance criteria.</td>
</tr>
<tr>
<td><strong>Stormwater Quantity</strong></td>
<td>Stormwater detention system designed to attenuate the 1 year ARI and 10 year ARI peak discharge to pre-development levels. NOTE: Most minor developments will require a stormwater detention system that has a volume equivalent to 4 – 5 L per m² of development site area.</td>
</tr>
</tbody>
</table>

### Table 3: ‘Deemed to Comply’ Solutions – Other Developments

<table>
<thead>
<tr>
<th>Component</th>
<th>‘Deemed to Comply’ Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reticulated Water Consumption</td>
<td></td>
</tr>
<tr>
<td><strong>Stormwater Quality</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Stormwater Quantity</strong></td>
<td></td>
</tr>
<tr>
<td>Water efficient appliances and fittings - Water Efficiency Labeling and Standards (WELS) rating of a minimum of three stars.</td>
<td></td>
</tr>
<tr>
<td>Rainwater tank(s) with a volume of 1.5 kL per toilet/urinal plus 0.05 kL per m² of irrigated landscaping. Tank(s) to be connected to 50 m² of roof area per toilet/urinal plus 2 m² per m² of irrigated landscaping (or the total roof area if this is less).</td>
<td></td>
</tr>
<tr>
<td>NOTES: 1. Tank(s) must be connected to all toilets and water-using urinals and sufficient outdoor taps to serve the irrigated landscaping. 2. An appropriate mechanism is to be provided for automatically switching to the town water supply when the volume of water in the rainwater tank(s) is low.</td>
<td></td>
</tr>
</tbody>
</table>

### Guidance

Guidance on the design of the water sensitive design measures listed as ‘deemed to comply’ solutions in Table 2 is provided in Council’s water sensitive design guidelines for minor developments.

Major developments require the preparation and implementation of a Water Management Plan that demonstrates how the development will meet the performance criteria specified in Table 1. Guidance on recommended water sensitive design measures and details to be included in the Water Management Plan are provided in Section 22.7 of this Chapter.
22.5.2 Subdivision

Subdivisions are required to be designed in accordance with the Northern Rivers Local Government Development and Design Manual and meet the objectives and performance criteria of this Chapter. All stormwater quality treatment devices for subdivisions are required to be sized to treat the 1 in 3 month rainfall event.

Subdivisions require the preparation of a Water Management Plan that demonstrates how the development will meet the performance criteria specified in Table 1. Section 22.6 provides guidance on recommended WSD measures. The details to be included in the Water Management Plan are provided in Section 22.7 of this Chapter.

Stormwater treatment devices that utilise soft engineering treatment solutions that can be contained within either existing or proposed public reserves are preferred. Treatment areas within private lands will be considered subject to registration of appropriate encumbrances upon the private land. All proposals should provide sufficient information to demonstrate that public safety, proposed infrastructure design levels and grades will fit within existing site contours, and proposed infrastructure can be maintained economically and feasibly. Solutions that propose the provision of publicly owned hard engineering treatment devices that can fail due to insufficient maintenance levels, or that require the use of specialist equipment for maintenance are generally not supported.

Residential Subdivision

Residential subdivisions must be designed in accordance with the Northern Rivers Local Government Development and Design Manual and include an allowance of 300 m² impervious area on each proposed residential lot to account for the likely impervious area associated with future residential development on the lots in addition to other constructed impervious areas such as roads. If this allowance is not representative of the proposed future residential development, the use of an alternative impervious area allowance should be discussed with Council.

Residential subdivision will incorporate WSD measures that are designed to achieve the stormwater performance criteria based on the assumption that a mixture of dwelling-houses and dual occupancies will be constructed on the residential lots. Therefore, the stormwater performance criteria can be considered to have already been satisfied for any subsequent dwelling-house or dual occupancy.

Industrial and Commercial Subdivision

Industrial and commercial subdivision must be designed in accordance with the Northern Rivers Local Government Development and Design Manual. The subdivision design must implement WSD measures for the roads and may incorporate broad WSD measures that account for the proposed future industrial or commercial development on the lots.

If the subdivision design only incorporates WSD measures for the roads, subsequent developments on the individual lots will be required to satisfy the stormwater performance criteria for industrial or commercial development.

If the subdivision design incorporates broad WSD measures based on a nominal figure of impervious area for the proposed future industrial or commercial development, the allowance will be credited toward satisfying the stormwater performance criteria for the subsequent development on the individual lots. A typical industrial or commercial development has an impervious area equal to at least 90% of the development site area.
22.6 Water Sensitive Design Measures

When preparing a Water Management Plan, the potential WSD measures that may be implemented, and methods for demonstrating compliance with the performance criteria, are listed in Table 4.

Guidance on the selection of appropriate WSD measures and their subsequent design, construction and establishment is provided in numerous industry publications, in particular the WSUD Technical Design Guidelines for South East Queensland.

With regard to treatment devices that will become public infrastructure, applicants are advised that due to public safety, maintenance and operational issues arising from some treatment solutions Council limits the array of treatment options that will be accepted as public infrastructure. It is recommended that prior to developing a Water Management Plan that proposes public infrastructure the designer contact Council to discuss requirements.

Table 4: Potential Water Sensitive Design Measures

<table>
<thead>
<tr>
<th>Component</th>
<th>Potential Water Sensitive Design Measures</th>
<th>Method for Demonstrating Compliance</th>
</tr>
</thead>
</table>
| Reticulated Water Consumption | Appropriate combination of the following:  
- Indigenous or low water use plants  
- Water efficient appliances and fixtures  
- Rainwater tank  
- Stormwater tank  
- On-site greywater system  
- Recycled water supply | Water balance analysis using industry standard software, customised spreadsheet or other suitable means |
| Stormwater Quality | Appropriate combination of the following:  
- Litter trap  
- Gross Pollutant Trap (GPT)  
- Bioretention system  
- Vegetated swale  
- Bioretention swale  
- Sedimentation basin  
- Constructed stormwater wetland  
- Sand filter  
- Porous pavement system  
- Rainwater tank  
- Stormwater tank  
- Infiltration system  
- Proprietary stormwater treatment product | Stormwater quality modelling using industry standard software |
| Stormwater Quantity | Appropriate combination of the following:  
- Detention tank  
- Detention basin  
- Infiltration system | Hydrologic analysis using a runoff routing method |
22.7 Requirements for Water Management Plans (WMPs)

Major Developments
Major developments require the preparation of a Water Management Plan. The Water Management Plan must demonstrate how the development or subdivision will meet the performance criteria specified in Table 1 and the objectives of this Chapter. The Water Management Plan must include the following information (where appropriate):

- **Site and catchment description** – site location, existing land use, available water supplies, description of broader catchment, surrounding land uses, soil types, hydrology, drainage characteristics, stormwater discharge locations, downstream waterways and any ecological habitats or species of particular significance.

- **Description of proposed development** – including proposed catchment plan with contours.

- **Summary of water sensitive design objectives / performance criteria.**

- **Reticulated water consumption** – water consumption assumptions, description of proposed water sensitive design measures, justification of selection, details of water balance analysis to demonstrate compliance.

- **Stormwater quality** – description of proposed water sensitive design measures, justification of selection, details of stormwater quality modelling to demonstrate compliance (including assumptions).

- **Stormwater quantity** – description of proposed water sensitive design measures, justification of selection, details of hydrologic analysis to demonstrate compliance (including assumptions).

- **Tailored ecological protection measures** – details of any strategies proposed to protect / enhance any identified ecological habitats or species of particular significance.

- **Responsibility** – specification of parties responsible for the supervision, construction, establishment / commissioning and ongoing maintenance of water sensitive design measures, including proposed methods for transferring responsibility for measures located on private property (if applicable).

- **Maintenance** – proposed maintenance regime for water sensitive design measures.

The information listed above is relevant to the water sensitive design aspects of the development. To consolidate the reporting process, designers and consultants may include other design information in the Water Management Plan. For example, it may be appropriate to include details of construction phase stormwater management (i.e. erosion and sediment control), flooding assessments, and wastewater management. Council officers can recommend appropriate documents to assist in the preparation of a Water Management Plan.
22.8 Definitions

**Baseline** - Refers to outcomes from a development scenario where no water sensitive design measures are implemented to improve or mitigate potential impacts of the development. The baseline is the “do nothing” or “business as usual” scenario.

**BASIX** – A web-based design tool that ensures residential developments meet the NSW Government’s targets for reductions in water consumption and greenhouse gas emissions.

**Bioretention system** – A stormwater treatment system that utilises the natural filtering characteristics of soil and vegetation to remove pollutants from stormwater. Bioretention systems remain dry except during and immediately after rainfall.

**Catchment** – Area of land that contributes stormwater runoff to a specific location.

**Coarse sediment** – Sediment particles within the size range of 0.1 mm to 5 mm.

**Constructed stormwater wetland** – A densely vegetated wetland that is specifically designed to remove pollutants from stormwater. Constructed stormwater wetlands are permanently wet and typically have some open water zones.

**Detention** – The containment of runoff within a storage for relatively short periods to reduce peak flow rates. The volume of runoff that passes through the storage is relatively unchanged.

**Detention basin** – A reservoir or storage which temporarily contains stormwater runoff with the purpose of reducing peak flow rates.

**Development site area** – The area of the site of the proposed development.

**Erosion and sediment control plan** – A plan that specifies erosion and sediment control measures.

**Impervious (or impermeable) surface** – A surface that prevents infiltration of water into the ground. Impervious surfaces typically include roads, carparks, driveways, footpaths, roofs, paved areas and heavily compacted clay soils.

**Infill Development** – Development in an established urban area (e.g. town centre).

**Irrigated landscaping** – The area of landscaping (turf or garden) within the development site that is expected to require regular watering.

**Non Reticulated water** – Water that does not meet the requirements of drinking water as defined in the Australian Drinking Water Guidelines.

**Nutrients** – Substances that are needed by plants and animals for growth (e.g. nitrogen, phosphorus). In waterways, excessive quantities of nutrients can lead to degradation of water quality by promoting excessive growth, accumulation, and subsequent decay of plants, especially algae.

**Porous pavement** – A specially designed pavement that allows water to infiltrate through the pavement. Porous (permeable) pavements are typically constructed using either: (i) pavers that are physically shaped and/or arranged so that there are gaps between the pavers; (ii) pavers that allow water to pass through the paver itself (e.g. ‘no fines’ concrete pavers); or (iii) flexible or rigid pavements (e.g. asphalt or concrete) that are permeable.

**Pervious (or permeable) surfaces** – A surface that allows infiltration of water into the ground. Pervious surfaces typically include grassed or landscaped areas, parks, sporting fields and naturally vegetated areas (e.g. forests).
Reticulated water – Water that meets the requirements of drinking water as defined in the Australian Drinking Water Guidelines.

Riparian corridor – Riparian vegetation along a waterway network that provides linear habitat areas for fauna movement.

Riparian vegetation – Indigenous vegetation along the edge of a waterway that is part of the ecology of the waterway. This vegetation performs numerous functions including filtering runoff and providing habitat for fauna.

Rainwater Tank – A tank which collects roof water.

Roofwater – Water produced by rainfall onto the roof catchment of a building.

Runoff – The portion of rainfall that exceeds the infiltration capacity of the surface it has fallen onto and subsequently flows across the surface.

Sediment – Sediment is any particulate matter that can be transported by fluid flow and which eventually is deposited as a layer of solid particles on the bed or bottom of a body of water.

Stormwater – see Runoff.

Stormwater Tank – A tank which collects stormwater.

Water Management Plan (WMP) – A document, including relevant drawings, which describes how a proposed development will meet the performance criteria specified in this Chapter.
Water Sensitive Design
Technical Guidelines
for Minor Development

Cleaner waterways: healthy environment: healthy community
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Introduction

This document contains guidelines relating to water sensitive design measures for ‘minor development’, as defined in Lismore Development Control Plan (DCP): Part A – Chapter 22 Water Sensitive Design. These guidelines have been prepared to assist designers to ensure that development proposals meet Lismore City Council's water sensitive design requirements.

1.1 Purpose

The purpose of this document is to provide guidance on the design, construction, establishment and maintenance of the water sensitive design measures listed as ‘deemed to comply’ solutions in Lismore DCP Chapter 22 – Water Sensitive Design. The water sensitive design measures covered in these guidelines are:

- bioretention systems;
- constructed stormwater wetlands; and
- stormwater detention systems.

The ‘deemed to comply’ solutions are only applicable to ‘minor developments’, as defined in Chapter 22 Water Sensitive Design. As such, the information provided in these guidelines is specifically tailored towards relatively small-scale water sensitive design measures. These guidelines should not be used to design larger water sensitive design measures for ‘major developments’. Council officers can recommend appropriate references for the design of ‘major developments’.

The ‘deemed to comply’ solutions presented in Lismore DCP Chapter 22 – Water Sensitive design represent standardised solutions that are acceptable to Council. It is anticipated that by adopting and implementing the ‘deemed to comply’ solutions, there will be cost savings due to the simplified design process. Standard drawings that assist to further simplify and expedite the design process are available from various organisations, including the South East Queensland Healthy Waterways Partnership (Water by Design program).

Designers and developers are not obliged to adopt and implement the ‘deemed to comply’ solutions. The alternative approach is to prepare a Water Management Plan (WMP), which describes how the proposed development will meet the relevant performance criteria specified in the DCP.

1.1.1 Note on rainwater tanks and proprietary stormwater treatment products

Rainwater tanks and proprietary stormwater treatment products are also listed as ‘deemed to comply’ solutions in Lismore Development Control Plan: Part A - Chapter 22 Water Sensitive Design. However, these measures are not covered in these guidelines.

Guidance on the design and installation of rainwater tanks is contained in Lismore City Council’s Rainwater Tank Installation Guideline.

The category of ‘proprietary stormwater treatment products’ includes an ever-changing range of commercially available products from numerous manufacturers / distributors. As such, it is not possible to provide comprehensive guidance on the design of these systems in this document. In any case, the relevant distributor should be contacted for up-to-date product information. Additional notes on proprietary stormwater treatment products are provided in Section 2.2.1
1.2 Structure
The following table provides a summary of the information provided in the subsequent sections of this document:

<table>
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<th>Title</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
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<td>2</td>
<td>Selection of Water Sensitive Design Measures</td>
<td>General guidance regarding the key factors influencing the selection of WSD measures for a development site</td>
</tr>
<tr>
<td>3</td>
<td>Bioretention Systems</td>
<td>Guidance on the design, construction, establishment and maintenance of bioretention systems</td>
</tr>
<tr>
<td>4</td>
<td>Constructed Stormwater Wetlands</td>
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</tr>
<tr>
<td>5</td>
<td>Stormwater Detention Systems</td>
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</tr>
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</table>

1.3 Acknowledgements
Lismore City Council is grateful to the following organisations for the provision of text and images utilised in this document:

- Sydney Metropolitan Catchment Management Authority (Water Sensitive Urban Design in Sydney program)
- South East Queensland Healthy Waterways Partnership (Water by Design program)
Selection of Water Sensitive Design Measures

The sections below provide guidance on the selection of appropriate water sensitive design measures for ‘minor developments’, as defined in the WSD chapter of the DCP.

2.1 Reticulated Water Consumption

Rainwater tanks are the only water management measure specified as a ‘deemed to comply’ solution to meet the ‘reticulated water consumption’ performance criterion. Guidance on the design and installation of rainwater tanks is contained in Lismore City Council’s *Rainwater Tank Installation Guideline*.

2.2 Stormwater Quality

Three stormwater treatment devices have been specified as ‘deemed to comply’ solutions to meet the ‘stormwater quality’ performance criteria. These three devices are:

- bioretention systems;
- constructed stormwater wetlands; and
- proprietary stormwater treatment products.

Guidance on the design of bioretention systems and constructed stormwater wetlands is provided in this document. As mentioned in Section 1.1.1, proprietary stormwater treatment products are not covered in this document. However, some notes on proprietary stormwater treatment products are provided in Section 2.2.1.

There are opportunities for stormwater treatment devices to perform multiple functions. For example, bioretention systems and constructed stormwater wetlands can be landscape features as well as functional stormwater treatment devices. Similarly, most porous pavement systems (a type of proprietary stormwater treatment product) are specifically designed to be functional pavements. With appropriate design, some porous pavement systems can be utilised in areas with vehicular traffic, such as car parking areas.

Selection of the most appropriate stormwater treatment device for a particular development will be influenced by:

- availability of space on the site;
- landscape and site design objectives;
- slope of land; and
- level difference between the site and the water level at the stormwater discharge location in the receiving drainage system / waterway.

General guidance regarding each of these issues is listed below. Consideration of these issues in the context of an individual site should enable the designer to determine the most appropriate measure.

**Space**

In general, a proprietary stormwater treatment product will take up less space on a site than a bioretention system, which in turn will occupy less space than a constructed stormwater wetland. The total footprint of a bioretention system will typically be less than half that of a constructed stormwater wetland, assuming they are both sized to achieve the same level of stormwater treatment.
**Landscape Objectives**
A constructed stormwater wetland provides the best opportunity to create a landscape feature with a high level of amenity and ecological value, due to the ability to incorporate open water areas and a variety of vegetation types. Bioretention systems can also be designed as attractive landscape features and there is flexibility regarding overall shape and style. Proprietary stormwater treatment products are often located underground and, as such, do not enhance or detract from the landscape or site design. An exception to this is porous pavements, which can be designed to complement the overall site / landscape theme.

**Slope**
Flat sites pose a design challenge because once stormwater has been diverted into an underground pipe system, it can be very difficult to then bring the stormwater back to the surface and discharge onto a treatment device such as a bioretention system or a wetland. Therefore, on flat sites it may be appropriate to consider numerous devices spread throughout the site rather than a single lumped device. This allows stormwater to be treated on the surface before it is diverted to an underground pipe system. An alternative is to utilise a below-ground proprietary stormwater treatment product. Sloping sites are typically less constrained and support a variety of design solutions, although substantial earthworks may be required to create the flat pads required for bioretention systems or wetlands.

**Level Difference**
For the majority of stormwater treatment devices, the water level upstream of the device is higher than the water level downstream of the device. This is sometimes referred to as the head loss through the device. Bioretention systems typically require more head loss than a constructed stormwater wetland. However, the head loss through a bioretention system can be reduced if the system is designed to allow stormwater that has percolated down through the filter media to infiltrate into the underlying soil (refer to Section 3.2 for details). The head loss of proprietary stormwater treatment products varies greatly.

The implication for site design is that the greater the head loss through the stormwater treatment device, the greater the level difference needs to be between the site surface levels and the water level at the stormwater discharge location in the receiving drainage system / waterway. If this level difference is minimal, additional filling of the site may be required to allow the stormwater treatment device to function properly.

**2.2.1 Note on proprietary stormwater treatment products**
If a proprietary stormwater treatment product is proposed for a development, the following supporting information must be provided with the application:

- Brief description of how the product functions, including the pollutant removal mechanisms.
- Justification that the proposed system can meet the ‘stormwater quality’ performance criteria, including supporting documentation that presents the results of rigorous, independent scientific testing.
- Description of how the system has been sized, including any alterations to standard designs to account for local climatic conditions.
- Maintenance and renewal requirements.

At the time of writing this document, proprietary stormwater treatment products that may be capable of meeting the ‘stormwater quality’ performance criteria include the Envisp porous pavement system, StormFilter by Stormwater 360, Hydrofilter by Humes, and Filternator by Rocla. This is not an exhaustive list and the stormwater treatment performance of these products has not been assessed for compliance with the ‘stormwater quality’ performance criteria.
2.3 Stormwater Quantity

The ‘deemed to comply' solution to meet the ‘stormwater quantity’ performance criteria is a stormwater detention system designed to attenuate the 1 year ARI and 10 year ARI peak discharges to pre-development levels. There are several types of stormwater detention systems that can be utilised on relatively small sites and these options are discussed in Section 5.
Bioretention Systems

3.1 Overview
Bioretention systems are commonly utilised throughout Australia to provide treatment of stormwater. Bioretention systems are also referred to as ‘biofiltration systems’ and ‘rain gardens’. More specific terms such as ‘bioretention basins’, ‘bioretention pods’ and ‘bioretention trenches’ are sometimes used to describe bioretention systems of a particular shape and size. General information about bioretention systems can be found in water sensitive urban design guidelines and fact sheets produced by organisations such as the Facility for Advancing Water Biofiltration (FAWB), South East Queensland Healthy Waterways Partnership, NSW Department of Environment, Climate Change and Water, Brisbane City Council, Sydney Metropolitan Catchment Management Authority, and Melbourne Water.

3.2 Features
Bioretention systems consist of a flat vegetated area overlying a permeable soil layer that is typically 0.4 – 0.8 m deep. Stormwater that flows into the bioretention system is initially filtered through the densely planted surface vegetation. As the stormwater percolates down through the soil, pollutants are removed through fine filtration, adsorption and biological uptake. Key features of bioretention systems are shown in Illustration 1.1 and include:

- **Surface vegetation** – Typically native sedges, rushes and grasses.
- **Filter media** – Soil that has appropriate permeability (i.e. infiltration rate) and can sustain healthy vegetation. In general, suitable filter media comprises clean loamy sand with some organic matter.
- **High flow outlet(s)** – Pits, pipes or weirs to convey flows that exceed the infiltration capacity of the filter media.
- **Extended detention zone** – Bioretention systems are purposefully designed to allow temporary ponding of stormwater on the surface, typically to a depth of 200 – 400 mm. Stormwater that ponds in the extended detention zone ultimately infiltrates down through the filter media, rather than discharging via the high flow outlet(s). Therefore, the extended detention zone is located below the level of the high flow outlet(s). An additional 200 – 400 mm ponding depth is typically required above the level of the high flow outlet(s) to ensure efficient conveyance of stormwater in high flow events.
- **Bunds / Walls** – Earth bunds, concrete walls or some other means of containing ponded stormwater within the bioretention system.

If the in situ soils underlying the bioretention system are suitable, it may be appropriate to allow stormwater that has percolated down through the filter media to infiltrate into the underlying soil. If this approach is to be pursued, the saturated hydraulic conductivity (i.e. infiltration rate) of the underlying soil must be at least equivalent to the saturated hydraulic conductivity of the filter media. Groundwater levels must also be assessed and the bioretention system should be designed so that the base of the filter media is above the seasonal high groundwater level. In areas with shallow groundwater, it is recommended that the sides of the filter media be lined with an impermeable liner. The potential for localised groundwater mounding in the vicinity of the bioretention system should be assessed to ensure that no structures will be adversely affected.
If infiltration of stormwater into the underlying in situ soils is either inappropriate or undesirable, the following items need to be incorporated into the design of the bioretention system:

- **Under-drains** – Slotted PVC pipes at the base of the filter media that collect the filtered stormwater and convey this water to the outlet location.
- **Drainage layer** – A bedding layer of fine gravel in which the under-drains are laid.
- **Transition layer** – A layer of coarse sand to provide physical separation between the filter media and the drainage layer. The purpose of the transition layer is to prevent the filter media (loamy sand) being washed down into the drainage layer (fine gravel).

Illustration 1.1 Typical cross section through a bioretention system (with under-drains)
Illustration courtesy of South East Queensland Healthy Waterways Partnership (Water by Design program)

### 3.3 Design

Bioretention systems can be any shape and should be designed to complement the overall landscape and site design theme. For example, in a high density commercial zone it might be appropriate to have a bioretention system with straight edges, sharp corners and vertical walls. Conversely, in a residential setting with extensive landscaping, it might be appropriate to have a bioretention system with curved edges and gently sloping batters that are densely planted.

The following sections detail the steps that should be undertaken during the concept design phase and the subsequent detailed design phase. Concept design refers to the development of the initial site layout, which takes into account the opportunities and constraints of the site. Detailed design refers to the preparation of design drawings for submission to Council, either to support a development application or an application for a construction certificate.

#### 3.3.1 Concept design phase
Given that a bioretention system will be a significant feature within the site layout, it is important that the bioretention system is appropriately considered during the concept design of the development. As a minimum, the following steps are recommended during the concept design phase:

1. Identify the location and level of the ultimate stormwater discharge location.
2. Identify a suitable location for the bioretention system (ensuring there is appropriate access for maintenance).
3. Determine the catchment area that will drain to the bioretention system.
4. Calculate the required size of the filter media area.
   As specified in the DCP:
   \[
   \text{filter media area} = 1.5\% \text{ of catchment area (residential development)}
   \]
   \[
   \text{filter media area} = 1.8\% \text{ of catchment area (all other development)}
   \]

5. Estimate the overall footprint of the bioretention system. Note: If the bioretention system will have sloping batters around the sides, the overall footprint of the system is likely to be 3 times the filter media area.

6. Ensure that the site layout allows sufficient area for the bioretention system.

7. Confirm that there is sufficient level difference for the bioretention system to function properly and drain freely after rainfall. Note: For bioretention systems with under-drains, the surface level of the bioretention system (i.e. top of filter media) typically needs to be at least 0.5 m above the normal water level in the receiving drainage system / waterway. Bearing in mind that the bioretention system needs to incorporate a ponding depth of at least 0.4 m (refer to description of ‘extended detention zone’ in Section 3.2), this means that there typically needs to be a level difference of at least 0.9 m between the minimum site surface level and the normal water level in the receiving drainage system / waterway. In some instances, stormwater drainage or flooding issues may dictate that this level difference needs to be even greater.

During the concept design phase, it may become apparent that a bioretention system is not an appropriate stormwater treatment system for the site. If this is the case, an alternative stormwater treatment system will need to be investigated.

3.3.2 Detailed design phase
The following table specifies the design requirements for the key features of a bioretention system.

**Table 3.1 Design Requirements for Bioretention Systems**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Design Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter media area</td>
<td>1.5 % of catchment area (residential development)</td>
</tr>
<tr>
<td></td>
<td>1.8 % of catchment area (all other development)</td>
</tr>
<tr>
<td>Depth of filter media layer</td>
<td>400 mm (&gt; 600 mm is preferable)</td>
</tr>
<tr>
<td>Depth of extended detention zone (i.e. depth of ponding below the level of the high flow outlet(s))</td>
<td>200 mm</td>
</tr>
<tr>
<td>Depth of transition layer (if applicable)</td>
<td>100 mm</td>
</tr>
<tr>
<td>Depth of drainage layer (if applicable)</td>
<td>150 mm</td>
</tr>
<tr>
<td>Type of under-drains (if applicable)</td>
<td>Slotted PVC pipes</td>
</tr>
<tr>
<td>Longitudinal grade of under-drains (if applicable)</td>
<td>0.5 %</td>
</tr>
<tr>
<td>Lateral offset between under-drains (if applicable)</td>
<td>1 m</td>
</tr>
<tr>
<td>Location of cleanout / inspection standpipes for under-drains (if applicable)</td>
<td>At the end of each under-drain and at each junction</td>
</tr>
<tr>
<td>Level of bunds / walls surrounding bioretention system</td>
<td>As required by stormwater drainage design</td>
</tr>
</tbody>
</table>
As a minimum, the following steps are recommended during the detailed design phase:

1. Confirm the size of the catchment area that will drain to the bioretention system.
2. Confirm the required size of the filter media area.
3. Design the layout of the bioretention system, including extent of filter media, location of outlets, extent of bunds / walls.
4. Determine whether under-drains are required or whether it is appropriate to allow infiltration into the underlying soil.
5. Set the key levels of the bioretention system ensuring that the minimum requirements are met (e.g. level of bunds / walls surrounding bioretention system, level of high flow outlet(s), top of filter media, transition layer, drainage layer, connection to outlet).
6. Prepare earthworks design of the bioretention system.
7. Design under-drains (if required) – layout, location of cleanout / inspection standpipes.
8. Design high flow outlet(s) – The design of the high flow outlet(s), including the pipes/channels that connect to the ultimate discharge location, will typically be undertaken as part of the hydraulic design of the overall stormwater drainage system for the site. To simplify the hydraulic design process, infiltration of stormwater into the bioretention filter media can be ignored. The peak water level in the bioretention system will be determined during the hydraulic design and this will influence the required level of the bund or embankment surrounding the system.

The design drawings that accompany a development application or an application for a construction certificate should include the following information:

- **Drainage layout** – Information to be shown includes location of the bioretention system within the site layout, catchment boundaries (if applicable), drainage paths (surface and sub-surface), and connection to discharge location.
- **Biotreatment system (plan view)** – Information to be shown includes extent of filter media, extent of surrounding bunds / walls, location of high flow outlet(s), key levels (e.g. surface level of filter media, level of high flow outlet(s), base levels), contours, maintenance access provision, layout of under-drains (if applicable).
- **Biotreatment system (typical section)** – A typical section should be provided which shows the depth of each soil layer, key levels, details of surrounding bunds / walls etc.
- **Biotreatment system (details & notes)** – Details are typically required for high flow outlet(s), headwalls, scour protection, and under-drains. Drawing notes should include construction advice and specifications for the soils and plants (refer to information below). In some instances, it may be more appropriate to include the plant specification on a separate landscape drawing.

### 3.3.2.1 Soil specification

The percolation of stormwater through the filter media soil layer is one of the key mechanisms for pollutant removal in a bioretention system. Therefore, it is critical that appropriate soil is utilised in the filter media layer. In general, the filter media should be clean loamy sand with an appropriately high permeability under compaction and should not be hydrophobic. The filter media should contain some organic matter for increased water holding capacity but be low in nutrient content.

Council officers may be able to recommend soil products from local soil suppliers that are suitable for use in the filter media layer. Alternatively, the following specification can be utilised:

*The saturated hydraulic conductivity of the filter media is to be 200 – 400 mm/hr measured using the ASTM F1815-06 method. The filter media must also meet the filter media specifications detailed in the “Guidelines for Soil Filter Media in Biotreatment Systems” published by the Facility for Advancing Water Biofiltration (FAWB). Refer to www.monash.edu.au/fawb for details.*
If a transition layer is required, it should consist of clean, well-graded coarse sand containing little or no fines. The average particle size should be approximately 1 mm.

If a drainage layer is required, it should consist of clean, fine gravel, such as 2-5 mm washed screenings.

### 3.3.2.2 Plant specification

The landscape architect / designer should prepare a planting plan or specification for the bioretention system, which complements the broader landscape design. **Research needs to be undertaken to determine the tolerance of different species to different depths of water.**

The filter media area should be planted with native sedges, rushes and grasses. Depending on the species used a planting density of approximately 10 plants per square metre should be utilised. The following plants are considered to be suitable: *carex appressa; carex fasicularis; cyperus exaltatus; cyperus polystachyos; juncus usitatus; ficinia nodosa; pennisestum alopecuroides; lomandra longifolia; lomandra hystrix*. If earth bunds are utilised around the bioretention system, the lower portion of the batters should be planted with vegetation that can tolerate periodic inundation.

### 3.3.2.3 Safety issues

The design of a bioretention system needs to ensure public safety requirements are addressed through a risk based approach.

Fences or vegetation barriers to restrict access should be provided above vertical walls or steep embankments if:

- there is a risk of serious injury in the event of a fall.
- there is a high level of pedestrian or vehicular exposure (e.g. adjacent to footpaths / cycleways, playgrounds, sports fields).

Access to deep water (e.g. > 300 mm) should also be restricted through the utilisation of fences or vegetation barriers. As discussed in Section 3.2, bioretention systems are purposefully designed to allow temporary ponding of stormwater on the surface. The design of safety measures should take into account this temporary ponding.

If vegetation barriers are utilised to restrict access, plant species that are tall, dense and spiky will be the most effective. A temporary fence (e.g. sediment fence) will be required until the vegetation is sufficiently established to provide a physical barrier.

Where appropriate, signs should be provided to warn of deep and / or fast flowing water.

### 3.3.2.4 Designing to deter cane toads

The design of bioretention systems is to incorporate measures to discourage cane toads from breeding in these structures.

In order to breed in a waterbody, cane toads require easy access to the water’s edge. A pond edge with a vertical, rather than sloping, profile can prevent cane toads from getting into and out of the water. Where a sloping pond edge is necessary, incorporating dense vegetation and low barrier fencing around the waterline, is an effective way to stop cane toads from accessing the water. It is desirable that these measures are installed as soon as practicable once construction is complete.

Densely planting the pond edge with native sedges, rushes and grasses will help to exclude cane toads, whilst providing habitat for native frogs and waterbirds. In order to form an effective toad barrier, the plants must be densely spaced and a minimum of three rows of planting installed directly adjacent to the waterline.
A cane toad exclusion fence (minimum 500mm in height) is to be installed behind the 3 rows of sedge planting. The fence is to be maintained until such time as the plants have matured enough to form an effective barrier. Suitable materials for cane toad exclusion fencing include shadecloth or sediment film supported by timber or metal stakes.

### 3.4 Construction and Establishment

Comprehensive guidance on the construction and establishment of bioretention systems is provided in the Construction and Establishment Guidelines: Swales, Bioretention Systems and Wetlands (South East Queensland Healthy Waterways Partnership, Version 1 February 2009). Key issues associated with the construction and establishment process are summarised in the following sections.

#### 3.4.1 Timing

Rainfall and the associated stormwater runoff can cause irreparable damage to a bioretention system during construction. In particular, sediment-laden inflows during the installation of the soil layers will typically require the installed soil layers to be completely removed and replaced. This highlights the importance of careful planning and efficient construction. The construction of a small bioretention system can be completed in a couple of days, so the risk of damage due to stormwater inflows can be minimised through appropriate planning and monitoring of weather forecasts.

#### 3.4.2 Managing risk of damage during building construction phase

It is important to note that bioretention systems are designed to treat stormwater runoff from developed sites. They are not designed to be sediment and erosion control measures during the construction phase, although they can be temporarily modified to perform this function. Bioretention systems are quite robust to variations in stormwater inflows (both quantity and quality), but they can be damaged by inflows that contain unusually high concentrations of some pollutants, such as sediment or metals. This includes sediment-laden runoff from a typical building construction site. As such, there is a risk that the successful long term functioning of a bioretention system can be compromised by shock loads during the building construction phase.

The risk of damage to a bioretention system during the building construction phase needs to be managed by either:

- Delaying construction of the bioretention system until building construction is complete; or
- Initially establishing the bioretention system as a temporary shallow sediment basin.

If the first option is adopted, standard sediment and erosion control measures (e.g. sediment fences) need to be implemented across the site to protect downstream waterways.

The second option involves covering the surface of the filter media with a filter cloth or a 50 mm thick layer of coarse sand, and then placing a 25 mm thick layer of topsoil and turf over the top of the filter cloth / sand layer. Sediment fences should be installed around the perimeter of the filter media and the top of the batter to prevent sediment from being carried into the system by overland flow. The fences also prevent construction traffic from entering the system. In this form, the bioretention system can operate as a shallow sediment basin. The temporary protection measures remain in place until building construction is complete, at which time the filter cloth / sand layer, topsoil, turf, sediment fences and accumulated sediment can be removed. The bioretention system is then landscaped in accordance with the planting plan or specification.

### 3.5 Maintenance

Bioretention systems require ongoing inspection and maintenance to ensure they establish and operate in accordance with the design intent. Potential problems that may arise as a result of poor maintenance include:

- Decreased aesthetic amenity;
- Reduced treatment performance;
Public health and safety risks; and
Decreased habitat diversity (e.g. dominance of exotic weeds).

3.5.1 Plant establishment
Strong healthy vegetation plays a key role in maintaining the porosity and therefore the infiltration capacity of a bioretention system. The most intensive period of maintenance is during the plant establishment period (initial one to two years) when weed removal and replanting may be required.

Regular watering of bioretention system vegetation is essential for successful establishment and healthy growth. The frequency of watering to achieve successful plant establishment is dependent upon rainfall, maturity of planting stock and the water holding capacity of the soil. The following watering program is generally adequate, but should be adjusted to suit the site conditions:

- Week 1 - 6: 5 waterings/ week
- Week 6 - 10: 3 waterings/ week
- Week 11 - 15: 2 waterings/ week

In the absence of rain, it is recommended that each plant receives 2.5–5.0 litres of water per week during the first six weeks (40 mm of watering per week during establishment). After an initial four-month period, watering may still be required, particularly during the first winter / spring or dry period. Watering requirements for healthy vegetation can be determined by ongoing inspections.

3.5.2 General ongoing maintenance
Inflow pipes, headwalls, outlets and weirs require regular inspection, as these can be prone to scour and litter build up. Debris can block inlets or outlets and can be unsightly, particularly in highly visible areas. Inspection and removal of litter and debris should be done regularly.

Typical maintenance of a bioretention system involves:

- Routine inspection of the bioretention system to identify any areas of obvious increased sediment deposition, scouring from storm flows, rill erosion of the batters from lateral inflows, damage to the profile from vehicles and clogging of the bioretention system filter media (evident by prolonged ponding of water or a 'bogggy' surface).
- Routine inspection of inlets, outlets and weirs to identify, clean and repair any areas of scour, litter build up and blockage.
- Removal of sediment where it is smothering vegetation and plant replacement if required.
- Repairing damage to the system profile resulting from scour, rill erosion or vehicle damage by replacement of appropriate fill (to match original soils) and revegetation.
- Tilling of the bioretention system surface, or removal and reinstatement of the surface layer, if there is evidence of clogging.
- Regular watering/irrigation of vegetation until plants are established and self sustaining.
- Removal and management of invasive weeds.
- Removal of plants that have died and replacement with plants of equivalent size and species as detailed in the plant schedule.
- Pruning to remove dead or diseased vegetation and to stimulate growth.

Resetting (i.e. complete reconstruction) of the bioretention system will be required if the system fails to drain adequately after tilling of the surface and/or replacement of the surface layer. Regular inspections are required, as well as inspections following intense storm events to check for scour and other damage. Major maintenance involving machinery should only occur after a reasonably rain free period when the soil in the bioretention system is relatively dry.
3.6 Examples
Photos of bioretention systems are provided in the following plates.

Plate 1.1 Bioretention basin in a streetscape setting

Plate 1.2 Bioretention planter box
Photo courtesy of Sydney Metropolitan Catchment Management Authority (Water Sensitive Urban Design in Sydney program)
Plate 1.3  Bioretention basin with rock wall perimeter

Plate 1.4  Bioretention swale in the centre median of a road
Plate 1.5  Bioretention basin in medium density development
Photo courtesy of Sydney Metropolitan Catchment Management Authority (Water Sensitive Urban Design in Sydney program)

Plate 1.6  Bioretention pod in road
Photo courtesy of Sydney Metropolitan Catchment Management Authority (Water Sensitive Urban Design in Sydney program)
4

Constructed Stormwater Wetlands

4.1 Overview

Constructed stormwater wetlands are commonly utilised throughout Australia to provide treatment of stormwater. General information about constructed stormwater wetlands can be found in water sensitive urban design guidelines and fact sheets produced by organisations such as the Facility for Advancing Water Biofiltration (FAWB), South East Queensland Healthy Waterways Partnership, NSW Department of Environment and Climate Change, Brisbane City Council, Sydney Metropolitan Catchment Management Authority, and Melbourne Water.

4.2 Features

Constructed stormwater wetlands are relatively shallow, densely vegetated water bodies. As stormwater flows through a wetland, pollutants are removed through sedimentation, filtration, adhesion and biological uptake. Key features of wetlands are shown in Illustration 1.2 and include:

- **Inlet pond / sediment basin** – Relatively deep pond / basin located at upstream end of wetland that captures coarse sediment.
- **Macrophyte zone** – Shallow, densely vegetated area to remove fine particulates and soluble pollutants.
- **Vegetation** – Typically native reeds, sedges, and rushes.
- **Liner** – Compacted clay base or plastic liner to ensure wetland holds water.
- **High flow outlet(s) from inlet pond** – Pits, pipes, weirs and / or bypass channels to convey high flows from the inlet pond directly to the discharge location (i.e. high flows should bypass the macrophyte zone so that wetland plants are not damaged).
- **Low flow outlet from macrophyte zone** – Riser outlet (with associated pits and pipes) to control flow through the macrophyte zone and ensure the notional detention time is achieved.
- **Extended detention zone** – Wetlands are purposefully designed to allow additional ponding of stormwater above the normal water level, typically to a depth of 400 - 600 mm. Stormwater that temporarily fills this extended detention zone ultimately drains out via a low flow outlet. This extended detention zone is located below the level of the high flow outlet(s). An additional 200 – 400 mm ponding depth is typically required above the level of the high flow outlet(s) to ensure efficient conveyance of stormwater in high flow events.
- **Bunds / Walls** – Earth bunds, concrete walls or some other means of containing stormwater within the wetland.
4.3 Design

There is considerable flexibility regarding the shape of constructed stormwater wetlands and they should be designed to complement the overall landscape and site design theme. For example, in a high density commercial zone it might be appropriate to have a wetland with straight edges, sharp corners and vertical walls. Conversely, in a residential setting with extensive landscaping, it might be appropriate to have a wetland with curved edges and gently sloping batters that are densely planted.

The following sections detail the steps that should be undertaken during the concept design phase and the subsequent detailed design phase. Concept design refers to the development of the initial site layout, which takes into account the opportunities and constraints of the site. Detailed design refers to the preparation of design drawings for submission to Council, either to support a development application or an application for a construction certificate.

4.3.1 Concept design phase

Given that a constructed stormwater wetland will be a significant feature within the site layout, it is important that the wetland is appropriately considered during the concept design of the development. As a minimum, the following steps are recommended during the concept design phase:

1. Identify the location and level of the ultimate stormwater discharge location.
2. Identify a suitable location for the wetland (ensuring there is appropriate access for maintenance).
3. Determine the catchment area that will drain to the wetland.
4. Calculate the required size of the macrophyte zone area.
   As specified in the DCP:
   \[
   \text{macrophyte zone area} = 6.5 \% \text{ of catchment area} \] (residential development)
   \[
   \text{macrophyte zone area} = 7.0 \% \text{ of catchment area} \] (all other development)
5. Estimate the overall footprint of the wetland. Note: If the wetland will have sloping batters around the sides, the overall footprint of the system is likely to be at least 2.5 times the macrophyte zone area.

6. Ensure that the site layout allows sufficient area for the wetland.

7. Confirm that there is sufficient level difference for the wetland to function properly. Note: The normal water level of the wetland typically needs to be at least 0.1 m above the normal water level in the receiving drainage system / waterway. Bearing in mind that the wetland needs to incorporate a ponding depth of at least 0.6 m (refer to description of ‘extended detention zone’ in Section 4.2), this means that there typically needs to be a level difference of at least 0.7 m between the minimum site surface level and the normal water level in the receiving drainage system / waterway. In some instances, stormwater drainage or flooding issues may dictate that this level difference needs to be even greater.

During the concept design phase, it may become apparent that a wetland is not an appropriate stormwater treatment system for the site. If this is the case, an alternative stormwater treatment system will need to be investigated.

4.3.2 Detailed design phase
The following table specifies the design requirements for the key features of a constructed stormwater wetland.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Design Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of inlet pond (below normal water level)</td>
<td>0.01 m x catchment area (m²)</td>
</tr>
<tr>
<td>Average depth of inlet pond</td>
<td>1.5 m</td>
</tr>
<tr>
<td>Macrophyte zone area</td>
<td>6.5 % of catchment area (residential development)</td>
</tr>
<tr>
<td></td>
<td>7.0 % of catchment area (all other development)</td>
</tr>
<tr>
<td>Length : width ratio of macrophyte zone</td>
<td>5 : 1 (minimum)</td>
</tr>
<tr>
<td>Depth of water in macrophyte zone (at normal water level)</td>
<td>Less than 0.5 m deep for at least 80 % of the area, with a mix of depths preferred.</td>
</tr>
<tr>
<td></td>
<td>Ideally, there should be an even distribution of depths ranging from 0.5 m below</td>
</tr>
<tr>
<td></td>
<td>the normal water level (NWL) to 0.2 m above the NWL. Open water zones should be</td>
</tr>
<tr>
<td></td>
<td>restricted to 20 % of the area and need to be at least 1.0 m deep to discourage</td>
</tr>
<tr>
<td></td>
<td>plant growth.</td>
</tr>
<tr>
<td>Slope of base of macrophyte zone</td>
<td>5 % (maximum)</td>
</tr>
<tr>
<td>Total depth of extended detention zone (i.e. depth of zone above the</td>
<td>400 mm</td>
</tr>
<tr>
<td>normal water level and below the level of the high flow outlet(s))</td>
<td></td>
</tr>
<tr>
<td>Notional detention time (i.e. the time taken for water to pass through</td>
<td>48 hr</td>
</tr>
<tr>
<td>the wetland)</td>
<td></td>
</tr>
<tr>
<td>Level of high flow outlet(s) from inlet pond</td>
<td>400 mm above NWL</td>
</tr>
</tbody>
</table>
As a minimum, the following steps are recommended during the detailed design phase:

1. Confirm the size of the catchment area that will drain to the wetland.
2. Confirm the required size of the macrophyte zone area.
3. Determine the required volume of the inlet pond and prepare concept design of pond geometry.
4. Design the layout of the wetland, including extent of macrophyte zone, location of outlets, location of inlet pond, extent of bunds / walls.
5. Set the key levels of the wetland ensuring that the minimum requirements are met (e.g. level of bunds / walls surrounding wetland, level of high flow outlet(s), normal water level, top of extended detention zone, base levels, connection to outlet).
6. Prepare earthworks design of the wetland.
7. Design connection between inlet pond and macrophyte zone – This connection should be capable of conveying the 1yr ARI peak flow.
8. Design low flow outlet from macrophyte zone – This outlet should comprise a riser standpipe or plate that has a series of orifice outlets spaced vertically over the 400 mm distance between the normal water level and the top of the extended detention zone. The orifices need to be designed so that the notional detention time of 48 hr is achieved for a range of depths above the normal water level (i.e. regardless of whether the wetland fills to a depth of 50, 100, 200, 300 or 400 mm above the normal water level after a rainfall event, the wetland will drain down to the normal water level in 48hr).
9. Design high flow outlet(s) – The design of the high flow outlet(s), including the pipes / channels that connect to the ultimate discharge location, will typically be undertaken as part of the hydraulic design of the overall stormwater drainage system for the site. The peak water level in the wetland will be determined during the hydraulic design and this will influence the required level of the bund or embankment surrounding the system.
10. Design maintenance drain – A mechanism needs to be provided to allow the wetland to be fully drained for maintenance purposes.

The design drawings that accompany a development application or an application for a construction certificate should include the following information:

- **Drainage layout** – Information to be shown includes location of the wetland within the site layout, catchment boundaries (if applicable), drainage paths (surface and sub-surface), and connection to discharge location.
- **Wetland (plan view)** – Information to be shown includes extent of macrophyte zone and inlet pond, extent of planting zones, extent of surrounding bunds / walls, location of high flow outlet(s), location of low flow outlet, key levels (e.g. normal water level, level of outlet(s), base levels), contours, maintenance access provision.
- **Wetland (longitudinal section)** – A longitudinal section, which extends from the inlet pond to the final discharge location, should be provided. Key levels and slopes should be noted on the long section.

- **Wetland (details & notes)** – Details are typically required for the high flow outlet(s), low flow outlet from macrophyte zone, connection between inlet pond and macrophyte zone, headwalls, and scour protection. Drawing notes should include construction advice and specifications for the liner, topsoils and plants (refer to information below). In some instances, it may be more appropriate to include the plant specification on a separate landscape drawing.

### 4.3.2.1 Plant specification

The landscape architect / designer should prepare a planting plan or specification for the wetland, which complements the broader landscape design. The wetland can be split into the following zones based on the water depth at the normal water level.

**Table 4.2 Wetland Zones**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Base Level relative to Normal Water Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Water &amp; Transition Zone (if applicable)</td>
<td>&gt; 0.50 m below NWL</td>
</tr>
<tr>
<td>Deep Marsh</td>
<td>0.35 to 0.50 m below NWL</td>
</tr>
<tr>
<td>Marsh</td>
<td>0.20 to 0.35 m below NWL</td>
</tr>
<tr>
<td>Shallow Marsh</td>
<td>0 to 0.20 m below NWL</td>
</tr>
<tr>
<td>Ephemeral Marsh</td>
<td>0 to 0.20 m above NWL</td>
</tr>
<tr>
<td>Batters (if applicable)</td>
<td>&gt; 0.20 m above NWL</td>
</tr>
</tbody>
</table>

The following plants are considered to be suitable for the various wetland zones, but other species can be utilised if assessed as being suitable by a landscape architect / designer.

**Table 4.3 Wetland Plants**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Plant Species</th>
<th>Planting Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Water &amp; Transition Zone (if applicable)</td>
<td>No plants</td>
<td>-</td>
</tr>
<tr>
<td>Deep Marsh</td>
<td><em>baumea articulata</em></td>
<td>6 plants / m²</td>
</tr>
<tr>
<td></td>
<td><em>schoenoplectus validus</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>bolboschoenus fluiatilis</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>schoenoplectus litoralis</em></td>
<td></td>
</tr>
<tr>
<td>Marsh</td>
<td><em>baumea rubiginosa</em></td>
<td>6 plants / m²</td>
</tr>
<tr>
<td></td>
<td><em>schoenoplectus mucronatus</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>baumea arthrophylla</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>lepironia articulate</em></td>
<td></td>
</tr>
<tr>
<td>Shallow Marsh</td>
<td><em>eleocharis equisetina</em></td>
<td>8 plants / m²</td>
</tr>
<tr>
<td></td>
<td><em>juncus usitatus</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>carex fascicularis</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>cyperus exaltatus</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>phylidrium lanuginosum</em></td>
<td></td>
</tr>
<tr>
<td>Ephemeral Marsh</td>
<td><em>carex appressa</em></td>
<td>8 plants / m²</td>
</tr>
<tr>
<td></td>
<td><em>fincia nodosa</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>juncus flavidus</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>lepidosperma longitudinale</em></td>
<td></td>
</tr>
</tbody>
</table>
### 4.3.2.2 Safety issues

The design of a constructed stormwater wetland needs to ensure public safety requirements are addressed through a risk based approach.

Fences or vegetation barriers to restrict access should be provided above vertical walls or steep embankments if:

- there is a risk of serious injury in the event of a fall.
- there is a high level of pedestrian or vehicular exposure (e.g. adjacent to footpaths / cycleways, playgrounds, sports fields).

Access to deep water (e.g. > 300 mm) should also be restricted through the utilisation of fences or vegetation barriers. As discussed in Section 4.2, constructed stormwater wetlands are purposefully designed to allow additional ponding of stormwater above the normal water level, typically to a depth of 400 - 600 mm. The design of safety measures should take into account this temporary ponding.

If vegetation barriers are utilised to restrict access, plant species that are tall, dense and spiky will be the most effective. A temporary fence (e.g. sediment fence) will be required until the vegetation is sufficiently established to provide a physical barrier.

Where appropriate, signs should be provided to warn of deep and / or fast flowing water.

### 4.3.2.3 Designing to deter mosquitoes

To deter mosquitoes and minimise the risk of creating conditions that are conducive to mosquito breeding, the following approaches should be incorporated into the design:

- Incorporate a relatively deep open water zone to ensure there is still habitat for mosquito predators during relatively dry periods when the water level in the wetland drops.
- Design the bathymetry of the wetland so that water draws down evenly and isolated pools are avoided.
- Utilise relatively steep embankments (e.g. 1(v) : 3(h) or steeper). Note that this must not compromise public safety requirements.
- Implement measures to reduce the likelihood of litter accumulating in the wetland.
- Provide sufficient access for field personnel to monitor and treat mosquito larvae.

### 4.3.2.4 Designing to deter cane toads

The design of constructed wetlands is to incorporate measures to discourage cane toads from breeding in these structures.

In order to breed in a waterbody, cane toads require easy access to the water’s edge. A pond edge with a vertical, rather than sloping, profile can prevent cane toads from getting into and out of the water. Where a sloping pond edge is necessary, incorporating dense vegetation and low barrier fencing around the waterline, is an effective way to stop cane toads from accessing the water. It is desirable that these measures are installed as soon as practicable once construction is complete.

Densely planting the pond edge with native sedges, rushes and grasses will help to exclude cane toads, whilst providing habitat for native frogs and waterbirds. In order to form an effective toad barrier, the plants must be densely spaced and a minimum of three rows of planting installed directly adjacent to the waterline.
A cane toad exclusion fence (minimum 500mm in height) is to be installed behind the 3 rows of sedge planting. The fence is to be maintained until such time as the plants have matured enough to form an effective barrier. Suitable materials for cane toad exclusion fencing include shadecloth or sediment film supported by timber or metal stakes.

4.4 Construction and Establishment

Comprehensive guidance on the construction and establishment of wetlands is provided in the *Construction and Establishment Guidelines: Swales, Bioretention Systems and Wetlands* (South East Queensland Healthy Waterways Partnership, Version 1 February 2009). Key issues associated with the construction and establishment process are summarised in the following sections.

4.4.1 Timing

Rainfall and the associated stormwater runoff can cause significant damage to a wetland during construction. This highlights the importance of careful planning and efficient construction. The construction of a small wetland can be completed in a week, so the risk of damage due to stormwater inflows can be minimised through appropriate planning and monitoring of weather forecasts.

4.4.2 Managing risk of damage during building construction phase

It is important to note that wetlands are designed to treat stormwater runoff from developed sites. They are not designed to be sediment and erosion control measures during the construction phase, although they can be temporarily modified to perform this function. Wetlands are quite robust to variations in stormwater inflows (both quantity and quality), but they can be damaged by inflows that contain unusually high concentrations of some pollutants, such as sediment or metals. This includes sediment-laden runoff from a typical building construction site. As such, there is a risk that the successful long term functioning of a wetland can be compromised by shock loads during the building construction phase.

The risk of damage to a wetland during the building construction phase needs to be managed by either:

- Delaying construction of the wetland until building construction is complete; or
- Initially closing (or not installing) the connection between the inlet pond and the macrophyte zone so that all stormwater flows bypass the macrophyte zone.

If the first option is adopted, standard sediment and erosion control measures (e.g. sediment fences) need to be implemented across the site to protect downstream waterways.

The second option involves utilising the inlet pond as a sediment basin during the construction phase. The macrophyte zone can be constructed and planted in the early stages of site construction, but then needs to be isolated so that it does not receive heavily polluted stormwater flows during the building construction phase. The wetland design will include a high flow outlet from the inlet pond and this will be the sole outlet during the construction phase (i.e. the low flow outlet from the macrophyte zone will not operate).
4.5 Maintenance
Wetlands require ongoing inspection and maintenance to ensure they establish and operate in accordance with the design intent. Potential problems that may arise as a result of poor maintenance include:

- Decreased aesthetic amenity;
- Reduced treatment performance;
- Public health and safety risks; and
- Decreased habitat diversity (e.g. dominance of exotic weeds).

4.5.1 Plant establishment
Strong healthy vegetation plays a key role in maintaining the treatment performance of a wetland. The most intensive period of maintenance is during the plant establishment period (initial one to two years) when weed removal and replanting may be required.

To maximise the chances of successful establishment of vegetation, it may be necessary to manipulate the water level of the wetland in the early stages of vegetation growth. When first planted, vegetation in the marsh zones may be too small for their prescribed water depths. Seedlings intended for inundated zones should ideally have half their stem height above water level, and must not have any less than one-third of their stem above the water level. If planting stock is immature, this may not be possible without manipulating the water levels.

The water depth can be controlled by manipulating the connection between the inlet zone and the macrophyte zone, as well as the maintenance outlet. If necessary, the water level in the wetland can be lowered to approximately 300 mm below the normal water level for at least the first 6–8 weeks. The normal water level can be established when it is clear the wetland plants have matured to the point where at least half of the stem is above the normal water level.

Regular watering of wetland vegetation is essential for successful establishment and healthy growth. The frequency of watering to achieve successful plant establishment is dependent upon rainfall, maturity of planting stock and the water holding capacity of the soil. The following watering program is generally adequate, but should be adjusted to suit the site conditions:

- Week 1 - 6: 5 waterings/ week
- Week 6 - 10: 3 waterings/ week
- Week 11 - 15: 2 waterings/ week

In the absence of rain, it is recommended that each plant receives 2.5–5.0 litres per week during the first six weeks to retain a muddy substrate (40 mm of watering per week during establishment). After an initial four-month period, watering may still be required within the ephemeral zones of the wetland and on the batters, particularly during the first winter / spring or dry period.

4.5.2 General ongoing maintenance
Inflow pipes, headwalls, outlets and weirs require regular inspection, as these can be prone to scour and litter build up. Debris can block inlets or outlets and can be unsightly, particularly in high visibility areas. Inspection and removal of litter and debris should be done regularly.

Typical maintenance of a wetland involves:

- Desilting of the inlet pond once sediment has accumulated to a depth of approximately 0.5 m.
- Routine inspection of the wetland to identify any areas of obvious increased sediment deposition, scouring from storm flows, litter build up and blockages.
- Routine inspection of inlets, outlets and weirs to identify, clean and repair any areas of scour, litter build up and blockage.
- Repairing damage to the wetland profile resulting from scour or rill erosion by replacement of appropriate fill and revegetation.
- Removal of sediment and litter where it is smothering the vegetation.
- Regular watering/irrigation of vegetation until plants are established and self sustaining.
- Removal and management of invasive weeds.
- Removal of plants that have died and replacement with plants of equivalent size and species as detailed in the plant schedule.
- Pruning to remove dead or diseased vegetation and to stimulate growth.

Regular inspections are required, as well as inspections following intense storm events to check for scour and other damage. Major maintenance involving machinery should only occur after a reasonably rain free period when the wetland is relatively dry.

### 4.6 Examples
Photos of constructed stormwater wetlands are provided in the following plates.

![Plate 1.7 Constructed stormwater wetland in a residential setting](image)
Plate 1.8  Constructed stormwater wetland with boardwalk
Photo courtesy of South East Queensland Healthy Waterways Partnership (Water by Design program)

Plate 1.9  Constructed stormwater wetland in urban park setting
Photo courtesy of Sydney Metropolitan Catchment Management Authority (Water Sensitive Urban Design in Sydney program)
5.1 Overview

The development of a site typically involves an increase in the area covered by impervious surfaces, as well as the introduction of an efficient stormwater drainage system to collect and convey runoff from the site. For a given storm event, the combination of these factors typically leads to a larger volume of stormwater being discharged from the site, with a higher peak flowrate, compared to the pre-development situation.

The purpose of stormwater detention systems is to control the flowrate at which stormwater is discharged from a site. The objective is usually to ensure that the peak flowrate in the post-development situation is no greater than the pre-development situation. This is achieved by temporarily detaining stormwater within a storage, which incorporates a restricted (or ‘choked’) outlet, so that the peak rate of outflow from the storage is lower than the peak rate of inflow. A stormwater detention system is designed to meet the detention objective for a specific theoretical design storm (e.g. 100yr ARI storm event of 1hr duration), or a range of design storms.

There are three main reasons why a reduction in the peak flowrate to pre-development levels may be desirable for a specific development site:

- **Ecological protection** – Reduce the likelihood of increased rates of bed and bank erosion and damage to benthic habitat in waterways located downstream of the site.
- **Infrastructure management** – Ensure that the capacity of existing stormwater drainage infrastructure is not exceeded.
- **Flood protection** – Ensure that the flood risk is not exacerbated in any other locations.

The selection of the design storm events that should be managed by a stormwater detention system is influenced by which of the above items is being addressed. Smaller design storm events (i.e. < 1yr ARI) are generally most critical for ecological protection. In most instances, detention of larger storm events will have minimal benefit with regard to ecological protection. The design storm events of most importance for infrastructure management are dependent on the design standards of the relevant infrastructure. Most stormwater drainage infrastructure within the Lismore LGA is designed for the 10yr or 20yr ARI storm event, with some large structures designed for the 50yr ARI storm event. Detention of stormwater for flood protection purposes typically needs to consider a range of design storm events (e.g. 5, 10, 20, 50 and 100yr ARIs).

Council has decided that for ‘minor developments’, as defined in the WSD chapter of the DCP, it is sufficient to provide detention of stormwater for the 1yr and 10yr ARI design storm events.

5.2 Features

A stormwater detention system includes two key features:

- **Storage** – To temporarily contain stormwater runoff.
- **Choked outlet** – To ensure that the peak flowrate out of the storage meets the detention objective (i.e. is less than or equal to the peak flowrate for the pre-development situation).

Aside from these features, there is considerable flexibility regarding the type, shape and style of a stormwater detention system. Options for providing the storage include tanks (above or below ground), earth basins, and bunded car parking areas. However, Council does not support the utilisation of permanently wet detention basins (i.e. the basin must fully drain after a rainfall event).
There are also options with regard to the choked outlet, including orifice plates, choke pipes and weirs. It is possible to design bioretention systems (refer to Section 3) and constructed stormwater wetlands (refer to Section 4) so that they perform the dual functions of stormwater treatment and stormwater detention.

5.3 Design
The ‘deemed to comply’ solution for stormwater quantity, as stated in the WSD chapter of the DCP, is to provide a stormwater detention system designed to attenuate the 1yr ARI and 10yr ARI peak discharges to pre-development levels. This document provides guidance on the sizing of the required storage volume and the sizing of the choked outlet to achieve this outcome. However, this document does not specify additional design requirements for stormwater detention systems. The Northern Rivers Local Government Development & Design Manual provides guidance regarding the design of specific types of detention systems (e.g. basins). The design procedure outlined in the following sections is only applicable to ‘minor developments’, as defined in the WSD chapter of the DCP, and must not be applied to larger development sites.

5.3.1 Storage volume
The storage volume will be dictated by the requirements for the 10yr ARI storm event. The storage volume should be calculated as follows.

10yr pre-development peak discharge

1. Determine the roof area \((A_r)\), paved area \((A_p)\) and pervious (e.g. vegetated) area \((A_v)\) in the pre-development scenario \((\text{units: m}^2)\).
2. Obtain the rainfall intensity \((5\text{min} I_{10})\) for a 10yr ARI design storm, with a duration of 5 min, for the location of the development \((\text{units: mm/hr})\).
3. Calculate the peak discharge in the pre-development scenario as follows:

\[
Q_{10} \text{ (pre-dev)} = (A_r + 0.9 \cdot A_p + 0.6 \cdot A_v) \cdot 5\text{min} I_{10} / 3600 \ (\text{units: L/s})
\]

10yr post-development peak discharge

4. Calculate the peak discharge for the post-development scenario using the equation listed in step 3 utilising the roof area \((A_r)\), paved area \((A_p)\) and pervious area \((A_v)\) in the post-development scenario.

10yr storage volume

5. Calculate the storage volume as follows:

\[
10yr \text{ storage volume} = \left[ Q_{10} \text{ (post-dev)} - Q_{10} \text{ (pre-dev)} \right] \cdot 300 \ (\text{units: L})
\]

5.3.2 Low level outlet
The low level outlet needs to be designed to ensure the post-development peak discharge in the 1yr ARI storm event equals the pre-development discharge. The low level outlet needs to be located at the bottom of the storage volume so that the storage fully drains after a storm event. The outlet should be sized as follows.
1yr pre-development peak discharge

6. Obtain the rainfall intensity \( (5\text{min}I_1) \) for a 1yr ARI design storm, with a duration of 5 min, for the location of the development \( (\text{units: mm/hr}) \).

7. Calculate the peak discharge for the pre-development scenario using the following equation with the pre-development areas (refer step 1):

\[
Q_{1\text{ (pre-dev)}} = (Ar + 0.9 \cdot Ap + 0.5 \cdot Av) \cdot 5\text{min}I_1 / 3600 \quad (\text{units: L/s})
\]

1yr post-development peak discharge

8. Calculate the peak discharge for the post-development scenario using the equation listed in step 7 utilising the roof area \( (Ar) \), paved area \( (Ap) \) and pervious area \( (Av) \) in the post-development scenario.

1yr storage volume and water level

9. Calculate the storage volume as follows:

\[
\text{1yr storage volume} = [Q_{1\text{ (post-dev)}} - Q_{1\text{ (pre-dev)}}] \cdot 300 \quad (\text{units: L})
\]

10. Based on the geometry of the storage, determine the water level in the storage when the volume of stored water equals the 1yr storage volume.

Low level outlet

11. Select the type of low level outlet (e.g. orifice plate, choke pipe). Using the appropriate formula for the type of outlet and the water level determined in step 10, calculate the size of the outlet to achieve the required discharge - i.e. \( Q_{1\text{ (pre-dev)}} \). Additional guidance is provided in Appendix E of the Northern Rivers Local Government Development & Design Manual.

5.3.3 High level outlet

A high level outlet will typically be required to ensure the post-development peak discharge in the 10yr ARI storm event equals the pre-development discharge. The high level outlet needs to be located above the water level in the storage when the volume of stored water equals the 1yr storage volume. The outlet should be sized as follows.

12. Calculate the discharge through the low level outlet when the storage volume is full (i.e. at the 10yr water level). If the discharge through the low level outlet exceeds the pre-development 10yr ARI peak discharge, the storage volume and / or low level outlet must be reconfigured to ensure this is not the case. In most instances, the utilisation of a weir as the low level outlet will be problematic and will not lead to the most efficient design.

13. Determine the required discharge through the high level outlet as follows:

\[
Q_{10\text{ (high level discharge)}} = Q_{10\text{ (pre-dev)}} - Q_{10\text{ (low level discharge)}}
\]

14. Select the type of high level outlet (e.g. orifice plate, choke pipe, weir) and the level of the outlet. Using the appropriate formula for the type of outlet, calculate the size of the outlet to achieve the required discharge, as calculated in step 13.
5.3.4 Overflow
The high level outlet designed in the preceding section may not be capable of conveying flows that exceed the 10yr ARI peak flow. As such, it may be necessary to provide an additional overflow, typically a pipe or weir, which can accommodate larger flows up to and including the 100yr ARI peak flow.

5.3.5 Safety issues
The design of a stormwater detention system needs to ensure public safety requirements are addressed through a risk based approach.

Fences or vegetation barriers to restrict access should be provided above vertical walls or steep embankments if:

- there is a risk of serious injury in the event of a fall.
- there is a high level of pedestrian or vehicular exposure (e.g. adjacent to footpaths / cycleways, playgrounds, sports fields).

Access to deep water (e.g. > 300 mm) should also be restricted through the utilisation of fences or vegetation barriers. Some stormwater detention systems are specifically designed to allow temporary ponding of stormwater on the surface. The design of safety measures should take into account this temporary ponding.

If vegetation barriers are utilised to restrict access, plant species that are tall, dense and spiky will be the most effective. A temporary fence (e.g. sediment fence) will be required until the vegetation is sufficiently established to provide a physical barrier.

Where appropriate, signs should be provided to warn of deep and / or fast flowing water.
References


Chapter 1

Lismore Urban Area
1 Lismore Urban Area

This Chapter applies to land in the Lismore urban area that is zoned:

- 2(a) Residential Zone
- 2(f) (Residential (Flood Liable) Zone
- 3(a) Business Zone
- 3(b) Neighbourhood Business Zone
- 3(f) Services Business (Flood Liable) Zone
- 5 Special Uses Zone
- 6(b) Private Recreation Zone

under the Lismore Local Environmental Plan 2000, but excludes:
- Certain Land at West Goonellabah
- The Lismore Cultural Precinct
- Airport Industrial Estate
- Wyrallah Road Industrial Estate

which is covered in separate chapters of Part B of this DCP.

1.1 Objectives of this Chapter

1. To ensure that subdivision design takes into account the particular constraints and characteristics that apply to land in Lismore such as slope, bushfire hazard and urban bushland.

2. To integrate the future road network servicing the DCP area with the existing surrounding road network.

3. To ensure that sufficient neighbourhood parks are provided to service the needs of residents in new release areas.

1.2 Roads

1.2.1 Strategic Road Network

Population growth and new development will contribute to significant increases in traffic flows on Lismore’s urban roads. The predicted increase in trip generation for each major land use category has been established by traffic modeling undertaken in the Road Contributions Study prepared by TEC Consultants and the Lismore City Wide Road Study prepared by PPK Consultants.

The predictive model indicates that existing urban roads will not be able to cope with the predicted increases in traffic movements without substantial upgrading of existing roads and the construction of new road links. It identifies what works would be required for the existing network to cater for the existing traffic volumes. The strategic road network also takes into account the demand that will be generated by new residential development both in existing zoned but undeveloped areas and in future release areas identified in the Lismore Urban Strategy.

The primary objective of the strategic road program is to facilitate the safe and efficient movement of traffic between major trip generators within the city and to provide better access to the main road network that services the city. The Plan identifies the need for further investigations of route options to ensure that the transport system is designed in an environmentally, socially and economically sustainable manner.
The proposed strategic road network is shown on Map 1. New development will contribute to the funding of the strategic road network in accordance with the relevant works programmes of Councils adopted Contributions Plans.

Where subdivision is proposed on any lot on which a strategic road corridor is shown on Map 1, Council will require the dedication of the road reserve for the full length of the strategic road corridor on that lot. Where the proposed subdivision fronts or adjoins the strategic road corridor, Council will require the construction of the strategic road to an appropriate standard.

Credit towards section 94 contributions for strategic urban roads may be given where the strategic road is required to be constructed to a higher standard than that required to service the proposed development (as well as other existing and/or future development in the area) in order to meet Council’s requirement for the strategic road. In this case the credit will be based on the difference in cost required to upgrade the road to the higher standard.

1.2.2 Local road network

Local road networks should provide a high level of internal accessibility and good external connections for local vehicle, pedestrian and cycle movement. Chapter 5 of Part A sets out Council’s standards for urban roads and drainage.

Adequate provision must be made in the design of subdivisions for road connections to existing and future residential areas. Map 1 indicates where future local road connections will be required.

1.3 Open Space

1.3.1 Citywide and Regional Open Space

Citywide and regional open space includes sporting fields as well as major parks and open space corridors that service either the local government area or the whole of the Lismore urban area. New development will contribute to the acquisition and/or embellishment of citywide and regional open space in accordance with Council’s adopted Section 94 Contributions Plan.

Citywide and regional open space is shown on Map 2. Where development is proposed on land that includes an area identified as citywide or regional open space in Council’s Contributions Plan, section 94 contributions for recreation and community facilities may be satisfied, in whole or in part, by the dedication of that land and the provision of such works in kind as identified in the relevant works program of the Contributions Plan. Credit given towards the relevant section 94 contribution will be in accordance with the provisions set out in Council’s Contributions Plan.

Where residential subdivision occurs on land that includes part of the proposed Tucki Creek open space corridor, the land so identified must be cleared of environmental weeds and rehabilitated in accordance with a plan approved by Council prior to Council accepting dedication of the land.

1.3.2 Neighbourhood Parks

Neighbourhood parks are to be provided in subdivisions where there is no existing neighbourhood park within 400m accessible walking distance of any lot in the subdivision or where existing land set aside for park is not suitable for development as a functional neighbourhood park. The location of existing neighbourhood parks is shown on Map 2.

Where the need for a new neighbourhood park is created by a new subdivision, the land is to be dedicated to Council and embellished with landscaping and park furniture to Council’s satisfaction prior to the release of the subdivision certificate. In instances where suitable Council owned land for a park already exists in the locality, Council may require landscaping and embellishment work only.
Where several landowners are involved in a subdivision proposal, Council will consider preparing a locality based Section 94 Contributions Plan so that the cost of dedicating and embellishing the neighbourhood is apportioned equitably.

Council will only accept land for dedication as a neighbourhood park where:

- The site has a minimum area of 2500m²
- The site is centrally located in terms of the residential area that it will service
- The site is readily accessible from most lots within its catchment area
- At least 90% of the site has a gradient of less than 5%
- The site has a minimum frontage to a public road of 20 metres (preferably located on a corner lot)
- The site has a high level of visibility from surrounding lots and public roads and so that community surveillance of the park is facilitated
- The site is capable of accommodating the appropriate level of playground equipment and other park furniture to service the catchment area
- The primary purpose of the park is for recreational purposes
- The site preferably supports some mature trees or shrubs that can be integrated into the overall landscaping of the park
- All landscaping is carried out in accordance with Council’s Landscaping Guidelines

Council will require the following embellishments be carried out on neighbourhood parks before dedication to Council:

- Signage - one Council ordinance sign with pole per street frontage.
- One picnic setting (table and two benches) on concrete slab
- Two bench seats with backs on concrete slab
- One bin surround and wheelie bin on concrete slab
- Six 75L trees planted at a distance of 5 meters from any underground or aboveground service and 10m from any neighbouring property.
- Playground equipment - one set of double swings including one strap and one toddler safety seat. One play unit that includes a slide, a deck, climbing and activity panels or equivalent. One piece of spring equipment. All manufactured to relevant Australian Standard generally located away from any road.
- Softfall area being rubber wetpour and installation of equipment to relevant Australian Standard.
- One copper water line from the main into the centre of the park including a water tap and bubbler attached.

1.4 Constraints to Development

There are a number of constraints to development in the urban area that must be addressed in any application for development on land on which such constraints may occur. Such constraints may mean that part of the site cannot be developed and/or that the design of the development will need to be modified to take account of such constraints. Some of the major constraints in the urban area include:

1.4.1 Flooding

Chapter 8 (Flood Prone Lands) of Part A of this DCP indicates the extent of the urban area that is potentially affected by flooding in the probable maximum flood (PMF) and the degree of flooding hazard that that has been determined for the 1 in 100 year ARI flood. Development controls on flood prone land in the urban area, are based both on the type of development and the predicted degree of flooding hazard and are set out in Chapter 8.
1.4.2 Bushfire hazard

Part of the Lismore urban area is identified as bushfire prone land on the Lismore Bushfire Prone Land Map. Map 3 shows the extent of Category 1 and Category 2 bushfire vegetation on the site together with the buffer requirements for each category.

Subdivision of bushfire prone land for residential purposes requires a bushfire safety authority from the Commissioner under section 100B of the Rural Fires Act 1997 and is integrated development under the EP&A Act. All forms of development on bushfire prone land must conform to the specifications and requirements of the document Planning for Bushfire Protection.

A bushfire threat assessment must form part of all development applications that relate to bushfire prone land. Preparation of an assessment of threat from bushfire should include reference to:

- Planning for Bushfire Protection - NSW Rural Fire Service – a guide for land use planners, fire authorities, developers and home owners; and
- Consultation with Council and RFS staff.

For subdivisions, the threat assessment is an integral part of the subdivision design, and may affect lot shape, size, orientation, and road layout. Bushfire protection measures also have the potential to affect vegetation, fauna, views, watercourses, soil erosion, amenity and access. In instances where the balance between bushfire protection and environmental and social impact cannot be achieved, the proposal may not be supported.

Measures for the protection against bushfire include subdivision road design, the provision of asset protection zones, compliance with the relevant construction standards for buildings, the provision of an adequate water supply and access for firefighting vehicles. Details of each of these requirements are set out in Planning for Bushfire Protection. Adequate bushfire protection is based upon compliance with all these measures and compliance with one or more should not be used as justification for non-compliance with another.

1.4.3 Potential Koala habitat

Map No.4 shows the extent of primary, secondary and marginal koala habitat as mapped in 2001. Primary koala habitat is defined as vegetation communities that contain more than 35% of species preferentially utilised by koalas in the locality. Core koala habitat as defined in State Environmental Planning Policy No. 44 (SEPP 44) means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (i.e., females with young) and recent sightings of and historical records of a population. Core koala habitat has not identified in this DCP. This would involve ground surveys to determine evidence of koala usage and is a requirement of any subdivision application relating to land on which potential koala habitat has been identified.

SEPP 44 provides that development consent cannot be granted for the development of any land with an area greater than one hectare that contains core koala habitat unless a Koala Plan of Management (KPO) has been prepared. The KPO must be prepared in accordance with SEPP 44 guidelines and approved by the Director of Planning.

Some sites may also contain individual or scattered habitat trees that are not identified on Council’s mapping layer. More detailed mapping will be required at the subdivision application stage to identify such trees as well as any potential koala movement corridors on the land.

Development on sites that contain Primary, Secondary or Marginal/Unsuitable Koala Habitat and/or land containing preferred koala food trees, should be designed so as to:

1. Avoid the removal or degradation of native vegetation within primary koala habitat.
2. Minimize the removal of individual preferred koala food trees wherever they occur on a development site. In the DCP area these species include Forest Red Gum (*Eucalyptus tereticornis*), Tallowwood (*Eucalyptus microcorys*), Swamp Mahogany (*Eucalyptus robusta*), Brush Box (*Lophostemon confertus*), Grey Ironbark (*Eucalyptus siderophloia*), Flooded Gum (*Eucalyptus grandis*), White Mahogany (*Eucalyptus acmenoides*), Forest She-oak (*Allocasuarina torulosa*), and Pink Bloodwood (*Corymbia intermedia*).

3. Maximize retention and minimize degradation of native vegetation within marginal/unsuitable koala habitat;

4. Make provision for restoration or rehabilitation of areas identified as primary koala habitat including the removal of exotic weeds such as camphor laurel and privet without adversely impacting on native species.

5. Make provision for long-term management and protection of koala habitat including both existing and restored habitat.

6. Not compromise the potential for safe movement of koalas across the site. This should include maximizing tree retention generally and minimizing the likelihood that the proposal would result in the creation of barriers to koala movement, such as may be imposed by certain types of fencing.

7. Identify building envelopes which contain all buildings, ancillary structures and required fire fuel reduction zones. Generally there should be no clearing on the site outside these envelopes. Such envelopes should be registered as a restriction on the title of the lots.

8. Include measures to effectively minimize the threat posed to koalas by dogs, motor vehicles and swimming pools through restrictions on dog ownership, restrictions on motor vehicle speeds and appropriate design of pools and pool fencing.

The following information should be submitted with applications for all development on sites that contain Primary, Secondary or Marginal/Unsuitable Koala Habitat and/or land containing preferred koala food trees.

1. An assessment of koala habitat prepared by a suitably qualified person.

2. Clear details concerning which vegetation is to be cleared or disturbed and which is to be retained.

3. Details of any proposed building envelopes and fire fuel reduction zones and the means by which they are to be enforced.

4. Proposed measures to restore or rehabilitate koala habitat, including measures which will result in the net gain of koala habitat.

5. Proposed measures to allow the safe movement of koalas across the site including road designs and speed management measures, fence construction details where fencing is proposed, and swimming pool specifications.

6. Proposed measures to mitigate the impacts on koalas by dogs.
7. Details of any proposed program to monitor koalas and koala habitat, during and following development activity on a site. Monitoring programs would not be required for single lot developments. Rather, they would be expected for subdivisions. The developer is expected to assume responsibility for monitoring for a minimum 5-year period.

The following information must be submitted with applications for development on sites that are adjacent to primary or marginal/unsuitable koala habitat and/or land containing preferred koala food trees.

1. Proposed measures to mitigate the impacts by dogs on koalas which occupy adjacent habitat. This should include measures that reduce the likelihood of domestic dogs straying into koala habitat.

2. Proposed measures to mitigate the impact on koalas of motor vehicles traveling to the site. This should include appropriate traffic control measures on roads that run through or adjacent to nearby koala habitat and which are subject to increased traffic volumes due to the development on the site.

1.4.5 Potential land use conflicts
Certain existing land uses may pose a constraint on the development of adjacent land because of their potential incompatibility with other forms of development. Such land uses include the Lismore Airport, the South Lismore and East Lismore Sewerage Treatment Works, the Lismore Tip, quarries and former dip sites. Existing land uses that may have impacts that potentially affect development in their locality are shown on Map 5. Refer to Chapter 11 of Part A of this DCP for detailed buffer requirements.

1.5 Services

1.5.1 Sewer
Subdivision applications (other than for minor subdivision) should be accompanied by a sewer modelling report which identifies augmentation works required for Council’s sewer mains. The cost of any augmentation works will be borne by the developer.

1.5.2 Water Supply
Subdivision applications (other than for minor subdivision) should be accompanied by a water supply modelling report. The cost of any required augmentation of trunk mains supplying this site will be borne by the developer.

1.5.3 Stormwater management
Urban development leads to greater runoff and increased pollution load. Runoff volumes and peak flows are higher in urban areas compared to rural areas because the increase in impervious areas and the introduction of gutters and stormwater pipes in urban catchments result in less storage and shorter lag times for runoff.

There is also generally more pollution from urban areas as a result of increased contamination from roads, motor vehicles, residential, commercial and industrial areas etc. A stormwater management plan is required for subdivisions and large development proposals. The stormwater management plan is to demonstrate how pollution levels are to be managed and how runoff quantities are to be restricted to pre-development levels.
Chapter 2

Land at West Goonellabah
2 Land at West Goonellabah

Much of the land to which this Chapter applies is significantly constrained by the occurrence of vegetation, koala habitat and steep slopes. This Plan sets out the minimum requirements that should be addressed in a subdivision application lodged for any land within the DCP area. The indicative road layout provides a framework for future road and subdivision design on individual land parcels within the DCP area.

2.1 Objectives of this Chapter

1. To ensure that future development of the land does not degrade habitat areas either through the removal of habitat or through the creation of significant threats to koalas.

2. To integrate the future road network servicing the area with the existing surrounding road network.

3. To ensure that subdivision design takes into account the particular constraints and characteristics that apply to the land such as slope, bushfire hazard and stormwater management issues.

2.2 Habitat Values

Much of the site is significantly constrained by the location of native vegetation and fauna habitat. Map No.2 shows the extent of primary koala habitat within the subject area as mapped by Ecograph in 2001. The site supports other native vegetation including Hoop Pine and rainforest species that is likely to have habitat value for other native fauna. This should be identified in a comprehensive flora and fauna assessment to be submitted as part of any subdivision application for land within the DCP area.

Primary koala habitat is defined as vegetation communities that contain more than 35% of species preferentially utilised by koalas in the locality. Core koala habitat as defined in State Environmental Planning Policy (SEPP) No. 44 is not identified in this DCP. This would involve ground surveys to determine evidence of koala usage and will be a requirement of any subdivision application relating to the land.

SEPP 44 provides that development consent cannot be granted for the development of any land that contains core koala habitat with an area greater than one hectare unless a Koala Plan of Management (KPM) has been prepared. The KPM must be prepared in accordance with SEPP 44 guidelines and approved by the Director of Infrastructure, Planning and Natural Resources.

The site may also contain individual or scattered habitat trees that are not identified on Council’s mapping layer. More detailed mapping will be required at the subdivision application stage to identify such trees as well as any potential koala movement corridors on the land.

2.2.1 Protection of habitat values

Future development should be designed so as to:

1. Avoid the removal or degradation of native vegetation within primary koala habitat.

2. Minimize the removal of individual preferred koala food trees wherever they occur on a development site. In the DCP area these species may include Forest Red Gum (Eucalyptus
tereticornis,) Tallowwood (Eucalyptus microcorys), Swamp Mahogany (Eucalyptus robusta), Brush Box (Lophostemon confertus), Grey Ironbark (Eucalyptus siderophloia), Flooded Gum (Eucalyptus grandis), White Mahogany (Eucalyptus acmenoides), Forest She-oak (Allocasuarina torulosa), and Pink Bloodwood (Corymbia intermedia).

3. Maximize retention and minimize degradation of native vegetation within marginal/unsuitable koala habitat;

4. Make provision for restoration or rehabilitation of areas identified as primary koala habitat including the removal of exotic weeds such as camphor laurel and privet without adversely impacting on native species.

5. Make provision for long-term management and protection of koala habitat including both existing and restored habitat.

6. Not compromise the potential for safe movement of koalas across the site. This should include maximizing tree retention generally and minimizing the likelihood that the proposal would result in the creation of barriers to koala movement, such as may be imposed by certain types of fencing.

7. Identify building envelopes which contain all buildings, ancillary structures and required fire fuel reduction zones. Generally there should be no clearing on the site outside these envelopes. Such envelopes should be registered as a restriction on the title of the lots.

8. Include measures to effectively minimize the threat posed to koalas by dogs, motor vehicles and swimming pools through restrictions on dog ownership, restrictions on motor vehicle speeds and appropriate design of pools and pool fencing.

2.2.2 Ecological information to accompany DAs

The following information must be submitted with applications for all development on sites that contain Primary or Marginal/Unsuitable Koala Habitat and/or land containing preferred koala food trees.

1. An assessment of koala habitat prepared by a suitably qualified person.

2. Clear details concerning which vegetation is to be cleared or disturbed and which is to be retained.

3. Details of any proposed building envelopes and fire fuel reduction zones and the means by which they are to be enforced.

4. Proposed measures to restore or rehabilitate koala habitat, including measures which will result in the net gain of koala habitat.

5. Proposed measures to allow the safe movement of koalas across the site including road designs and speed management measures, fence construction details where fencing is proposed, and swimming pool specifications.

6. Proposed measures to mitigate impacts on koalas by dogs.

7. Details of any proposed program to monitor koalas and koala habitat, during and following development activity on a site. Monitoring programs would not be required for single lot
developments. Rather, they would be expected for subdivisions. The developer is expected to assume responsibility for monitoring for a minimum 5-year period.

The following information must be submitted with applications for development on sites that are adjacent to primary or marginal/unsuitable koala habitat and/or land containing preferred koala food trees.

1. Proposed measures to mitigate the impacts by dogs on koalas which occupy adjacent habitat. This must include measures that reduce the likelihood of domestic dogs straying into koala habitat.

2. Proposed measures to mitigate the impact on koalas of motor vehicles traveling to the site. This must include appropriate traffic control measures on roads that run through or adjacent to nearby koala habitat and which are subject to increased traffic volumes due to the development on the site.

2.3 Other Constraints

2.3.1 Slope

Much of the site is subject to slopes of 20% or more. Where lots are to be created on land where all or part of the site has a gradient of 20% or more, the applicant must demonstrate that there is sufficient area within each lot to accommodate a building envelope and driveway access that complies with the requirements pertaining to cut and fill and driveway design as set out in Chapter 1 (Residential Development) of Part A of this DCP. Steep lots may require the placement of a restriction on the title to ensure that the design of a future dwelling house is compatible with the slope of the land and will not require excessive cut and fill.

2.3.2 Bushfire hazard

Much of the site is identified as bushfire prone land on the Lismore Bushfire Prone Land Map. Map 3 shows the extent of Category 1 and Category 2 bushfire vegetation on the site together with the buffer requirements for each category.

Subdivision of bush fire prone land for residential purposes requires a bushfire safety authority from the Commissioner under section 100B of the Rural Fires Act 1997 and is integrated development under the EP&A Act. All forms of development on bushfire prone land must conform to the specifications and requirements of the document Planning for Bushfire Protection.

A bushfire threat assessment must form part of all development applications that relate to bushfire prone land. Preparation of an assessment of threat from bushfire should include reference to:

- Planning for Bushfire Protection - NSW Rural Fire Service – a guide for land use planners, fire authorities, developers and home owners; and
- Consultation with Council and RFS staff.

For subdivisions, the threat assessment is an integral part of the subdivision design, and may affect lot shape, size, orientation, and road layout. Bushfire protection measures also have the potential to affect vegetation, fauna, views watercourses, soil erosion, amenity and access. In instances where the balance between bushfire protection and environmental and social impact cannot be achieved, the proposal may not be supported.

Measures for the protection against bushfire include subdivision road design, the provision of asset protection zones, compliance with the relevant construction standards for buildings, the provision of an
adequate water supply and access for firefighting vehicles. Details of each of these requirements are set out in *Planning for Bushfire Protection*. Adequate bushfire protection is based upon compliance with all these measures and compliance with one or more should not be used as justification for non-compliance with another.

### 2.3.3 Soil contamination

The Invercauld dip site is located in Invercauld Road as shown on Map 4. The Cattle Tick Dip Site Management Committee (DIPMAC) recommends a 200metre radius contamination assessment zone for cattle dip sites. Map 4 shows the extent of the assessment zone as it affects the DCP area.

A Development Application applying to any lot affected by the assessment zone must include a report on the findings of a preliminary investigation of the site carried out in accordance with the contaminated land planning guidelines. A more detailed investigation may be required where the findings of the preliminary investigation warrant it.

### 2.4 Infrastructure

#### 2.4.1 Sewerage

Most of the site is located below sewer lines that service existing residential development immediately to the north, east and south of the DCP area. Consequently future subdivision will be required to connect to the existing sewer trunk main located between Parkwalk Drive and Industry Drive to the west of the site as shown on Map 4. Landowners wishing to subdivide land on the eastern side of the DCP area will need to negotiate an easement for sewer across properties located on the western side of the DCP area to enable connection to the trunk main.

Development Applications should be accompanied by a sewer modelling report which identifies augmentation works required for Council's sewer mains. The cost of augmentation works will be borne by the developer.

#### 2.4.2 Water Supply

Most of the site will be supplied with water from the Wyreema Zone. Development Applications should be accompanied by a water supply modelling report. Trunk mains supplying this site will need to be augmented and the cost of augmentation works will be borne by the developer.

#### 2.4.3 Stormwater

The site drains from east to west towards a low point located on the adjoining Southern Cross University site. Management of stormwater on individual lots should be addressed in an integrated manner through a Stormwater Management Plan. Adequate detention and treatment of stormwater runoff may not be possible on some of the steeper sites and this may only be achieved through a coordinated approach with other property owners in the area. Where the detention and treatment of stormwater is proposed off the site, the consent of relevant landowners should be provided as part of the Stormwater Management Plan.

#### 2.4.4 Roads

Chapter 5 (Subdivision and Infrastructure) of Part A of this DCP provides road and stormwater design criteria for urban residential subdivision. Street networks should provide a high level of internal accessibility and good external connections for local vehicle, pedestrian and cycle movement.

Consistent with that objective, this Chapter provides for a connecting road link between Parkwalk Drive and Highfield Terrace (refer to Map 4). Secondary access from the link road to Invercauld Road will be required to service Lot 22 DP 627547 and Lot A DP 379856 Invercauld Road. No road access
from Lee Crescent to the site is to be permitted. Land in the western part of the DCP area may be accessed from Kellas Street and the Southern Cross University site.

All roads are to incorporate traffic calming measures to restrict traffic speeds to no more than 50 kph.

Pedestrian access as shown on Map 4 linking the University site to new and existing residential areas in the vicinity of Invercauld Road should be incorporated into future subdivision design.
Chapter 3

Lismore Cultural Precinct
3 Lismore Cultural Precinct

Development of the Lismore Cultural Precinct will provide an opportunity to create a vibrant destination within the centre of Lismore. The location of the precinct and its mix of land uses will enable complementary activities to occur by day or evening and on weekdays and weekends.

The purpose of this Plan is to provide guidelines that will influence the location, design, form, height, type and character of future development within the precinct including the public open space areas. This will ensure that future development is located appropriately within the site and that each component of the development integrates with the overall concept and character of the precinct.

The Plan provides a framework for future development and will enable development to occur on a staged basis if necessary. However the controls are designed to be flexible enough to allow a range of design responses for each of the designated development components.

3.1 Land Uses

The precinct will contain a mix of land uses including:
- Cultural Centre incorporating an Art Gallery and Museum
- Café/restaurant
- Studios/art spaces
- Residential apartments
- Commercial/mixed use building
- Multi-level public car park
- Public open space
- Outdoor performance space

Figure 1 indicates where each of these land uses is to be located within the site. The designated area for each land use represents the maximum ‘envelope’ within which the footprint of future development must be accommodated. These envelopes do not necessarily represent the final shape or form of such buildings.

Additional land uses within the precinct may include a performance/dance venue for use by the Northern Rivers Conservatorium Arts Centre. All costs associated with the provision of the performance/dance venue to be the responsibility of the Northern Rivers Conservatorium Arts Centre.

Open space will take the form of two linked courtyard spaces located within the eastern and western sectors of the site. The courtyard within the western sector will be active in character while that in the eastern sector will be predominantly passive. The imaginative use of public art within the site will help to unify the open space areas and integrate the various buildings within the precinct.

3.2 Pedestrian Circulation

A primary objective of this Plan is to limit vehicle movements within the site and to enable pedestrians to move freely throughout the site in a safe and efficient manner.

A major pedestrian spine, forming a dominant east-west axis within the site, will connect the various developments within the precinct and link the CBD and Keen Street to Dawson Street and a proposed new bus stop/setdown area. This pedestrian spine will also provide a view-line through the site enabling people to see into and through the site.
A secondary pedestrian spine provides a north-south link between Rural Street and Magellan Street. Other secondary accesses provide pedestrian connections between the major land uses within the site.

Major and secondary pedestrian circulation routes are shown in Figure 2.

### 3.3 Vehicular Circulation and Car Parking

Primary vehicular access to the site will be from Rural Street in the locations shown in Figure 3. Rural Street will provide access to the multi-level public car park, commercial/mixed use building, drop-off and service areas and loading area for the gallery. The multi-level car park will accommodate at least 400 vehicles with the opportunity to extend over Rural Street if necessary.

In addition to the multi-level car park, the commercial/mixed use building will provide car parking underneath.

Secondary access from Dawson Street will provide private vehicle access to the studios and above studio apartments fronting Magellan Street. Car parking for the apartments will be provided within the footprint of this building.

A car park adjacent to the library and dedicated for library patrons only, will provide twenty spaces and will be accessed from Magellan Street. Parking in Magellan Street is to be reconfigured to provide additional parking. Eight spaces in front of the library will be provided for library patrons with special needs. This area will also serve as a loading zone for the mobile library at designated times.

### 3.4 Design Principles

The design of all buildings and open space areas within the precinct will incorporate state of the art principles of environmentally sustainable development.

The design of new buildings is to be:
- Sympathetic to existing heritage buildings
- Contemporary
- Responsive to Lismore’s climate, context and culture
- Used to form strong edges to open spaces and streetscapes

New buildings should incorporate high quality timber detailing to reflect the timber industry heritage of Lismore. New buildings should also incorporate into their design one or more of the elements of the existing heritage buildings on the site. Such elements may include:

- Roof pitch – roofs are pitched at an angle of 32° and have gable ends.
- Fenestration – windows provide a strong vertical element to the buildings with a proportion of 2:1 of vertical to horizontal dimensions.
- Materials – exterior walls contain red brickwork with narrow horizontal bands of darker brick running just below the window line on each level.

### 3.5 Building Heights and Floor Areas

The following Table indicates the maximum height (in storeys) and the indicative size for each of the precinct buildings. Gross floor area (GFA) is defined as the sum of the areas of each floor of a building excluding lift wells, car parking and loading areas.

<table>
<thead>
<tr>
<th>Land use</th>
<th>Storeys</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Centre</td>
<td>4</td>
<td>3,000m² (GFA)</td>
</tr>
</tbody>
</table>
### 3.6 Retention of Existing Features

Two existing buildings on the site are listed heritage items under the Lismore Local Environmental Plan 2000. These buildings were constructed between the early 1900s and the 1930s and have been identified as having architectural significance in the Lismore Heritage Study. The buildings, which were part of the former Lismore High School, currently house the Lismore City Library and the Northern Rivers Conservatorium of Arts. These buildings are to be retained and fully integrated into the overall redevelopment of the site.

The site supports a number of existing trees including several mature and significant fig trees. Other trees include Camphor Laurel, Tallowwood and Silky Oak. A number of existing trees, including several of the Camphor Laurels, are senescent and in need of replacement.

**Figure 1** shows existing trees that are to be retained.

### 3.7 Landscaping

A principal focus of the site landscaping will be to enhance the visual attractiveness of the site and to provide shade and open space that will encourage people to use the site. Landscaping is to be of a high quality and will provide a unifying theme throughout the precinct. The landscaping will also reinforce the pedestrian spines running through the site and will define the major access-way from Keen Street to the art gallery entrance.

Trees used in the landscaping should be predominantly local rainforest species providing a continuation of the local rainforest theme that has been developed in streetscape plantings in the CBD.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Café/restaurant</strong></td>
<td>2</td>
<td>270m² (GFA)</td>
</tr>
<tr>
<td><strong>Studios/art spaces and residential</strong></td>
<td>3</td>
<td>1 x 3 bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 x 2 bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 x 1 bed</td>
</tr>
<tr>
<td><strong>Commercial/mixed uses</strong></td>
<td>6</td>
<td>13,600 m²</td>
</tr>
<tr>
<td><strong>Multi-level car park</strong></td>
<td>8</td>
<td>400 spaces</td>
</tr>
</tbody>
</table>
Chapter 4

Airport Industrial Estate
4 Airport Industrial Estate

This Chapter applies to land located on the western side of the Bruxner Highway in South Lismore between the Lismore Airport terminal and Krauss Ave.

4.1 Restrictions on filling

The land is located within a defined ‘floodway’ as determined by two dimensional flood modelling undertaken for the preparation of the Lismore Floodplain Management Plan 2002. Further modelling undertaken by Patterson Britton & Partners defined the maximum extent of fill that could be undertaken on the site without having a measurable effect on flooding upstream of the site in the 1 in 100 year and 1 in 10 year design flood events.

The modelling was based on the filling of three separate building pads to RL 11.6m AHD, equivalent to the 1 in 100 year design flood level at the site. The location of these pads is shown on Fig 1 and all filling of lots is to be generally contained within the horizontal limits to fill as indicated on that plan. Any application for variation to the location or shape of the building pads as shown on Fig 1 must be accompanied by a report demonstrating that flood modelling of the proposal indicates that any effects on flood depths or velocities in the vicinity of the site will be negligible. The flood modelling is to take into account the cumulative effects of any other changes (actual or proposed) to the configuration of building pads within the estate.

All filling will require the consent of Council. Bulk fill to within 300mm of the finished surface level is to be sourced in accordance with the requirements of Chapter 8 (Flood Prone Lands) of Part A of this DCP.

Individual building pads may be filled to (or above) the 1 in 100 year design flood level. The placement of additional fill on land outside of the designated building pad will be permitted to allow the formation of batters from the top of the building pad to natural ground level. Where required, batters may extend from the top of the building pad to the boundary of the allotment, but in any case all batters are to have a gradient no greater than 1 in 4 to facilitate maintenance.

4.2 Building location and design

All buildings and other structures are to be located wholly within the nominated building pad for each allotment. No building is to extend beyond the fill limits shown on Fig 1. The remainder of the lot may be used for the purposes of parking, vehicle manoeuvring and landscaping only.

The minimum floor level for all buildings shall be 300mm above the 1 in 100 ARI level as shown on Fig 2. For all sites within the area covered by this Part that level will be 11.9m AHD.

Chapter 3 (Industrial Development) of Part A of this DCP outlines general requirements relating to the external appearance of industrial buildings and the use of materials on the building façade facing the street. Building design and presentation to the street is of particular importance on this site given its main road position and prominence as a ‘gateway’ location to Lismore. Development applications must specifically address the visual impact of the proposal and must demonstrate that building design and appearance are appropriate to the site’s location.

4.3 Landscaping

Landscaping requirements will apply at both the subdivision and individual development application stage. A condition of subdivision consent will be the submission of a landscaping plan for the area of road reserve located between the Bruxner Highway and the proposed service road. This area is to be planted with trees which have a mature height of at least 5m so as to create a park like environment that enables visibility of the site from the Bruxner Highway beneath the tree canopy. This design is to enhance rather than screen the estate from the Bruxner Highway.
Applications for development on individual lots will also require the submission of a landscaping plan in accordance with Chapter 3 of Part A of this DCP. The use of landscaped mounds will be restricted to those areas within the perimeter of the approved building pad.

4.4 Fencing

Security fences, walls, screens, etc. shall not be located beyond the perimeter of the individual approved building area for each allotment. Certain types of fencing may be permitted outside of this area providing the fence is of a type that will not collect flood debris or have any impact on flood behaviour.

4.5 Stormwater management

Stormwater management plans will be required at the initial subdivision stage as well as for each development application for development of individual lots. Preliminary stormwater management plans will be required at the DA stage to demonstrate that stormwater can be managed on-site in a manner which maximises opportunities for treatment and infiltration. Detailed stormwater management plans will be required as a condition of development consent.

Stormwater management at the subdivision stage will be concerned primarily with the control of stormwater drainage from the service road. Generally stormwater drainage is to be directed westwards via 20m wide drainage swales located between proposed lots 2 and 3 and lots 5 and 6. Stormwater will then be dispersed over airport land to the west to maximise infiltration. Stormwater from the northern end of the road will be directed via swales to the stormwater drain under the Bruxner Highway.

Stormwater management on individual lots is to be managed primarily through controls on the area of impervious surface that will be permitted on each lot. Generally no more than 50% of site area may be covered with impervious surfaces such as roofs and hard paved surfaces. The design is to demonstrate how stormwater runoff from impervious surfaces is to be dispersed over the remaining permeable (landscaped) areas of the site to maximise the opportunity for infiltration.

Proposals involving hard surfaces greater than 50% of the site area will only be considered where compensatory measures designed to reduce the amount of stormwater runoff are proposed. Such measures may include the use of rainwater tanks, or porous or permeable paving systems depending upon the nature of the proposed use of the area. Where alternative paving systems are proposed, details of subsurface collection and disposal of infiltrated stormwater will be required.

4.6 Erosion and sediment control

Any works involving the placement of fill or disturbance of the site will require implementation of erosion and sediment control measures. An Erosion and Sediment Control Plan will be required describing how erosion control and soil and water management will be achieved on site. The Plan should be address those matters identified in Council’s Guidelines for the Control of Soil Erosion and Sedimentation on Building and Development Sites as well as Landcom’s Managing Urban Stormwater: Soils and Construction.

4.7 Noise Mitigation

As the lots are adjacent to an existing airport, internal noise attenuation is to be incorporated into any quiet uses such as offices of the buildings. This is the responsibility of each individual building owner.

Activities associated with uses on each lot must not create offensive noise as defined in the EPA (DEC) Industrial Noise Policy. The design of buildings in order to achieve appropriate noise attenuation is the responsibility of each individual owner.
Chapter 5

Wyrallah Road Industrial Estate
5 Wyrallah Road Industrial Estate

This Chapter applies to development on land in Wyrallah Road, East Lismore as shown on the plan.

5.1 Objectives of This Chapter

1. To ensure that future development of the land is carried out in a co-ordinated manner.

2. To ensure that subdivision design takes into account the particular constraints and characteristics that apply to the land.

5.2 Roads

Access from Wyrallah Road is to be limited to a single access point only where safe intersection sight distance can be achieved. A type CHR intersection treatment will be required in accordance with AUSTROADS standards.

Internal road access should be designed in a loop configuration and should avoid dead end cul-de-sacs. Suitable provision for future access to land to the south should be made in the event that that land is zoned for industrial uses. Location of the access points is to be provided within the context of the overall internal road design.

5.3 Sewer

A gravity sewer main (750 mm) and two rising mains (375 mm and 450 mm) traverse the site. These mains cannot be relocated without proper investigative works being undertaken to ensure that this relocation will not have any detrimental effects on the flow of sewage from the reticulation system and pump stations and the flow of sewage into the East Lismore Wastewater Treatment Works. Prior to any relocation being considered, the following works will need to be undertaken as a minimum:

- Modelling of the gravity main network to ensure that adequate flows and velocities will be maintained right throughout this catchment and that any relocation will not cause any overflows or odour issues in the upstream of the catchment (including allowances for growth).

- Modelling of the rising main flows to ensure that the flows are not affected and to ensure the adequacy of the pump station and storage capacity within the pump station (including allowances for growth).

- Modelling of flows into the East Lismore Wastewater Treatment works to ensure that there is no effects on the treatment process at this plant.

Any works identified by these studies will need to be investigated, designed and constructed at full cost to the developer including any augmentation works required.

5.4 Stormwater Management

An integrated approach to stormwater management on the site is to be provided through a Stormwater Management Plan. The increase in the area dedicated to the industrial development will result in a net increase in pollutant loads exported from the overall site.
It will therefore be necessary for any future industrial development to provide for adequate on-site treatment of stormwater runoff to remove nutrients, gross pollutants and suspended solids before it is discharged into the flood plain. A Stormwater Management Plan is to be submitted which will address in detail the treatment, management and proposed ownership of all drainage lines on the site that will be affected by future industrial development. Buffers are to be provided to all watercourses within the development area and these areas are to be rehabilitated in accordance with an approved revegetation plan.

5.5 Buffers
The site is located to the north-east of the East Lismore Sewerage Treatment Works. Although the site is located outside the nominated 100m buffer for industrial development under Chapter 11 of Part A of this DCP, odours from the East Lismore STW may impact on the site under certain climatic conditions.

A full assessment of the impacts of the East Lismore STW and Lismore Tip on the development will be required to be undertaken under a range of climatic conditions. Restrictions may be necessary on development in those parts of the site where impacts are experienced. Such restrictions could include a requirement for air conditioning of individual premises.

Landscaped buffers around the perimeter of the site will be required to ameliorate visual impacts.

5.6 Contaminated Land
Any Development Application for subdivision or industrial development must include a report on the findings of a preliminary investigation of the site carried out in accordance with the contaminated land planning guidelines. A more detailed investigation may be required where the findings of the preliminary investigation warrant it.
Chapter 6

Nimbin Village
6 Nimbin Village

This Chapter applies to lands in Nimbin village as shown on Map No 1.

Nimbin Village is historically significant as it provides clear evidence of two major historical phases of development which relate to two distinctive aspects of regional and national history; the growth of rural service centres for dairying hinterlands and the alternative lifestyle movement.

The core of the existing Village is an outstanding streetscape, which comprises one of the most intact and cohesive early twentieth century townscapes in the NSW North Coast Region. It retains all the key elements of an inland service centre having provided for the needs of the dairy farmers, village residents and then at a later stage for the members of the alternative lifestyle movement.

The commercial area townscap e is remarkable in the region as a compact grouping of predominantly modest buildings constructed almost exclusively of chamferboard walls and corrugated iron roofs. The residential areas adjoining the commercial area contain dwellings and buildings such as churches and government buildings also constructed mostly of chamferboard walls and corrugated iron roofs that establishes the character of the village and shows the residential growth of the village.

The associations with the alternative lifestyle movement and Aquarius Festival have been given outstanding visual expression in the form of the murals on the Cullen Street shops, the like of which exists nowhere else in Australia in such a cohesive and vibrant display.

The murals are visually significant in their own right as a creative achievement and are dynamic reflecting the evolution of the alternative lifestyle movement. They contribute to the outstanding visual impact of Cullen Street giving new life to the inter-war architecture, as a signal of the economic benefits brought by a new rural population, and during the 1990’s, increasing numbers of tourists.

Visually, the Village is significant because of its outstanding landscape setting, with views over rural land to the spectacular natural features of Blue Knob, Lillian Rock, Nimbin Rock and Nightcap Range.

To conserve both the heritage values and the setting of the village of Nimbin the provisions of this Chapter will be taken into consideration by Lismore City Council when assessing and determining Development Applications made on land within the village zone as well as in areas adjoining the village zone and within the natural landscape catchment of the village (see Map No 2). Applicants should also refer to clause 12.7.6 of Chapter 12 (Heritage Conservation) of Part A of this DCP.
6.1 Objectives of this Chapter

1. To define a landuse framework for the planned growth of the village.

2. To promote development that seeks to achieve the principles of ecologically sustainable development.

3. To establish guidelines for the conservation of the environmental heritage and significant natural and landscape vegetation in the village.

4. To encourage the rehabilitation of natural drainage systems.

5. To ensure development avoids environmentally sensitive areas and areas that are potential environmental hazards and / or risks.

6. To ensure new development provides adequate village infrastructure to meets the needs of the future inhabitants.

7. To promote affordable housing.
6.2 VILLAGE PRECINCTS

This section identifies and describes development standards and guidelines for each of the Village Precincts.

6.2.1 Residential Village Precincts
Two Residential Village Precincts (New and Existing) are defined and shown on Map 3. There is a clear physical and age distinction between the ‘existing’ and future or ‘new’ Residential Village Precincts in the village.

Development opportunity in the existing residential precinct is likely to be limited to alterations to existing development, infill redevelopment, site redevelopment and minor subdivision and development of the few existing vacant sites. The character and amenity of the existing residential area is established by single storey dwellings, predominantly timber, on allotments generally greater than 1000 m². The age of dwellings within the existing residential area greatly influences village character and amenity. This is related to the time at which the original village subdivision occurred.

The New Residential Village Precincts, in general terms are currently vacant ‘undeveloped’ lands. These precincts present opportunities to provide contemporary approaches to ecologically sustainable village development and landuse, which should reflect, but not necessarily ‘duplicate’ the physical, economic and social character of Nimbin and its inhabitants.

Development in new residential precincts:
- should locate a transport system that provides good levels of access for people, bicycles, horses and motor vehicles within the precinct and to the existing community, commercial, industry and residential village precincts,
- adopt an energy efficient cluster approach to subdivision that provides for a range of housing types, employment and small business enterprise and commercial activities that do not detract from the existing village commercial precinct,
- provide or enhance adjoining areas to meet the active and passive recreational needs of future residents and
- incorporate passive solar design and conservation of energy design principles into all building types.

Existing Residential Village Precinct

Objectives of the precinct
1. Maintain and enhance the village character and scale of the precinct.

2. Conserve the built heritage and streetscape significance of the precinct where it is located within the Nimbin Conservation Area.

3. Encourage infill subdivision and development which, reflects the character and scale of adjoining land use and precinct generally.

4. Encourage the incorporation of energy and resource efficient building design principles in all residential alterations and additions and new infill developments.

Preferred landuses
- dwelling houses,
- dual occupancies,
- home occupations,
- bed and breakfast establishments, and
- residential flat buildings, where residential density is greater than 1 dwelling to 500 m² site area.
Development standards and guidelines

**Heritage Conservation**
The following standards and guidelines apply to Development Applications in the Nimbin Conservation Area within the Existing Residential Village Precinct.

**Specific heritage objectives**
1. To retain the residential qualities which contribute to the heritage significance of the Nimbin Conservation Area.

2. To enable changes to the streetscape and buildings within the conservation area but only where the proposed changes have been subject to public exhibition and do not remove or detract from the character, scale, form and heritage significance of the conservation area.

3. To ensure that where new buildings are constructed, they are carefully designed to fit in with the streetscape character and heritage significance of the conservation area.

4. To encourage the removal and reversal of those components which detract from the heritage significance of the conservation area.

**Heritage development standards and guidelines**
The design of new residential buildings and additions to existing residential buildings in the conservation area is to take into account the following elements and design principles.
<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Residential buildings - character, scale &amp; form</th>
<th>Element and design principles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Places that are valued for their character:</strong> have continuity with the past, harmonise with their surroundings and relate to the pattern of existing development. Single storey timber and ‘gal iron’ residential buildings built between 1910 and 1930 on a minimum ¼ acre block create the <strong>residential character</strong> of Nimbin village.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Villages and towns with a sense of unity usually have a consistent <strong>scale</strong>. Buildings to have a consistent <strong>scale</strong> have similar:</strong> height, size and proportion to adjoining buildings and buildings in the locality.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>The <strong>form</strong> of a building comprises its overall bulk, shape, height and building parts. The <strong>form</strong> of buildings in the conservation area is a relatively simple arrangement of the parts including roofs, facades, verandahs, parapets etc.</strong> Buildings should not appear so large as to dominate its neighbours. Large parts of buildings should be stepped back from the street. The size, shape and pitch of roofs should relate to the main roof or those existing in the street.</td>
<td></td>
</tr>
</tbody>
</table>
Roof extensions are to relate sympathetically to the original roof in shape, pitch, proportion and materials. New buildings are to have roofs that reflect the size, mass, shape and pitch of neighbouring original roofs. Replacement roof materials are to match original materials or approved alternative materials.

Existing original verandahs are to be kept and repaired or reinstated where necessary. Removal, or infill of verandahs visible from a public place is discouraged. Verandah additions are to be simple in design and are not to compete with the importance of the original verandah. Authentic reconstruction of verandahs is encouraged.

The retention, repair and reconstruction of early garages is encouraged. New garages and carports are to be located preferably at the rear of the house or at least 1 metre back from the front wall of the house. Carports may be permitted forward of the building line where access is not available to the rear or side of the house. Garages and carports are to be a simple utilitarian design.
| The established pattern of **front and side setback** should be retained. New buildings or extensions to existing buildings should not be built forward of the existing **front setback** and building line. Where land slope or the existing building height will be maintained spilt level development is permitted, provided the building does not appear as a two-storey building. |
**RESIDENTIAL BUILDINGS - FACADES, MATERIALS AND FENCES**

**Facades** should:
emphasise horizontal proportions and have a simple
design, and
have clearly distinguishable features (verandahs, walls,
windows, doors and joinery).
Post supported verandahs, porches and pergolas are
appropriate.
Construction should be simply detailed.

**Building external materials** correct for, or compatible
to the period of original construction should be used.
Preferred **materials** include:
Walls – timber ‘feathered’ chamferboard,
Roofs – corrugated iron,
Windows – timber framed, for new buildings
compatible design metal framed may be appropriate.

**Fence** height ranges should be between 750-1400
mm.
**Fences** should not completely obscure buildings.
**Fences** may be constructed of timber picket, chain or
woven wire between timber posts or hedges alone or in
combination with timber posts.
6.2.2 **New Residential Village Precincts**

**Objectives of the precincts**

1. Develop settlements within the precincts based on providing sustainable residential neighbourhoods, which provide a range of housing, employment, and recreation opportunities that maintain the viability of the precinct and whole of the village.

2. Provide a transport system that provides access for people, bicycles, horses and motor vehicles within the precincts and to the existing community, commercial, industry and residential village precincts.

3. Require the design of the land subdivision to consider the following principles:
   - the orientation, aspect, size and shape of the lots to maximise solar access for likely future buildings and landuses,
   - demonstrate a relationship with the natural environment by avoiding environmentally sensitive areas, rehabilitation of degraded drainage systems and preservation of significant trees,
   - provision of recreation areas that permit production of food, passive recreation and act as a meeting place and provide social and cultural facilities,
   - provision of areas on which employment generating small business enterprises and initiatives can be developed by future inhabitants, and
   - provision of areas on which small scale convenience retail and commercial activities can occur without duplication of activities in the commercial precinct.

4. Encourage energy and resource efficient buildings, which integrate with the design of the subdivision.

5. Encourage the provision of a wide range of housing types that will cater for the human life cycle and encourages population age and social diversity.

**Preferred landuses**

- dwelling houses,
- expanded dwelling houses,
- dual occupancies,
- residential flat buildings,
- buildings such as hostels that provide shared forms of accommodation for both permanent (co-housing) and short term tourist style accommodation,
- home occupations,
- home industries, where that industry will not impact on residential amenity,
- bed and breakfast establishments,
- places of worship and assembly (located where those places will not impact on residential amenity),
- convenience scale retail and commercial activities that do not duplicate existing development in the commercial precinct.
Development standards and guidelines

Development of the Precinct Areas - Masterplan
Development of the main undeveloped areas of the precincts is to be in accordance with an approved masterplan or precinct site management plan, which should address the following matters:

- a landuse concept plan,
- an energy plan,
- design guidelines for buildings,
- a landscape plan,
- a vegetation management plan,
- a pedestrian and traffic movement plan,
- a water management plan and
- a social contract or social management plan (where the land is to be developed for co-housing or similar).

Vegetation Conservation
The following standards and guidelines apply to Development Applications within the New Residential Village Precincts and lands on which native and native remnant vegetation and natural drainage systems exist.

Objectives
1. To identify and conserve significant local native vegetation in the village.
2. To identify environmental weeds declared noxious under the Noxious Weeds Act 1993 and other environmental weeds considered posing a threat to the vegetation biodiversity and drainage ecosystems in the village.
3. To encourage the management and eradication of environmental weeds.
4. To describe the circumstance and requirements for a Vegetation Management Plan.

Significant local native vegetation
Significant vegetation identified in Table 1 is not to be ringbarked, cut down, lopped, removed, injured or destroyed without the prior consent of Council.

Table 1 Significant Vegetation

<table>
<thead>
<tr>
<th>Location</th>
<th>Type of tree/s and occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>High St (south side of road reserve)</td>
<td>Ficus benjamina – row planting</td>
</tr>
<tr>
<td>Lot 18 DP 839286 (below Falls Rd)</td>
<td>Ficus macrophylla &amp; Ficus watkinsiana – isolated ‘paddock’ specimens</td>
</tr>
<tr>
<td>Nimbin Showground</td>
<td>Araucaria cunninghamiana, Eucalyptus siderophloia – creek and grounds</td>
</tr>
<tr>
<td>Headers Soccer Grounds</td>
<td>Eucalyptus saligna – grouping near facilities</td>
</tr>
<tr>
<td>Lot 64 DP 1013043 on creek below School of Arts</td>
<td>1 large Mischocarpus australis – isolated specimen near creek</td>
</tr>
<tr>
<td>Lot 11 DP 785239 (near confluence of Mulgum Creek and creek from Sibley St)</td>
<td>Melaleuca bracteata, large Casuarina cunninghamiana – grouping</td>
</tr>
<tr>
<td>Lot 64 DP 1013043 (near Cecil St) Land to north-east of showground</td>
<td>Large Eucalyptus saligna – grouping</td>
</tr>
<tr>
<td>Silky Oak Drive</td>
<td>Large Grevillea robusta – grouping</td>
</tr>
</tbody>
</table>

The approximate location of significant vegetation is shown on Map 5.
**Introduced Environmental Weeds**

The following tables identify introduced environmental weeds that are:

- declared noxious under the Noxious Weeds Act 1993 in the Far North Coast County Council administrative area, or
- considered environmental weeds that pose a significant threat to rainforest biodiversity and drainage ecosystems.

Species identified in Tables 2 and 3 should not be knowingly planted, propagated or sold. People are encouraged to eradicate all plants identified as noxious or environmental weeds.

Two species in particular are a serious problem:

- Queen (Cocos) Palm *Syagrus romanzoffiana*, is planted extensively in the village area. The green palm fruits are known to be toxic to certain species of flying-fox.
- Madeira Vine *Anredera cordifolia*, is a rampant vine that has the potential to overwhelm most of the creek ecosystems within the village area and beyond.

### Table 2  Noxious Weeds – Noxious Weeds Act 1993

<table>
<thead>
<tr>
<th>Common name</th>
<th>Category</th>
<th>Common name</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alligator weed</td>
<td>W 1</td>
<td>Johnson grass</td>
<td>W 2</td>
</tr>
<tr>
<td>Black Knapweed</td>
<td>W 1</td>
<td>Nodding thistle</td>
<td>W 2</td>
</tr>
<tr>
<td>Hawksweeds</td>
<td>W 1</td>
<td>Pampus grass</td>
<td>W 2</td>
</tr>
<tr>
<td>Horsetail</td>
<td>W 1</td>
<td>Rhus tree</td>
<td>W 2</td>
</tr>
<tr>
<td>Karoo Thorn</td>
<td>W 1</td>
<td>Salvinia</td>
<td>W 2</td>
</tr>
<tr>
<td>Kochia (a)</td>
<td>W 1</td>
<td>Scotch / English broom</td>
<td>W 2</td>
</tr>
<tr>
<td>Lagarosiphon</td>
<td>W 1</td>
<td>Spiny Burrgrass</td>
<td>W 2</td>
</tr>
<tr>
<td>Miconia</td>
<td>W 1</td>
<td>St Johns Wort</td>
<td>W 2</td>
</tr>
<tr>
<td>Parthenium weed</td>
<td>W 1</td>
<td>Giant Parramatta grass (b)</td>
<td>W 2/3</td>
</tr>
<tr>
<td>Senegal Tea Plant</td>
<td>W 1</td>
<td>Bitou bush</td>
<td>W 3</td>
</tr>
<tr>
<td>Siam weed</td>
<td>W 1</td>
<td>Crofton weed</td>
<td>W 3</td>
</tr>
<tr>
<td>Spotted Knapweed</td>
<td>W 1</td>
<td>Lantana – except Pink Lantana</td>
<td>W 3</td>
</tr>
<tr>
<td>Water lettuce</td>
<td>W 1</td>
<td>Mistflower</td>
<td>W 3</td>
</tr>
<tr>
<td>Blackberry</td>
<td>W 2</td>
<td>Water hyacinth</td>
<td>W 3</td>
</tr>
<tr>
<td>Burrs – Bathurst, Califorian, Cockle &amp; Noogoora</td>
<td>W 2</td>
<td>Camphor Laurel (c)</td>
<td>W 4(d)</td>
</tr>
<tr>
<td>Columbus grass</td>
<td>W 2</td>
<td>Harrisa Cactus</td>
<td>W 4(f)</td>
</tr>
<tr>
<td>Giants Rats Tail grass</td>
<td>W 2</td>
<td>Prickly Pears (d)</td>
<td>W 4(f)</td>
</tr>
<tr>
<td>Green Cestrum</td>
<td>W 2</td>
<td>Cabomba – except Pink Cabomba</td>
<td>W 4(g)</td>
</tr>
<tr>
<td>Groundsel bush</td>
<td>W 2</td>
<td>Willows</td>
<td>W 4(g)</td>
</tr>
</tbody>
</table>

Notes to Table 2:

(a) Kochia scoparia other than sub species Tricophylla
(b) W3 in the whole area of operations except in the council areas of Byron, Ballina & Tweed where it shall be W2.
(c) W4d in all local government area except Shires of Tweed and Byron and in the part of the Shire of Ballina north of the Bruxner highway where it is not declared a noxious weed
(d) Opunitia spp. Except Opunitia ficus indica (Indian Fig)
W1 The presence of the weed on land must be notified to the local control authority and the weed must be fully and continuously suppressed and destroyed.
W2 The weed must be fully and continuously suppressed and destroyed.
W3 The weed must be prevented from spreading and its numbers and distribution reduced.
W4(d) The weed must not be sold. Propagated or knowingly distributed and the weed must be fully and continuously suppressed and destroyed if it is; 3 m in height or less, or within 0.5 km of remnant urban bushland as defined by SEPP #19, and is not deemed by a Local Control Authority as having historical or heritage significance or over 3 m in height and not included in a Management Plan by a Local Control Authority.
W4(f) Shall not be sold, propagated or knowingly distributed. Occupier must implement biological control or other program directed by a Local Control Authority.
W4(g) The weed must not be sold, propagated or knowingly distributed.
<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madeira Vine</td>
<td>Anredera cordifolia</td>
</tr>
<tr>
<td>Moth Vine</td>
<td>Araujia sericiflora</td>
</tr>
<tr>
<td>Ardisia</td>
<td>Ardisia crenata</td>
</tr>
<tr>
<td>Coral Berry</td>
<td>Ardisia crenata</td>
</tr>
<tr>
<td>Dutchman’s Pipe</td>
<td>Aristolochia elegans</td>
</tr>
<tr>
<td>Creeping Bamboo</td>
<td>Arundinaria spp.</td>
</tr>
<tr>
<td>Mother of Millions</td>
<td>Bryophyllum delagoense</td>
</tr>
<tr>
<td>Resurrection Plant</td>
<td>Bryophyllum pinnatum</td>
</tr>
<tr>
<td>Canna Lily</td>
<td>Canna indica</td>
</tr>
<tr>
<td>Balloon Vine</td>
<td>Cardiospermum grandiflorum</td>
</tr>
<tr>
<td>Chinese Elm</td>
<td>Celtis sinensis</td>
</tr>
<tr>
<td>Camphor Laurel</td>
<td>Cinnamomum camphora</td>
</tr>
<tr>
<td>Hairy Commelina</td>
<td>Commelina benghalensis</td>
</tr>
<tr>
<td>Cadaghi</td>
<td>Corymbia torelliana</td>
</tr>
<tr>
<td>Cape Ivy</td>
<td>Delairea odorata</td>
</tr>
<tr>
<td>Silver-leaved Desmodium</td>
<td>Desmodium uncinatum</td>
</tr>
<tr>
<td>Duranta</td>
<td>Duranta repens</td>
</tr>
<tr>
<td>Cockscob Coral Tree</td>
<td>Erythrina cristata-galli</td>
</tr>
<tr>
<td>Coral Tree</td>
<td>Erythrina X sykesii</td>
</tr>
<tr>
<td>Painted Spurge</td>
<td>Euphorbia cyathophora</td>
</tr>
<tr>
<td>Rubber Tree</td>
<td>Ficus elastica</td>
</tr>
<tr>
<td>Glory Lily</td>
<td>Gloriosa superba</td>
</tr>
<tr>
<td>Five-leaved Morning Glory</td>
<td>Ipomoea cainica</td>
</tr>
<tr>
<td>Blue Morning Glory</td>
<td>Ipomoea indica</td>
</tr>
<tr>
<td>Jacaranda</td>
<td>Jacaranda mimosifolia</td>
</tr>
<tr>
<td>Golden Rain Tree</td>
<td>Koelreuteria paniculata</td>
</tr>
<tr>
<td>Lantana</td>
<td>Lantana camara</td>
</tr>
<tr>
<td>Creeping Lantana</td>
<td>Lantana montevidensis</td>
</tr>
<tr>
<td>Large-leaved Privet</td>
<td>Ligustrum lucidum</td>
</tr>
<tr>
<td>Small-leaved Privet</td>
<td>Ligustrum sinense</td>
</tr>
<tr>
<td>Japanese Honeysuckle</td>
<td>Lonicera japonica</td>
</tr>
<tr>
<td>Cat’s Claw Creeper</td>
<td>Macfadyena unguiscati</td>
</tr>
<tr>
<td>Orange Jessamine</td>
<td>Murraya paniculata</td>
</tr>
<tr>
<td>Fishbone Fern</td>
<td>Neprolepsis cordifolia</td>
</tr>
<tr>
<td>Ochna</td>
<td>Ochna serrulata</td>
</tr>
<tr>
<td>Corky Passion fruit</td>
<td>Passiflora suberosa</td>
</tr>
<tr>
<td>White Passion Flower</td>
<td>Passiflora subpeltata</td>
</tr>
<tr>
<td>Black Bamboo</td>
<td>Phyllostachys nigra</td>
</tr>
<tr>
<td>Slash Pine</td>
<td>Pinus elliottii</td>
</tr>
<tr>
<td>Ground asparagus</td>
<td>Protasparagus aethiopicus</td>
</tr>
<tr>
<td>Asparagus Fern</td>
<td>Protasparagus africanus</td>
</tr>
<tr>
<td>Climbing Asparagus Fern</td>
<td>Protasparagus plumosus</td>
</tr>
<tr>
<td>Kudzu</td>
<td>Pueraria lobata</td>
</tr>
<tr>
<td>Castor Oil Plant</td>
<td>Ricinus communis</td>
</tr>
<tr>
<td>Coral Berry</td>
<td>Rivina humilis</td>
</tr>
<tr>
<td>Willow</td>
<td>Salix spp.</td>
</tr>
<tr>
<td>Mother-in-law’s Tongue</td>
<td>Sansevieria trifasciata</td>
</tr>
<tr>
<td>Umbrella Tree</td>
<td>Schefflera actinophylla</td>
</tr>
<tr>
<td>Winter Senna</td>
<td>Senna pendula var. glabrata</td>
</tr>
<tr>
<td>Smooth Senna</td>
<td>Senna X floribunda</td>
</tr>
<tr>
<td>Tobacco Bush</td>
<td>Solanum mauritianum</td>
</tr>
<tr>
<td>Climbing Nightshade</td>
<td>Solanum seafortthianum</td>
</tr>
<tr>
<td>Cocos Palm</td>
<td>Syagrus romanzoffianum</td>
</tr>
<tr>
<td>Wandering Jew</td>
<td>Tradescantia fluminensis (albiflora)</td>
</tr>
<tr>
<td>Striped Wandering Jew</td>
<td>Tradescantia zebrina</td>
</tr>
</tbody>
</table>
Vegetation Management Plans
A Vegetation Management Plan is to be submitted with Development Applications in the New Residential Village Precincts and with Development Applications for subdivision and development of lands immediately adjoining natural drainage systems.

A Vegetation Management Plan should show and document the following, where relevant to the lands:

Plans showing:
- existing native vegetation and agricultural lands,
- wildlife corridors and vegetation connecting significant areas of native vegetation,
- watercourses and water supplies,
- proposed planting locations,
- scenic management areas and
- common agricultural areas.

Documentation describing:
- an assessment of remnant bushland,
- an assessment of priority areas for rehabilitation and reforestation,
- planting strategy and timeframe,
- specifications for the planting areas
- site preparation details describing clearing of competitive grasses and weeds
- specify plant species – having regard to rainfall, slope, soils, existing native vegetation with a preference to local species and diversity,
- water supply and plant irrigation,
- maintenance and replacement of dead plants, fertilising, fencing to exclude animals,
- control of noxious weeds,

Rehabilitation of Natural Drainage Systems
The following standards and guidelines apply to:
- all Development Applications within the New Residential Village Precincts and
- Development Applications for subdivision and new development on lands on which natural drainage systems exist.

Objectives
1. To identify significant local natural drainage systems in the village.
2. To encourage the rehabilitation and on-going management of degraded natural drainage systems.
3. To encourage the multiple use of natural drainage systems.
4. To ensure that management of stormwater from new development is undertaken in a manner to protect and enhance local natural drainage systems.
5. To describe the circumstance and requirements of a Natural Drainage System Protection Rehabilitation and Management Plan.
**Drainage system management**

Significant natural drainage systems in the village are shown on Map 5.

Where a proposed development includes land shown as a significant local natural drainage system the rehabilitation of any degraded sections and sections substantially colonised by exotic and introduced plant species is required.

Natural drainage systems can be developed for multiple use such as recreation and production of food.

A Natural Drainage System Protection Rehabilitation and Management Plan is to be submitted with Development Applications in the New Residential Village Precincts and with Development Applications for subdivision and development of lands immediately adjoining natural drainage systems.

A Natural Drainage System Protection Rehabilitation and Management Plan should show and document the following, where relevant to the lands:

- location of drainage lines, and ground water supply sources, springs, dams, swamps, floodplain and seasonal wet areas,
- distance and vegetation buffers areas between areas of development and waterways,
- erosion and sediment control measures for development sites and areas,
- areas subject to land clearing and shaping,
- proposed development stormwater drainage facilities and discharge points, and
- a Vegetation Management Plan.

**Energy Conservation and Subdivision**

The following standards and guidelines apply to Development Applications to subdivision of land.

**Objectives**

1. Encourage the design of land subdivisions and buildings to optimise site conditions to achieve energy efficiency and conservation.

2. Maximise the number of residential allotments, which have good solar access, which optimises potential for energy efficiency and conservation.

**Development standards and guidelines.**

The design of new buildings and additions to existing buildings is to take into account the following elements and design principles.
### Subdivision - orientation, street layout, lot location & shape, size of lot or equivalent lot, building envelopes and setbacks

<table>
<thead>
<tr>
<th>Element and design principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streets are to be aligned east-west and north-south wherever possible. North-south streets should be within 20° west and 30° east of true north. East-west streets should be within 30° south and 20° north of true east. Use rectangular lots where streets are located within the acceptable orientation ranges. (Refer to Table 4) Locate as many long lot boundaries as possible within the permissible orientation range. (Refer to Table 4) Where the street is not within the orientation range use a skewed lot shape, with lot boundaries in the orientation range. Locate the narrowest lots on the north side of east-west streets. Lots on the south side of east-west streets need to be wider to accommodate vehicular access. East-west lots need to be wider unless 2 storey buildings are to be restricted. East-west lots can be narrow if there is road or open space to the north (eg a corner lot). Lots on south facing slopes need to be provided with more space to the north to protect solar access, while lots on north facing lots need less open space. (Refer to Table 5) Concentrate small lots on north facing slopes with slopes less than 15% (1:9). Larger lots should be located on land facing south. Sloping sites should be used for medium and larger lots. Existing vegetation should be located on the boundaries of larger lots. Larger lots, non-residential uses or public open space are to be located where solar access is poorer.</td>
</tr>
<tr>
<td>SUBDIVISION - LOT SIZE OR LOT EQUIVALENT, BUILDING ENVELOPES AND SETBACKS, ACCESS AND LANDSCAPING</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lots or equivalent lots &lt; 350 m² are to be located on land with less than 15% (1:9) slope across the frontage.</td>
</tr>
<tr>
<td>Lots or equivalent &gt; 450 m² are to be capable of containing a building envelope minimum 10m x 15m.</td>
</tr>
<tr>
<td>Lots or equivalent 300 – 450 m² are to be capable of containing a building envelope 9 x 15 m where the major axis of the lot is between 30° east and 20° west of true north.</td>
</tr>
<tr>
<td>Lots or equivalent &lt; 300 m² should be square or rectangular in shape.</td>
</tr>
<tr>
<td>Where lots or equivalent do not comply with orientation a building envelope minimum 9 x 15 m is to be available within 20° west and 30° east of true north.</td>
</tr>
<tr>
<td>Variable setbacks and zero lot or equivalent lines can be varied to maximise solar access, especially to narrow lots.</td>
</tr>
<tr>
<td>Subdivision design is to include a clearly marked bicycle network that provides linkages to the approved routes of the Nimbin Cycleway Plan.</td>
</tr>
<tr>
<td>Footpaths are to be constructed to provide access to the existing village.</td>
</tr>
</tbody>
</table>
Existing vegetation is retained and subdivision designed to ensure those trees will not impede solar access. Street trees and landscaping is undertaken with species: that do not impede solar access to buildings, that are taller trees occurring on the northern side of east-west aligned streets and shorter species on the southern side, that are native to the locality and require low levels of on-going maintenance and watering, and to provide windbreaks where required.
Lot Orientation and Widths to Maximise Solar Access

Table 4 shows desirable lot widths where the height of buildings is not known. In general reducing lot width results in a reduction in the solar access star rating. Lot width can be reduced without impacting on the solar access rating by placing height restrictions to houses on the north boundaries.

Table 4 - Lot Orientation and Widths to Maximise Solar Access

<table>
<thead>
<tr>
<th>Minimum lot width (metres)</th>
<th>Lot orientation</th>
<th>5 star rating</th>
<th>4 star rating</th>
<th>3 star rating</th>
<th>2 star rating</th>
<th>1 star rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>East west</td>
<td>&gt; 16.2</td>
<td>15.1-16.2</td>
<td>14.2-15.0</td>
<td>13.4-14.1</td>
<td>&lt; 13.4</td>
<td></td>
</tr>
<tr>
<td>North</td>
<td>&gt; 13.5</td>
<td>11.7-13.5</td>
<td>10.9-11.6</td>
<td>10.5-10.8</td>
<td>&lt; 10.5</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>&gt; 15.5</td>
<td>13.7-15.5</td>
<td>12.9-13.6</td>
<td>12.5-12.8</td>
<td>&lt; 12.5</td>
<td></td>
</tr>
</tbody>
</table>

Definitions:
East/west Bearing of 1 long side within 250 and 300°, street on east or west side
North Bearing of 1 long side within 340 and 30°, street on southern side
South Bearing of 1 long side within 340 and 30°, street on northern side

Adjusting Lot Width to Recognise Slope of the Land

Table 5 shows that the setback (and lot width for east-west lots) required, can be adjusted to allow for the slope of the land. South facing slopes will need larger setbacks to protect solar access while north facing slopes can have reduced setbacks. Add the figures below for south slopes and subtract for north slopes to obtain the appropriate setback from the north boundary.

Table 5 Slope Adjustments to Lot Width

<table>
<thead>
<tr>
<th>Degree of Slope</th>
<th>Star rating (5 star)</th>
<th>Star rating (4 star or less)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Star rating</td>
<td>1 storey 2 storey</td>
<td>1 storey 2 storey</td>
</tr>
<tr>
<td>5 &lt; 10% 1:20 &lt; 1:10</td>
<td>0.8 0.8</td>
<td>0.6 0.6</td>
</tr>
<tr>
<td>10 &lt; 15% 1:10 &lt; 1:6.7</td>
<td>1.0 1.5</td>
<td>0.8 1.2</td>
</tr>
<tr>
<td>15 &lt; 20% 1:6.7 &lt; 1:5</td>
<td>1.4 2.1</td>
<td>1.1 1.7</td>
</tr>
</tbody>
</table>
6.2.2 Commercial Village Precinct

The Commercial Village Precinct is shown on Map 3. There is approximately 2.87 ha (28700 m²) of land in the Commercial Village Precinct or Cullen St. ‘centre’ of the village used for commercial purposes including shops, offices, cafés, restaurants etc. There are some 23 commercial buildings in the precinct which have a gross floor area of approximately 6,050 m².

The predominant type of commercial building is timber, single storey (at street level), and painted murals on above awning facades and parapets, with galvanised iron roofs. Most commercial buildings in the precinct have been constructed before 1920-30. The precinct has considerable streetscape and heritage significance, which warrants on-going conservation management. Refer to Section 3.2

Expansion of commercial floor space is available through minor site redevelopment, change of building use and on under-utilised land between existing development and the western car parking area. There is approximately 6,000 m² of vacant lands to the east of Cullen Street. that may also be suitable for additional commercial development. The co-ordinated development of these areas is required to ensure the adequate provision of services, pedestrian and vehicular access to and from the lands.

A street beautification strategy and plans has been prepared for Cullen Street within the precinct. (See map 7). Though some works have been undertaken generally in accordance the strategy it has not previously been recognised in any formal planning policy. The plans have been included in this DCP for information only as they provide guidelines for future streetscape works in Nimbin.

Objectives of the precinct

1. Conserving the streetscape and heritage significance of the precinct.

2. Encouraging the development of commercial land adjoining the western car parking area in a co-ordinated manner that provides service vehicle access and public access to Cullen Street.

3. Encouraging the development of commercial land adjoining to the east of Cullen Street in a co-ordinated manner that provides for car parking and service vehicle access and public pedestrian access to lands to the east of the existing village.

4. Enhancing and expanding the public domain of Cullen Street with streetscape improvements.

5. To encourage the continued beautification of Cullen Street in a manner consistent with the schemes identified in the reports:
   - Nimbin: Sense of Place: Designing our Future – Community Consultation Outcomes and Conceptual Design for Cullen Street and Nimbin Village Centre and
   - Nimbin Sense of Place – Nimbin Village Centre – Landscape Enhancement Cullen Street.
Preferred landuses
- Shops,
- Restaurants,
- Cafes,
- Commercial premises,
- Craft studios and art galleries,
- Medical centres

Development standards and guidelines

Heritage Conservation
The following standards and guidelines apply to Development Applications in the Nimbin Conservation Area within the Commercial Village Precinct.

Specific heritage objectives
1. To retain the commercial buildings and streetscape qualities which contribute to the heritage significance of the commercial area within the Nimbin Conservation Area.
2. To enable changes to the streetscape and buildings within the conservation area but only where the proposed changes have been subject to public exhibition and do not remove or detract from the character, scale, form and heritage significance of the conservation area.
3. To ensure that where new buildings are constructed, they are carefully designed to fit in with the streetscape character and heritage significance of the conservation area.
4. To encourage the removal and reversal of those components which detract from the heritage significance of the conservation area.

Development standards and guidelines
The design of new commercial buildings and additions to existing commercial buildings in the conservation area is to take into account the following elements and design principles.
<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Commercial buildings - character, scale &amp; form</th>
<th>Element and design principles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Places that are valued for their <strong>character</strong>: have continuity with the past, harmonise with their surroundings and relate to the pattern of existing development. Single storey timber and ‘gal iron’ commercial buildings with post supported verandahs and simple above awning facades built between 1910 and 1920 create the <strong>commercial character</strong> of Nimbin village.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Villages and towns with a sense of unity usually have a consistent <strong>scale</strong>. Buildings to have a consistent <strong>scale</strong> have similar: height, size and proportion to adjoining buildings and buildings in the locality.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <strong>form</strong> of a building comprises its overall bulk, shape, height and building parts. The <strong>form</strong> of buildings in the conservation area is a relatively simple arrangement of the parts including roofs, facades, verandahs, parapets etc. Buildings should not appear so large as to dominate its neighbours. Large parts of buildings should be stepped back from the street. The size, shape and pitch of roofs should relate to the main roof or those existing in the main commercial area.</td>
<td></td>
</tr>
</tbody>
</table>
Roof extensions are to relate sympathetically to the original roof in shape, pitch, proportion and materials. New buildings are to have roofs that reflect the size, mass, shape and pitch of neighbouring original roofs. Replacement roof materials are to match original materials or approved alternative materials.

The existing pattern of building setback within the commercial area is to be maintained. Forecourts and entrance areas are not appropriate located directly onto Cullen St. as they interrupt the continuity and strength of the streetscape.

Infill development to the rear of the existing shops is encouraged, either as additions to buildings or with separation for natural light and ventilation. Development should provide accessways from car parks and consider people with disabilities.

Building external materials correct for, or compatible to the period of original construction should be used. Preferred materials include:

- Walls – timber ‘feathered’ chamferboard, small areas of face brickwork, tiles and rendered masonry,
- Roofs – corrugated iron,
- Windows – timber framed, for new buildings compatible design metal framed may be appropriate.

Materials should comply with the Building Code of Australia as appropriate.
Removal of or alteration to original **facades** and murals is not permitted without consent of Council.

Retention, repair and restoration of original above awning **facades** are encouraged.

Retention, repair and restoration of original above awning **parapet murals** are encouraged.

The design of new commercial buildings is to include **verandahs or awning**, to provide footpath shelter and consolidate the streetscape.

A parapet should be included on new commercial buildings.

Existing original **verandahs** are to be kept and repaired or reinstated where necessary.

Removal, or infill or **verandahs** visible from a public place is discouraged.

**Verandah** additions are to be simple in design and are not to compete with the importance of the original verandah.

Authentic reconstruction of **verandahs** is encouraged.

Below awning level, new building work and **shop front detail** work is to be in sympathy with, and not detract from the style and character of the building and streetscape.

Reinstatement of original street level facades and post supported verandahs is encouraged.

Recessed shop entrances are appropriate.

Height of stallboards should be consistent (250-500 mm) with those in the commercial area.


**Cullen Street Beautification and Western Car Parking Area**

1. Cullen St beautification, streetscape and landscape works are to be generally in accordance with Map 7.
2. Pedestrian accesses to and from the western car parking area and Cullen St. are provided in the following locations:
   - southern entrance / exit,
   - Lot B DP 390096 (54 Cullen St),
   - Lot 2 DP 361154 (68 Cullen St) and
   - northern entrance / exit.
3. Council shall seek the provision of legal 'right of footways' over land to legally enable those pedestrian ways.
4. A bus and coach parking area is to be designed and provided in the future extension of the western car parking area.
5. The eastern batter of the western car parking area is to be properly retained and landscaped and suitable provision be made for vehicular access for cars and small delivery trucks from the car parking area to the adjoining commercial lands to the east.
6. Tree planting within the car parking area is to conform to Chapter 7 (Off Street Car Parking) of Part A of this DCP.

**6.2.3 Light Industrial Village Precinct**

The Light Industrial Village Precinct is shown on Map 3. There is approximately 3.13 ha (31,000 m²) of land, primarily on 3 allotments in the northeast sector of the village, adjoining Sibley St and Alternative Way that is used for light industrial purposes. Most industrial buildings and uses are located in this area, though the allotments tend to be mostly vacant or under-utilised. Other than the landscaping undertaken at the time 'Rainbow Power Company' was established, screening and landscaping of existing industrial landuses to reduce visual impacts is minimal.

There is approximately 13,000 m² of vacant filled land outside the existing village zone on Sibley Street, which is suitable for light industrial development. As the lands are particularly visible from Sibley Street and lands to the south good building design and landscaping of the site is important. Detailed hydraulic and flood impact assessment is required prior to developing these and adjoining lands considered potentially suitable for light industrial use.

**Objectives of the precinct**

1. Encouraging the light industrial development of land, which will not compromise existing light industrial development in the precinct and not affect existing development in the Commercial Village Precinct.
2. Enabling the development of lands for uses other than ‘preferred uses’ where it can be demonstrated that there is not other suitable alternative site available and that the proposed use will not detrimentally affect existing light industrial development.
3. Requiring new light industrial development to make adequate provision for landscaping, vegetation conservation and rehabilitation of natural drainage systems.
4. Preserving local residential amenity where existing residential areas abut the precinct.
5. Discouraging potentially offensive or hazardous industry where in the opinion of Council the activity is likely to cause adverse environmental impacts or major up-grading of utility services.

**Preferred landuses**

- Light industries,
- Craft and light manufacturing industries,
- Bulky goods stores,
• Warehouses,
• Retail and wholesale plant nurseries, and
• Transport depots
• Storage sheds

6.2.4 **Community Village Precinct**
The Community Village Precincts are shown on Map 3. The Community Village Precincts comprise lands and existing development that is currently used for community purposes including:
• Education
• Policing
• Health and welfare,
• Religious,
• Community development,
• Public open space and
• Private open space.

Local community based organisations, Lismore City Council and various State Government Departments own the lands.

The area in the village currently utilised for community purposes is 23.26 ha (232,600 m²). This is approximately 22% of the total village area 104.9 ha (104,9300 m²).

Whilst there appears to be sufficient land used and available to be used for community purposes in the village to provide for the immediate and probably at least future 10 years predicted growth of the village, much of the lands appear to be under-utilised. The plan seeks to promote and enable the continued development and use of lands within the precincts for a wider variety of community and related purposes.

**Objectives of the precinct**
1. Promoting development and use of the lands within the precincts in the manner nominated on the Map.
2. Enabling development or use of the lands within the precincts that is compatible to the nominated use provided the development or use does not interfere with the nominated use and is compatible with adjoining land uses.
3. Encouraging the multi-use of presently under utilised lands for a wider variety of community uses.
4. Conserving the significance of heritage items and landscapes in the precincts.

**Preferred landuses**
• Development and landuse in accordance with the nominated use,
• Development and landuse compatible with and subordinate to the nominated use,
• Childcare facilities,
• Places of worship and assembly and
• Community facilities.

6.3 **General Provisions**

6.3.1 **Heritage Management**
A Heritage Conservation Management Plan is to be prepared and submitted with a Development Application that proposes significant alterations or additions of the buildings identified as
Architectural Heritage Items in the Lismore Citywide Heritage Study, 1996. A Statement of Heritage Impact is to be prepared if the building is to be removed and site redeveloped.

A Heritage Conservation Management Plan is a document setting out what is significant in a building, measures to mitigate negative impacts and therefore, what policies are appropriate to enable the significance to be retained in its future use and development. A Statement of Heritage Impact addresses why the building is of heritage significance, the impact of the proposed works and description why more sympathetic solutions are not viable.

The following table identifies those buildings identified as Architectural Heritage Items in the Lismore Citywide Heritage Study, 1996. Map 4 shows the location of the Nimbin Conservation Area.

<table>
<thead>
<tr>
<th>Item</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freemasons Hotel</td>
<td>53 Cullen St</td>
</tr>
<tr>
<td>Doctors surgery (Former Bank NSW)</td>
<td>39 Cullen St</td>
</tr>
<tr>
<td>House</td>
<td>34 Cullen St</td>
</tr>
<tr>
<td>House (former Community School)</td>
<td>72 Cullen St</td>
</tr>
<tr>
<td>St Patricks Church (Catholic Church)</td>
<td>92-96 Cullen St</td>
</tr>
<tr>
<td>Shop (Tomato Sauce building)</td>
<td>51 Cullen St</td>
</tr>
<tr>
<td>Shop (Nimbin Rocks Café)</td>
<td>60 Cullen St</td>
</tr>
<tr>
<td>Shop (Nimbin Village Meats)</td>
<td>52 Cullen St</td>
</tr>
<tr>
<td>Nimbin Post Office</td>
<td>43 Cullen St</td>
</tr>
<tr>
<td>House</td>
<td>18 Thorburn St</td>
</tr>
<tr>
<td>House (former Teachers residence)</td>
<td>71 Cullen St</td>
</tr>
<tr>
<td>Uniting Church (former Methodist Church)</td>
<td>90 Cullen St</td>
</tr>
<tr>
<td>Community Centre (former Central School)</td>
<td>71 Cullen St</td>
</tr>
<tr>
<td>Shop (former Nimbin Bakery)</td>
<td>62 Cullen St</td>
</tr>
<tr>
<td>Presbyterian Church</td>
<td>37 Cullen St</td>
</tr>
<tr>
<td>St Marks Anglican Church</td>
<td>27 Cullen St</td>
</tr>
</tbody>
</table>

6.3.2 Environmental Hazards and Buffer Areas

The following standards and guidelines apply to all Development Applications within the New Residential Village, Light Industrial Precincts and undeveloped lands within the Commercial and Community Village Precincts.

Objectives

1. To identify natural and other hazards and nuisances that may affect the safety of people and property and establish means to manage or avoid those hazards.

2. To prevent development of the following environmentally constrained lands:
   - land that is a floodway,
   - land that is steeply sloped and potentially subject to slip, subsidence or mass movement,
   - land that is in a high bushfire hazards area and
   - land within the buffer distances of the Showground cattle tick dip site (unless remediated) and sewerage treatment works.

3. To minimise land use conflicts between potentially incompatible land uses within the residential and light industrial land use precincts by requiring the establishment of buffer areas.
Development standards and guidelines

1. Detailed geotechnical and engineering assessment is required to be provided for all Development Applications to subdivide land in New Residential Village Precincts.

2. Geotechnical and engineering assessment at a minimum are to consider the proposed development and factors such as slope angle, position on the slope, terrain elements and specific soil conditions (plasticity, wet strength, shrink-swelling, stoniness, sodicity/dispersion, erodibility, permeability, acidity, salinity etc.).

3. Land that is floodway is not to be used for residential development.

4. A flood impact and hydraulic assessment is required for other forms of development that may be located on lands potentially flood prone.

5. Buffer areas in accordance with Chapter 11 (Buffer Areas) of Part A of this DCP are to be provided between residential and light industrial land use precincts.

6.3.3 Provision of Village Infrastructure

The following standards and guidelines apply to all Development Applications within the village, as appropriate.

Objectives

1. To encourage the integrated provision of all utility services, particularly in New Residential Village Precincts which combines new and traditional technologies.

2. To provide utility services in a manner which is sensitive to the ecological and scenic values and socio-economic character of the village.

3. To encourage innovative partnerships and approaches to conservation and supply of energy.

Development standards and guidelines

Separate requirements for water supply and wastewater disposal apply to the New Residential Precinct and the Existing Residential Precinct as follows:

New Residential Precinct

The option exists for new residential development to either connect to Council's reticulated water and sewer system or to provide on-site water supply and effluent disposal.

Water Supply

Where water is to be supplied from Council's reticulated network it is to be in accordance with:
- Chapter 6 of Part A of this DCP, and

Where appropriate, reticulated water mains are to be provided in a common trench with telecommunication cabling.

Where water supply is to be provided on-site, such supply shall be provided in accordance with:
- Chapter 6 (Subdivision & Infrastructure) of Part A of this DCP.

Wastewater Disposal

Where development is to connect to Council’s sewer system, it is to be in accordance with:
- Chapter 6 of Part A of this DCP, and
- Council's ‘Sewer Reticulation – Technical Specifications and Drawings’
Where wastewater disposal is to be provided on-site, such system(s) is to be designed in accordance with Council’s On-Site Sewer and Wastewater Management Strategy.

**Other Precincts (Including Existing Residential Precinct)**

**Water Supply:**
Water is to be supplied from Council’s reticulated network and is to be in accordance with:
- Chapter 6 of Part A of this DCP, and
- Council’s ‘Specification for the Construction of Water Reticulation’
Use of rainwater tanks as an additional water supply is permitted.

**Wastewater Disposal**
Wastewater is to be disposed of to Council’s reticulated network and is to be in accordance with:
- Chapter 6 of Part A of this DCP, and
- Council’s ‘Specification for the Construction of Sewers’

**All Precincts**

**Roads and access**
1. The existing and preferred local road, cycleway and footpath network is shown on Map 6.
2. Unless otherwise substantiated roads and associated drainage structures are to be provided in accordance with:
   - Chapter 6 of Part A of this DCP and
   - Council’s ‘General Specification for the Construction of Roads and Drainage Works’.
3. Road design is to provide a reasonable balance between providing for the projected traffic flows and maintenance and required minimum standards and reduction of construction costs to achieve ecologically sustainable development.
4. Road design and location is:
   - to be separated from environmentally sensitive areas, such as drainage systems, treed areas and significant trees, and
   - to follow contours and ridgelines unless the design and construction of the proposed road is more cost effective and achieves broader community benefits.
5. A link road, located approximately in the location shown on Map 6 between Cecil Street and Alternative Way, is to be provided to a standard that reflects its hierarchical use.
6. Intersection upgrading is required at the following intersections: Cullen/Cecil Street; Sibley/Cullen Streets; Alternative Way/Sibley Streets; and Alternative Way/Cecil Streets.
7. Footpath infrastructure is to be provided between the New Residential Village Precinct southeast of Alternative Way and Cullen Street.
8. Cullen Street is the only existing trafficable route through the village (north/south) and often suffers from congestion. In the longer term a by-pass route to the west of the village should be provided.

**Drainage**
1. Drainage networks are to be developed and managed in accordance with Chapter 6 of Part A of this DCP.
2. The natural drainage systems of a site are to be retained and treated as a key element in design of the subdivision.
3. Stormwater generated from any intensification of landuse should not be directed over adjoining lands unless adequate provision is made for easements to drain or discharge to a defined watercourse to a point where that watercourse does not need improvement or upgrade to provide for the discharged stormwater.
4. Kerb and gutter within the Existing Residential Village Precinct may be required as a consequence of a Development Application that subdivides or intensifies the use of land where designed and constructed kerb and gutter already adjoins the site.
Electricity
1. All reticulated electricity services within new residential precincts are to be underground. The design of the subdivision and construction of buildings is to facilitate the principle of grid interaction.
2. Consultation with Country Energy is to occur at the time of designing the subdivision and be documented in the Development Application for subdivision.

Telecommunications
1. An underground reticulated telecommunications systems and associated cabling is to be designed and provided that enables the future provision of the full range of telephone and electronic communications systems within the capacity of the network.
2. Telecommunication cabling is to be provided in a common trench with reticulated water mains, where appropriate.
3. Consultation with the Lismore Regional Office of Telstra Countrywide is to occur at the time of designing the subdivision and be documented in the Development Application for subdivision.
SCHEDULE 1 - CHECKLIST

The following checklist is provided to assist applicants to prepare Development Applications that meet the requirements of this Chapter. The checklist is a summary only of the Chapter’s requirements and do not replace requirements specified in the Chapter.

The checklist identifies the clause and page number and identifies by a question and in bold font the keyword or summary of either the objective, preferred landuse or development standards and guidelines of the Chapter.

Applicants are encouraged to use the checklist as a means of demonstrating to Council that the Development Application has addressed the objective, preferred landuse or development standards and guidelines of the Chapter.

<table>
<thead>
<tr>
<th>Checklist - Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the development consistent with the objectives of the plan?</td>
<td></td>
</tr>
<tr>
<td>In which village precinct is the development proposed? Refer to Map 3 of the DCP</td>
<td></td>
</tr>
<tr>
<td>EXISTING RESIDENTIAL PRECINCT/S</td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the objectives of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Is the development a preferred landuse or ancillary to a preferred landuse?</td>
<td></td>
</tr>
<tr>
<td>Development standards and guidelines</td>
<td></td>
</tr>
<tr>
<td>Heritage conservation</td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the heritage objectives of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the heritage development standards and guidelines of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Does the development consider the character of the precinct by showing continuity with the past, harmonising with surroundings and relating to the pattern of existing development?</td>
<td></td>
</tr>
<tr>
<td>Does the development reflect the scale of the precinct by complementing, height, size and proportion to adjoining buildings and buildings in the locality?</td>
<td></td>
</tr>
<tr>
<td>Does the development consider the form of the development and not dominate its neighbours and are large parts of buildings stepped back from the street?</td>
<td></td>
</tr>
<tr>
<td>Does the size, shape, pitch and proportion and materials of the roof relate to the main roof or those existing in the street?</td>
<td></td>
</tr>
<tr>
<td>Does the development incorporate the design, retention removal, infill of verandahs?</td>
<td></td>
</tr>
<tr>
<td>Does the development incorporate the design, retention, repair or reconstruction of a garage? Where is the proposed garage to be located?</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Does the development consider the established pattern of front and side setback?</td>
<td></td>
</tr>
<tr>
<td>Does the façade/s of the development emphasise horizontal proportions and have a simple design, and have clearly distinguishable features (verandahs, walls, windows, doors and joinery)?</td>
<td></td>
</tr>
<tr>
<td>Do the external materials of the development reflect the following? walls – timber ‘feathered’ chamferboard, roofs – corrugated iron, windows – timber framed, for new buildings compatible design metal framed may be appropriate.</td>
<td></td>
</tr>
<tr>
<td>Is a fence proposed as part of the development and what height and materials is it to be constructed?</td>
<td></td>
</tr>
<tr>
<td>Related provisions</td>
<td></td>
</tr>
<tr>
<td>Does the proposed development require further consideration under Section 4?</td>
<td></td>
</tr>
<tr>
<td>NEW RESIDENTIAL PRECINCTS</td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the objectives of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Is the development a preferred landuse or ancillary to a preferred landuse?</td>
<td></td>
</tr>
<tr>
<td>Development standards and guidelines</td>
<td></td>
</tr>
<tr>
<td>Has a masterplan for the overall development of the site been prepared?</td>
<td></td>
</tr>
<tr>
<td>Is the development and / or masterplan consistent with the objectives for vegetation conservation?</td>
<td></td>
</tr>
<tr>
<td>Does the development and / or masterplan protect significant vegetation identified in Table 1?</td>
<td></td>
</tr>
<tr>
<td>Does the development and / or masterplan landscape plan seek the destruction of noxious weeds identified in Table 2 and exclude use of vegetation identified in Table 3?</td>
<td></td>
</tr>
<tr>
<td>Has a vegetation management plan been prepared for the site and address the considerations of the Chapter?</td>
<td></td>
</tr>
<tr>
<td>Is the development and / or masterplan consistent with the objectives for rehabilitation of natural drainage systems?</td>
<td></td>
</tr>
<tr>
<td>Has a natural drainage system protection, rehabilitation and management plan been prepared for the site and address the considerations of the Chapter?</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Is the development subdivision and / or masterplan consistent with the objectives for energy and conservation?</td>
<td></td>
</tr>
<tr>
<td>Does the subdivision consider the orientation of the lands and achieve energy conservation principles through street layout and alignment?</td>
<td></td>
</tr>
<tr>
<td>Does the subdivision achieve energy conservation principles and consider the orientation of the lands and the street layout and alignment?</td>
<td></td>
</tr>
<tr>
<td>Does the subdivision lot location, size of lots, building envelopes and setbacks achieve energy conservation principles?</td>
<td></td>
</tr>
<tr>
<td>Does the subdivision consider the future provision of vehicular, cyclist and pedestrian access to lots and the subdivision to the village?</td>
<td></td>
</tr>
<tr>
<td>Does the future provision of landscaping within the subdivision retain existing trees and ensure that vegetation will not impede solar access to future buildings?</td>
<td></td>
</tr>
<tr>
<td>Does the subdivision achieve energy conservation principles and consider the orientation of the lands and the street layout and alignment?</td>
<td></td>
</tr>
<tr>
<td>Does the subdivision lot location, size of lots, building envelopes and setbacks achieve energy conservation principles?</td>
<td></td>
</tr>
<tr>
<td>Does the proposed development require further consideration under Section 4?</td>
<td></td>
</tr>
<tr>
<td><strong>COMMERCIAL PRECINCT</strong></td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the objectives of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Is the development a preferred landuse or ancillary to a preferred landuse?</td>
<td></td>
</tr>
<tr>
<td><strong>Development standards and guidelines</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Heritage conservation</strong></td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the heritage objectives of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the heritage development standards and guidelines of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Does the development consider the character of the commercial precinct by showing continuity with the past, harmonising with surroundings and relating to the pattern of existing development?</td>
<td></td>
</tr>
<tr>
<td>Does the development reflect the scale of the commercial precinct by complementing, height, size and proportion to adjoining buildings and buildings in the locality?</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Does the development consider the form of the commercial precinct and not dominate its neighbours and larger parts of buildings stepped back from the street?</td>
<td></td>
</tr>
<tr>
<td>Does the size, shape, pitch and proportion and materials of the roof relate to the main roof or those existing in the street?</td>
<td></td>
</tr>
<tr>
<td>Does the building setback of the development consider the existing pattern of building setbacks?</td>
<td></td>
</tr>
<tr>
<td>Do the external materials of the development reflect the following? WALLS – timber ‘feathered’ chamferboard, ROOFS – corrugated iron, WINDOWS – timber framed, for new buildings compatible design metal framed may be appropriate.</td>
<td></td>
</tr>
<tr>
<td>Is the development proposing to remove of alter original facades and murals?</td>
<td></td>
</tr>
<tr>
<td>Does the design of new commercial buildings include a verandah or awning to provide footpath shelter and parapet to reflect the streetscape.</td>
<td></td>
</tr>
<tr>
<td>Does the development incorporate the design, retention removal, infill of verandahs?</td>
<td></td>
</tr>
<tr>
<td>Is the shop front detail below awning level sympathetic with and not detract from the style and character of the building and streetscape?</td>
<td></td>
</tr>
<tr>
<td>Is the development consistent with the Cullen St beautification plan and design of the western car parking area by reflecting Map 7, provision of pedestrian access and bus and coach parking area, landscaped and suitable provision be made for vehicular access for cars and small delivery trucks?</td>
<td></td>
</tr>
<tr>
<td>Related provisions &amp; DCPs</td>
<td></td>
</tr>
<tr>
<td>Does the proposed development require further consideration under Section 4?</td>
<td></td>
</tr>
</tbody>
</table>

**LIGHT INDUSTRIAL PRECINCT**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the development consistent with the objectives of the precinct?</td>
<td></td>
</tr>
<tr>
<td>Is the development a preferred landuse or ancillary to a preferred landuse?</td>
<td></td>
</tr>
<tr>
<td>Related provisions &amp; DCPs</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>
## COMMUNITY PRECINCT

<table>
<thead>
<tr>
<th>Is the development consistent with the objectives of the precinct?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the development a preferred landuse or ancillary to a preferred landuse?</td>
</tr>
</tbody>
</table>

## Related provisions

| Does the proposed development require further consideration under Section 4? |

## GENERAL PROVISIONS

### Heritage management

<table>
<thead>
<tr>
<th>Is the land or existing building identified as a heritage item within the Lismore Citywide Heritage Study, 1996?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to Table 6.</td>
</tr>
</tbody>
</table>

| If the land or existing building is identified within Table 6 is it necessary that a heritage conservation management plan be prepared? |

### Environmental hazards and buffer areas

| Is the development consistent with the objectives for environmental hazards and buffer areas? |

### Development standards and guidelines

<table>
<thead>
<tr>
<th>Has a geotechnical and engineering assessment been prepared for the development?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are buffer areas to separate residential and industrial development provided in accordance with Chapter 11 of Part A?</td>
</tr>
</tbody>
</table>

## PROVISION OF VILLAGE INFRASTRUCTURE

| Is the development consistent with the objectives for provision of village infrastructure? |

### Development standards and guidelines

<table>
<thead>
<tr>
<th>Has adequate provision made to supply water to the development?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has adequate provision made for wastewater disposal from the development?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does the provision of roads and access to the development meet the relevant requirements?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the provision of drainage to the development meet the relevant requirements?</td>
</tr>
<tr>
<td>Does the provision of electricity to the development meet the relevant requirements?</td>
</tr>
<tr>
<td>Does the provision of telecommunications to the development meet the relevant requirements?</td>
</tr>
</tbody>
</table>
Chapter 7

Dunoon Village
7 Dunoon Village

This Plan applies to all that area shown on Map 1, zoned 2(v) (Village Zone) and 1(d) Investigation Zone, bordered by the heavy black line. The land is zoned under the Lismore Local Environmental Plan, 2000.

7.1 Objectives of this Chapter

1. To provide guidance for future development of Dunoon Village
2. To determine an indicative road pattern for an expanded village.

7.2 Current Zoning

Under the Lismore Local Environment Plan 2000 the subject area of this DCP is zoned 2(v) (Village Zone) and 1(d) (Investigation Zone). The Village is generally surrounded by horticultural land zoned 1(b) (Agricultural Zone). Map 1 shows the current zoning status of the area affected by the DCP. There are significant areas of land currently zoned 2(v) and 1(d) but undeveloped in the Village at present. These areas are all the remaining land stocks within the Village. Future expansion outside current 2(v) and 1(d) zonings would involve the rezoning of prime agricultural/horticultural land, which may have implications in terms of loss of prime cropping areas but may also be subject to some form of contamination from agricultural pesticides and the like. The expansion into these areas is not expected until current land reserves are fully utilised.

7.2.1 Land Reserves for Village Development

There are currently approximately 24 hectares of land zoned “Village” which are unsubdivided in the Dunoon area. In addition to this, there are approximately 19 hectares of land zoned 1(d) which will, in all probability, be rezoned in the next few years, when the existing reserves of 2(v) land are fully utilised. This land, both 2(v) and 1(d), is currently utilised predominantly for non-intensive grazing purposes, with a one hectare (approximately) allotment developed for horticulture. It consists largely of gently undulating unimproved grasslands. The land is all designated as good quality class 3 agricultural land, which is suitable for cropping on a rotational basis.

Land reserves in the Dunoon Village area will be severely compromised by virtue of the Department of Health’s requirements that non-sewered sites must use on-site disposal techniques for their effluent. Despite the 2(v) zone having a minimum lot size of 400m2 under the Lismore Local Environmental Plan, where on-site effluent disposal is proposed, lot size will largely be determined by the requirement to satisfy Council’s On-Site Sewage and Wastewater Management Strategy.

It is envisaged that the minimum lot size in practice will be in the vicinity of 2500m2 to 5000m2. It is anticipated that, if the 2500m2 lot size was to apply that an allocation of 20% be allowed for road reserves etc, a maximum of approximately 140-160 allotments could, conceivably, be created. Table 1 below summarises potential maximum lot yields for future development (assuming 2(v) and 1(d) land were fully utilised for residential purposes) subject to various minimum lot sizes.

<table>
<thead>
<tr>
<th>LOT SIZE</th>
<th>400m2</th>
<th>2500m2</th>
<th>5000m2</th>
<th>1 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate max. lot yield*</td>
<td>860</td>
<td>140</td>
<td>65</td>
<td>35</td>
</tr>
</tbody>
</table>

* assuming a 20% allocation of land for roads, services etc.

On the basis it is clear that the aforementioned expected demand of approximately 100 lots could be satisfied.
The actual minimum lot size that will apply to the Village will not be known until detailed soil analysis is carried out by a suitably qualified person. This will generally be carried out at the subdivision stage. Indeed soil types vary within the Village as such so may allotment sizes. It is a probably scenario that minimum allotment sizes will be determined on a subdivision by subdivision basis. Whilst this will reduce, to a degree, the certainty with which developers can produce subdivision layouts (based on minimum lot sizes), it may present to consumers a range of lot sizes and create choice when purchasing land, given that it is likely that lot sizes will range between 2500m² and one hectare.

7.3 Effluent Disposal

Allotment sizes within the Village will be dependent upon Council’s On-Site Sewage and Wastewater Management Strategy. Nothing within this plan precludes the use of alternative technologies (with standard design waste water volumes) however, Council’s Health and Building Department have indicated that based upon present technologies and the history of on-site disposal within the Village, a minimum allotment size of between 2500m² and 5000m² could be justified.

Council will examine the suitability of alternative technologies on a subdivision by subdivision basis. Any such appraisal will be based upon relevant Council and Department of Health guidelines. Alternative technologies that may have merit include: aerated septic tank systems that involve treated water reuse, waterless toilets, separate “greywater” disposal/re-use, thereby reducing quantities of effluent that a conventional septic tank would need to handle, or the installation of a compact package treatment plant. All options would be totally developer funded. Costs with some options may be prohibitive, notwithstanding the increase in the number of lots that may be created. Satisfactory arrangements must also be made for on-going maintenance of alternative effluent disposal systems.

7.4 Future Zoning Requirements

With an expanded Village, increased population, and demand for services etc, pressure may become evident for the imposition of specific land-use zones within the Village, thereby replacing the current 2(v) zone. The 2(v) zoning primarily aims to retain the character of rural villages and provide a full range of compatible facilities for smaller rural communities.

Given that, in all probability, Dunoons’ population will not exceed 1000 in the coming 10 years, it is not likely that there will be sufficient planning grounds for the imposition of separate land-use zonings. This is based on the assumption that development with the Village will generally not be of a nature and scale to warrant strict legislative separation in the form of an LEP. Further, merit based assessment of development applications with the Village will generally ensure that conflicting land-uses are kept separate with the integrity/character of the rural village atmosphere being maintained.

The most significant zoning implications for the Village will be the possible future rezoning of that area zoned 1(d) for residential purposes in the years to come, and also the need to provide buffer areas to protect future residential development from the surrounding intensive horticultural activities and vice versa. With regard to buffer areas, the creek to the east of the Village (which forms the zoning boundary) would provide a logical focus for a buffer area, not only for the agricultural practices nearby, but also for the creek itself. Under water resources guidelines, a distance of 40 metres along the western side of the creek should be set aside and kept clear of development. This issue of buffer areas will be comprehensively addressed in a separate DCP for Lismore as a whole.
With regard to controlling development within certain areas of the Village, and assuming that strict zoning requirements are not warranted, the utilisation of “preferred land-use precincts” may be an option. In this case, areas would be designated as having preferred land-uses, rather than consent and prohibited uses. It would seem at this stage that there would only be perhaps two to three such areas, differentiating where residential, commercial and perhaps service industries would be preferred to be located. In terms of the character of the Village it is a concern that strict land-use zones could stifle and regiment future development and affect detrimentally the character of the rural community. In light of this, only one such precinct is needed in the area centred around the service station, general store and butcher shops, and nominated as a commercial precinct, with preference being given to those land-uses of a commercial/retail/service nature. The rest of the existing village would be reserved for residential only purposes. It is not foreseen at this stage that there is a need to designate a precinct for industrial operations. Agricultural service facilities could be located in the commercial precinct or on rural holdings outside the immediate village area. Map 2 shows the proposed commercial precinct.

7.5 Servicing Of the Village

As noted earlier, the key servicing issue facing the village is the disposal of effluent. The disposal of effluent on-site will remain the only alternative for the foreseeable future. This is based on the fact that the provision of a small scale treatment plant for the village would be prohibitive, with the scale of subdivision taking place within the village not making such a system a viable option. A legacy of this “on-site” option is an increase in minimum lot sizes.

Water supply for the village and surrounding area is sufficient for approximately 750 dwellings. As such, the supply of water to Dunoon itself is sufficient for current needs, extending for approximately five years. After this, the longer term supply for the village will need to be investigated. The two main options at this stage would be the upgrading of existing reservoir capacity for the village, and/or the increased pumping of water from the Rocky Creek Dam. The prohibitive factor in any option for the augmentation of water supply for the village is the high costs associated with such works.

7.6 Current Facilities

Details of community facilities and needs are documented in the Dunoon/Modanville and District Community Services and Facilities Plan. This plan highlights that community halls and sporting facilities in the area are well patronised, however it was noted that improving these facilities was seen as a necessity by residents of the village and district. In terms of the actual physical provision of open space within the village of Dunoon, it would appear that, on paper, the residents of the village are well provided for. If, however, the village expands to the east over the next 10 years at the current rate, there would be a need for the provision of a park/playground area within this area to reduce walking distances to areas such as Balzer Park and provide a link from the east to the school. This area should be of a suitable area and quality (about 5000m2) located centrally to future eastern residential areas.

7.7 Indicative Road Patterns

As all significant subdivision and development of land within Dunoon will take place to the East of James Street, it is imperative that an indication of preferred road layouts is provided, so that lot yields may be calculated, and developers can act knowing Council’s preferences for the area. Maps 3 and 4 show indicative road patterns for the village if it were to expand fully into the current 2(v) and 1(d) undeveloped areas. These road patterns are based on a minimum lot size of around 2500m2 (Map 3) and one hectare (Map 4). Both maps attempt to utilise the available land to its full potential, taking into account factors of topography, access to James Street, internal circulation, and the need for a 40 metre buffer area along the creek (zoning boundary) as mentioned in an earlier section.
Any new subdivision within the undeveloped land east of James Street should take into account these indicative road patterns. This is to ensure that land is utilised to its full potential and is subdivided in such a way that its linking to future subdivisions is as easy as possible. The lower density option (Map 4) would apply in those areas where on-site effluent disposal conditions are poor.

7.8 Conclusion

In the next ten years it is the likely scenario that Dunoon Village will develop at essentially the same rate as it has over the past 6 years. With regard to this, it is expected that an upper population of approximately 750 people will be reached. This is assuming that residential densities in new subdivisions will be extremely low, with a minimum lot size of between 2500m² and 5000m².

Dunoon Village plays an important role as a service centre and focal point for the surrounding rural community. For this reason it is vital that the village’s character and functionally not be eroded in years to come. This may be achieved by maintaining a viable small commercial centre, and ensuring that the rural atmosphere that the village possesses is not lost (this may become easier by virtue of the fact that most, if not all, future development will be akin to rural residential development). It is important for a sense of identity and place that villages such as Dunoon, Clunes, Bexhill etc are maintained and developed at an appropriate level. These villages not only provide a support service for surrounding rural areas but also allow people to feel part of a more intimate community than would otherwise be realised in larger centres such as Lismore. Smaller rural communities also represent choice to prospective and current residents of the area.

The villages within the Lismore City Local Government Area are generally within easy commuting distance of either each other or the regional base of Lismore itself and as such provide a valuable land resource for residential development, and offer an alternative form of residential development to living in a more urbanised centre. A primary goal of urban planning is to provide choice to the community (lifestyles, housing etc). The maintenance of these villages and the lifestyle that they represent are a key way of achieving this goal in a community such as Lismore City.
Chapter 8

Clunes Village
8 Clunes Village

Land the subject of this Chapter is zoned 2(v) Village Zone and 1(d) Investigation Zone. The village is generally surrounded by agricultural/horticultural land zoned either 1(a) General Rural Zone or 1(b) Agricultural Zone. Map 1 shows the current zoning status of the area affected by this Chapter.

8.1 Objectives of this Chapter

To assess the need to create precincts for various land uses within the Village zone.
1. To determine an indicative road pattern for an expanded Village.
2. To ensure that development is adequately serviced.
3. To protect the residential and environmental quality of the Village of Clunes and environs.
4. To maintain an attractive Village landscape and atmosphere.

To ensure that urban development does not create unacceptable environmental impacts.

8.2 Existing Village

There is approximately 40 hectares currently unsubdivided within the area zoned 2(v) Village and 1(d) Investigation. Of this total area, 16 hectares are zoned 2(v) and the remaining 24 hectares are under investigation in the 1(d) zone.

It is expected that development and expansion of the existing, undeveloped area zoned 2(v) will encroach upon the investigation zone. It is therefore recommended not to subdivide this investigation zone prematurely, and to wait until a substantial portion of the Village zone is developed. At this time, the possibility of changing the 1(d) zoning to 2(v) will be addressed. This will ensure that outward growth of the Village is controlled.

8.3 Constraints To Expansion

8.3.1 Community’s Views

The Village of Clunes is characterised by a strong sense of community (a characteristic that is common among villages in the Lismore area). Its residents are proud of the village in which they live and generally wish to keep the atmosphere and scale of the Village as it is today (some residents of the Village may wish it to be smaller or at least not grow any further). This is a common view amongst residents of not only Clunes, but almost any Village within the City of Lismore boundary. It is a view that Council must weigh up against external pressures for such Villages to develop.

Opportunities available for the residents of Clunes, are exclusive to village environments. It offers a lifestyle with environment and scenery, possibility to chase rural pursuits, closeness to friends and relatives and affordable housing. These opportunities coupled with the fact that Clunes is situated approximately 16 kilometres east of Lismore, encourage migration into the area.

8.3.2 Physical Constraints

As is the case in most other Villages, Clunes is surrounded by prime agricultural/horticultural land and/or extreme variations in topography both of which are unsuitable for development. In light of this, Clunes will have an upper limit for foreseeable expansion. Once this limit is reached, prime agricultural land is potentially placed in jeopardy from development pressures. This is a situation which, if it arises, will become evident in the long term and will need to be addressed before it occurs, through consultation with residents and Government authorities. This will help to determine the most appropriate, long term, course of action for the Village in question, as well as for future agricultural practices in the locality.
8.3.3 Zoning Constraints
As becomes evident in Section 2.0, land available for development within the Village is limited. One of the most significant zoning implications for the Village, therefore, will be the possible future rezoning of that area currently zoned 1(d) for residential purposes, and also the need to rezone some agricultural land for future Village land stocks. The land to which this plan applies, is completely surrounded by land zoned for agriculture (ie 1(a) and 1(b)) in which urban housing is prohibited. For this reason, the area to the North West of the Village, zoned 1(d) investigation, is currently the only viable option available to accommodate Village expansion.

8.3.4 Servicing Constraints
The Department of Health has specified that for properties which utilise septic tank disposal methods, the minimum allotment size shall be one (1) hectare. This figure may be reduced if the applicant can convince the Department of Health that the soil characteristics of the site can dispose of effluent using a smaller area. Preliminary indications are that the minimum allotment size may be in the vicinity of 2,500m² to 5,000m². At the time this DCP was drafted, Council has not referred any lots smaller than 1 hectare to the Department of Health, so these figures are theoretical only. Effluent disposal methods become more critical where there is potential for a large number of on-site effluent disposal systems to be provided.

The minimum allotment size within the Village will fall somewhere between 10,000m² and 800m² (if reticulated service are provided). The Local Environmental Plan, 2000 does allow subdivision to 400m². As this size is unlikely to be sought, nor is it compatible with the village character of Clunes it has not been considered as an option for future land supply. Table 1 below shows the estimated amount of potential lots that may be created if all existing 2(v) and 1(d) (Investigation Zone) land is fully developed.

<table>
<thead>
<tr>
<th>Lot size</th>
<th>10,000m²</th>
<th>5,000m²</th>
<th>2,500m²</th>
<th>800m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Potential lots</td>
<td>40</td>
<td>80</td>
<td>160</td>
<td>508</td>
</tr>
</tbody>
</table>

* Assumes all 1(d) and 2(v) land is fully developed for residential purposes.
* Assumes 20% of available land is devoted to roads, reserves etc.
* Lots of average size (around 800m²) would be permissible, only if a reticulated effluent system can be provided.

There are approximately ten (10) to twelve (12) new dwellings being approved per annum. The average minimum allotment size for unsewered lands is effectively one (1) hectare. There is land supply for the next four (4) years only. If it can be justified that the minimum lot size can be as low as 5,000m², and if land characteristics are more suitable for on-site disposal, then the residential land supply may last as long as 8 years.

The Village of Clunes has an average occupancy rate of approximately 3.0 persons per household. With approximately 135 dwellings currently, a population of 405 persons exists. Table 2 below summarises probable additional population levels taking into account the expected lot yields predicted in Table 1.

<table>
<thead>
<tr>
<th>Lot size</th>
<th>10,000m²</th>
<th>5,000m²</th>
<th>2,500m²</th>
<th>800m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 Probable population</td>
<td>525</td>
<td>645</td>
<td>885</td>
<td>1,725</td>
</tr>
</tbody>
</table>

* Assumes 3.0 persons per dwelling
* Assumes 1 dwelling per allotment
8.3.5 Landuse Constraints
A cattle dip site is located in the north eastern corner of the area zoned 1(d) Investigation, (refer to Map 1). DIPMAC has established a 200m radius assessment zone around such dip sites. In the event 1(d) land has to be developed, land within this exclusion zone must undergo soil tests. Soil shall be tested for contamination, and levels must satisfy the Department of Health standards before any development can occur on the land.

The agricultural land which surrounds the Village places certain constraints upon future outward growth. The land to the east of the Village is too steep for any substantial residential development, or even recreational development. Land to the North, South and West is zoned in a manner which prohibits urban housing, and is of importance for farming purposes.

8.3.6 Rainforest Remnants
Where the subdivision of land which supports existing rainforest remnants of significant stands of rainforest vegetation, is proposed, the subdivision shall be designed in such a manner that rainforest vegetation shall be located (where possible) clear of roads and other subdivisional works. Allotments which contain rainforest remnant vegetation shall nominate a suitable house site located clear of the vegetation and sited such that minimal adverse impacts on the vegetation are likely to occur.

8.4 Future Possibilities
8.4.1 Zoning
If the Village was to expand at the rate discussed earlier and a population of around 750 to 850 were realised, the need to introduce separate landuse zones within the Village may need to be examined. It could be argued that the concentration of people, lifestyles and various landuses would require stricter control and segregation so as to avoid conflict (eg by providing a separate commercial zone).

Clunes has an atmosphere and lifestyle that the residents generally wish to keep in its present form. This character and the Village has developed under a general village zone (in one form or another) that has allowed it to spread and develop with a minimum of zoning restrictions. That is to say, the current 2(v) zone allows far more landuses to co-exist than any other residential zone. This creates an atmosphere and mosaic of activities that not only instills a sense of community, but also operates as an effective service unit to the immediate residents of Clunes and the neighbouring area. Notwithstanding this, there are few non-residential landuses and almost no incursion of such uses into the residential precincts.

For this reason it would seem unnecessary to introduce specific landuse zones to the Village of Clunes. The strict regimentation of activities within the Village would dictate the way in which landuses are located, and the "laissez faire" style in which the Village has developed to date may well be diminished, if not ultimately lost. Indeed it is this lack of planning control that lends itself to the atmosphere that contributes to villages such as Clunes being so popular.

If land adjoining the Village is required for expansion purposes, 2(v) should be the preferred landuse zone, as it allows a suitable scope of activities to take place in the Village without unduly restricting their placement within the community. It is therefore recommended that the planning scheme for Clunes not be altered in a way so as to remove the 2(v) zoning. Significant expansion of the village beyond 1,000 persons may create demand for landuses which are not compatible with residential uses. This expansion is a long-term prediction. If the situation was to arise, the manner in which the village is zoned would need to be reviewed prior to these limits being reached.

8.4.2 Buffer Areas
Provision of buffer areas to protect future residential development from the surrounding intensive horticultural activities, and vice versa, must also be assessed. With regard to buffer areas, the Village
is surrounded (predominantly on the western side of Bangalow Road) by horticultural pursuits (mostly macadamia nut enterprises). Therefore all subsequent non-agricultural development on land adjoining any existing plantations is to be kept 30 metres clear of the boundary of the subject plantation. This will serve as a buffer for spray-drift etc and should be planted out with suitable plant/tree species to minimise airborne pollutants affecting future residential subdivision. This issue of buffer areas is addressed in Chapter 11 of Part A of this DCP.

8.4.3 Preferred Land-use Precincts

With regard to controlling development within certain areas of the Village, and assuming that strict zoning requirements are not warranted, the utilisation of “preferred land-use precincts” may be an option. In this case, areas are to be designated as having preferred land-uses, rather than permitted and prohibited uses. It would seem at this stage that there would only be two such areas, differentiating where residential, commercial and perhaps service industries would be preferred to be located:

(a) to retain the character of the rural villages;
(b) to provide for the development of a full range of rural village facilities in locations that are compatible with the character and amenity of the village; and
(c) to control the location, form, character and density of development.

8.4.4 Commercial/Industrial/Agricultural Precincts

In terms of the character of the Village, it is a concern that strict land-use zones could unnecessarily regiment future development and detrimentally affect the character of the rural community. In light of this, only one preferred land-use precinct is needed in the area centred around the service station and general store. This area is nominated as a commercial precinct, with preference being given to those land-uses of a commercial/retail/service nature. In the remainder of the existing village, reference would be given to residential precinct for agricultural service facilities. These facilities could be located in the commercial precinct, or on rural holdings outside the immediate Village area. Map 2 shows the proposed commercial precinct.

8.4.5 Community Facilities

Details of community facilities and needs are documented in Part C of the Lismore Contributions Plan.

8.4.6 Road Patterns

All future significant subdivision and development of land will occur to the west of Main Street. This is due to the area to the East being too steep for any significant development. As development is so concentrated, it is necessary to indicate preferred future layouts. This allows yields to be calculated and developers to act, aware of Council’s preferences, and in a manner which ensures that development is co-ordinated.

Map 2 shows indicative road patterns for the Village if it were to expand fully into the current 2(v) and 1(d) undeveloped areas. These road patterns are based on a minimum lot size of one (1) hectare. This map attempts to utilise the available land to its full potential, taking into account factors of topography, a dip site, access to Main Street and internal circulation.

Any new subdivision within the undeveloped area, west of Main Street, should take into account these indicative road patterns. This is to ensure that land is utilised to its full potential and is subdivided in such a way that easily links it to future subdivisions. If the land can be provided with a reticulated sewer system, then further residential streets can be designed based on indicative road patterns in Map 2.
The following table outlines the minimum road reserve and carriageway widths for land zoned residential or village. These widths are to be adopted for any new roads. This table is taken from the General Specification for the Construction of Road and Drainage Works, 1993.

<table>
<thead>
<tr>
<th>Road type</th>
<th>Reserve width (m)</th>
<th>Carriageway width between kerbs/table drains (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through Roads &amp; Bus Routes</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>(more than 360 lots)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeder Roads</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>(121 to 360 lots)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Streets</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>(up to 120 lots)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cul-de-sacs (max. 10 lots)</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Cul-de-sacs Turning Circle</td>
<td>14 Radius</td>
<td>10 Radius</td>
</tr>
</tbody>
</table>

8.4.7 **Effluent Disposal**

The disposal of domestic effluent is the key issue affecting the future development of Clunes. Given the constraints facing Clunes in relation to its land supply, growth rate and effluent problems, the continued wide scale use of conventional septic disposal techniques is not considered to be in the long term interest of the Village, or the surrounding environment.

For this reason, it is recommended that:

(a) All new subdivisions carried out in an estate manner (ie which are not infill subdivisions within the existing developed area) are to provide a reticulated sewerage system and package treatment plant;

(b) All small scale subdivisions (carried out one or two blocks at a time for example) shall either provide the means for connection to the package treatment plan of adjoining developments, or provide conventional septic disposal systems. A reticulated effluent disposal system would be the favoured option for lots less than 4000m$^2$. Negotiations between Council and a body corporation will need to take place to determine who will operate such a system.

An alternative for all developers could be the utilisation of interconnected aerated septic tank systems that would be pumped out by Council for disposal at one of its plants. This would require residents, utilising this service, to pay an appropriate sewerage rate. A sewerage rate would also be applicable to a package plant system. This would have to be a stand alone, user pay system (ie special rates for Clunes).

Given the amount of available land within Clunes that is suitable for residential development, and the compact nature of the Village, it is though that the common drainage of septic to a ponding system would require too much site area and could not realistically be located at a sufficient distance from existing/potential residents or any significant water courses. The requirement of a reticulated sewerage treatment system with package treatment plant would allow better subdivision potential of the remaining village land (ie smaller lot sizes). That in turn will extend the land supply, making the rezoning of agricultural land a less urgent course of action. If no suitable reticulated sewerage disposal system can be provided, the minimum allotment size for the Village must be generally one (1) hectare (unless smaller allotment sizes can be justified).
Nothing within this Plan prevents Council from examining the suitability of alternative effluent disposal technologies on a subdivision by subdivision basis. Any such appraisal will be based upon Department of Health guidelines. Alternative technologies that may have merit include:

- Aerated septic tank systems that involve treated water reuse;
- Waterless toilets or separate “grey-water” disposal/reuse, thereby reducing quantities of effluent that a conventional septic tank would need to handle.

All options must be totally developer funded. Costs with some options may be prohibitive, notwithstanding the increase in the number of lots that may be created. Arrangements satisfactory to the Council must also be made for ongoing maintenance of alternative effluent disposal systems.

8.4.8 Water Supply

Water supply for the Village and environs is sufficient for the existing population projections outlined earlier. The current reservoir has capacity to service approximately 115 ET (ie 345-450 persons). Therefore, a population increase above that figure would result in the existing reservoir being removed and replaced (in the same location) by a larger supply. As is the case with any works of this nature, the capital outlay required is quite significant in the order of $500,000 as in 1993 values. It is clear that the maximisation of subdividable land would be vital to make such works as cost effective as possible.

8.5 Conclusions

Clunes Village is surrounded by prime agricultural/horticultural land and/or extreme variations in topography. This limits the opportunities for outward growth in the short term to the existing area zoned 2(v), with possible future rezoning of the land currently zoned 1(d).

The aim of maintaining the village lifestyle and character of Clunes, may not be achieved if controls are introduced which are more strict than those evident in the 2(v) Village zone. A more conservative development path may very well detract from the lifestyle which initially attracted people to Clunes.