

Chapter 5A

URBAN RESIDENTIAL SUBDIVISION



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1 INTRODUCTION

1.1 Purpose of the Chapter

The purpose of this chapter is to identify Council's requirements for the subdivision of urban residential land.

1.2 Subdivision Development Principles

The following subdivision development principles are the intended overarching outcomes of the application of the controls of this DCP chapter. The relevant principles precede the controls for each Element in this chapter.

Principle 1 Sustainable

The subdivision design will support healthy lifestyles, protect the natural features of the area and minimise the use of natural resources.

Principle 2 Diverse

Residential development will include a diversity of lot sizes to cater for all sectors of the community. Higher density residential development will be encouraged in locations close to parks, local centres, public transport and community facilities.

Principle 3 Vibrant

The development will provide public open space and a street network that promotes vibrant living spaces that will be inviting to walk, play and cycle in safety.

Principle 4 Connected

The development will provide interconnected open spaces with appropriate and accessible park infrastructure to support a range of active and passive recreational pursuits suited to the needs of the community.

Principle 5 Deliverable

Infrastructure and essential services will be delivered in a timely manner to support the projected future population and meet community needs, with minimal impact on the environment.

Principle 6 Environmental Protection

The development will protect and enhance the natural and cultural values of the area. Significant native vegetation should be retained to conserve biodiversity, enhance visual amenity and assist with stormwater management.

Principle 7 Landscape

The development will conserve and protect landscape features that contribute towards desired local character and visual amenity such as significant views, existing trees and built or natural elements of cultural or visual significance.

Principle 8 Water Sensitive Design

The development will incorporate water sensitive urban design principles to protect the natural water cycle, support healthy ecosystems and maintain water quality.

Principle 9 Comfortable

Place making elements are incorporated in the design of public spaces that will contribute to a sense of local character and identity for the subdivision.

Principle 10 Safe

Development includes design measures for the protection of people, property and the environment.

1.3 Application of this Chapter

This chapter applies to the various forms of subdivision, including Torrens, Strata and Community Title located within urban residential zones. This chapter supplements the subdivision provisions of Lismore LEP 2012 and should be read in conjunction with other DCP chapters and State Environmental Planning Policies.

Further guidance for subdivision design is also provided in the NSW Rural Fire Service Planning for Bush Fire Protection; the Northern Rivers Development Design and Construction Manual; Lismore City Council Design and Construction Specification – Vehicular Access; and relevant Australian Standards.

1.4 How does this Chapter work?

Specific requirements for aspects of subdivision development addressed by this chapter are divided into the primary *Elements* of the particular type of development. *Elements* comprise specified *Subdivision Development Principles*, *Performance Criteria* and *Acceptable Solutions*. In some cases both *Performance Criteria* and *Acceptable Solutions* are specified, but in other cases only *Performance Criteria* are specified. The *Performance Criteria* and *Acceptable Solutions* are numbered consecutively for ease of reference.

Development proposals must be consistent with the specified *Subdivision Development Principles*. This will usually be achieved by meeting the *Acceptable Solutions*. Alternatively, Council may be prepared to approve development proposals that are demonstrated to meet both the specified *Subdivision Development Principles* and the *Performance Criteria*. This approach enables the development of innovative schemes that meet the particular characteristics of an individual site. Refer to Figure 1.

1.5 Site Specific Structure Plans

A structure plan provides a framework for the coordinated provision and arrangement of future subdivision and development in new urban areas (greenfield sites) and in existing developed/redevelopment areas (brownfield sites). The plan can assist in the coordination of the road and footpath/cycleway networks, public open space, revegetation areas, infrastructure and staging programs. The plan can be customised to accommodate site specific attributes.

A structure plan is a particularly useful land use planning tool for land held in fragmented or multiple ownership. A structure plan is not a plan of subdivision and does not include a preliminary lot layout.

1.5.1 Pineapple Road Precinct Structure Plan

The Pineapple Road Precinct Structure Plan is located at Appendix A. The plan is to be used to guide subdivision of the site and includes a cultural heritage monitoring area, revegetation areas, some indicative locations for infrastructure and public open space.

1.5.2 87 Pineapple Road Structure Plan

87 Pineapple Road (Lot 5 DP 253464) Structure Plan is located at Appendix C. The plan is used to guide subdivision and includes the location of Hairy Joint Grass habitat and associated controls; and indicative road access locations.

1.5.3 1A & 1B Northcott Drive Structure Plan

The 1A & 1B Northcott Drive Structure Plan is located at Appendix D. The plan is to be used to guide subdivision of the site and includes areas to be dedicated to asset protection from bushfire risk and revegetation areas to provide koala habitat and movement corridors.

2 DEFINITIONS

A word or expression used in this chapter has the same meaning as it has in LEP 2012. Other words or expressions not defined in the LEP Dictionary are included in this section.

access place means a two-way street with a lane and staggered parking on one side of the street while providing an adequate through vehicular passage way. Refer to Figure 8.

buffer means an area of prescribed width between adjoining land 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.

collector street means a street linking neighbourhood destinations including shops, parks and community facilities. Refer to Figure 10.

distributor road means a road that connects traffic from the arterial network to the collector network. Refer to Figure 10.

Note. An arterial road has not been included because it is a road of State significance that needs to meet State requirements.

habitat has the same meaning as in the *Threatened Species Conservation Act 1995*.

legible means a street layout that is readily interpreted by people and enables them to find their way with minimum levels of confusion.

lane means a two-way shared street. A lane provides rear or secondary access to residences that have an alternative street frontage but find the alternative access difficult. Lanes do not offer on-street parking. Refer to Figure 10.

local street means a two-way street providing residential access in a low density area with one parking lane which may alternate between either side of the street and a minimum of one traffic lane with passing opportunities. Refer to Figure 10.

medium density means *attached dwellings, multi dwelling housing, residential flat buildings and semi-detached dwellings*.

permeable means maximising connections within the road network providing logical routes to various destinations.

road means a public road or private road within the meaning of the *Roads Act 1993*, and includes a classified road.

small lot means an allotment of land which has an area of 400m² or less.

subdivision of land has the same meaning as in the *Environmental Planning and Assessment Act 1979*.

Figure 1: How does this chapter work?

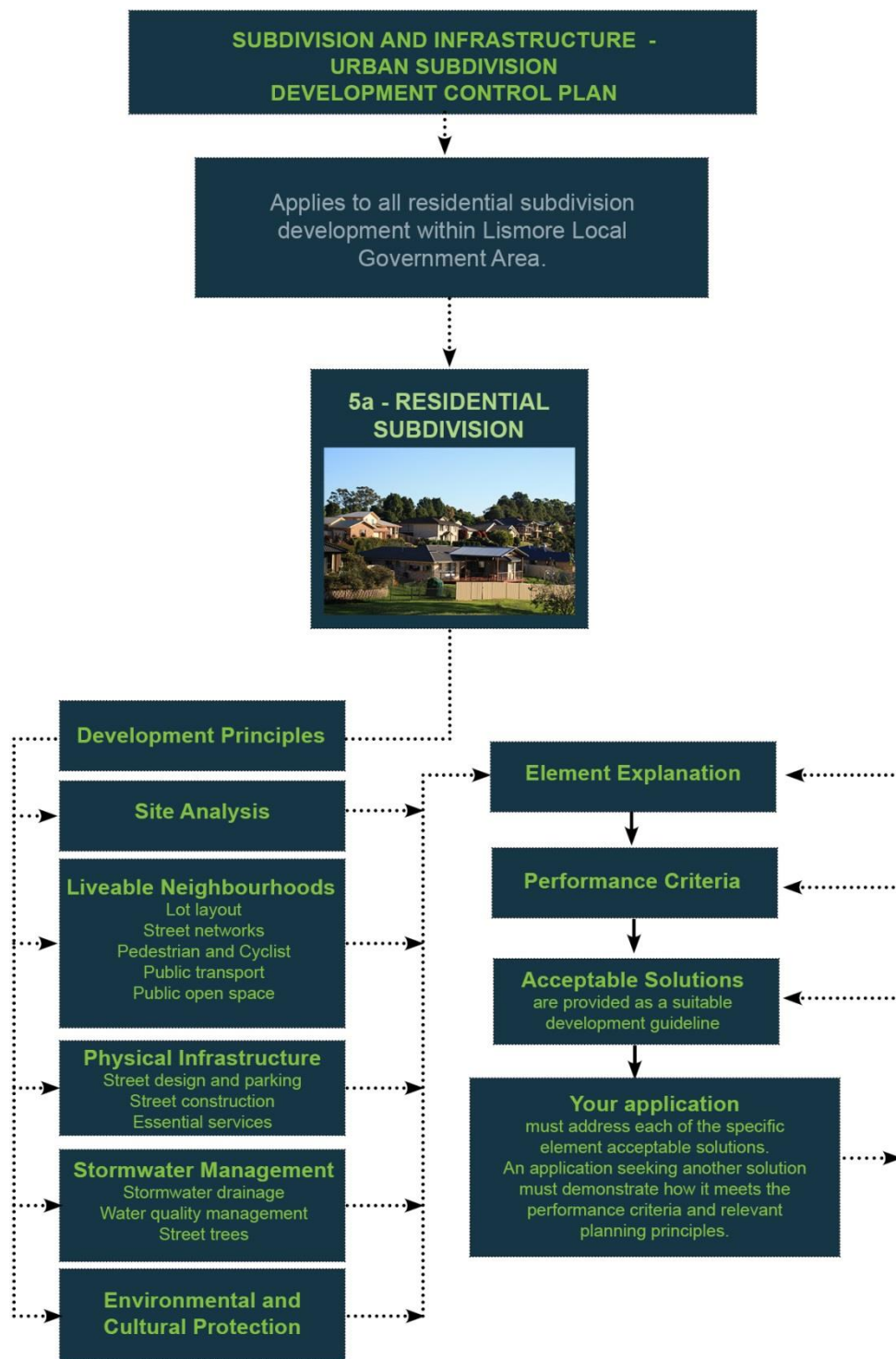
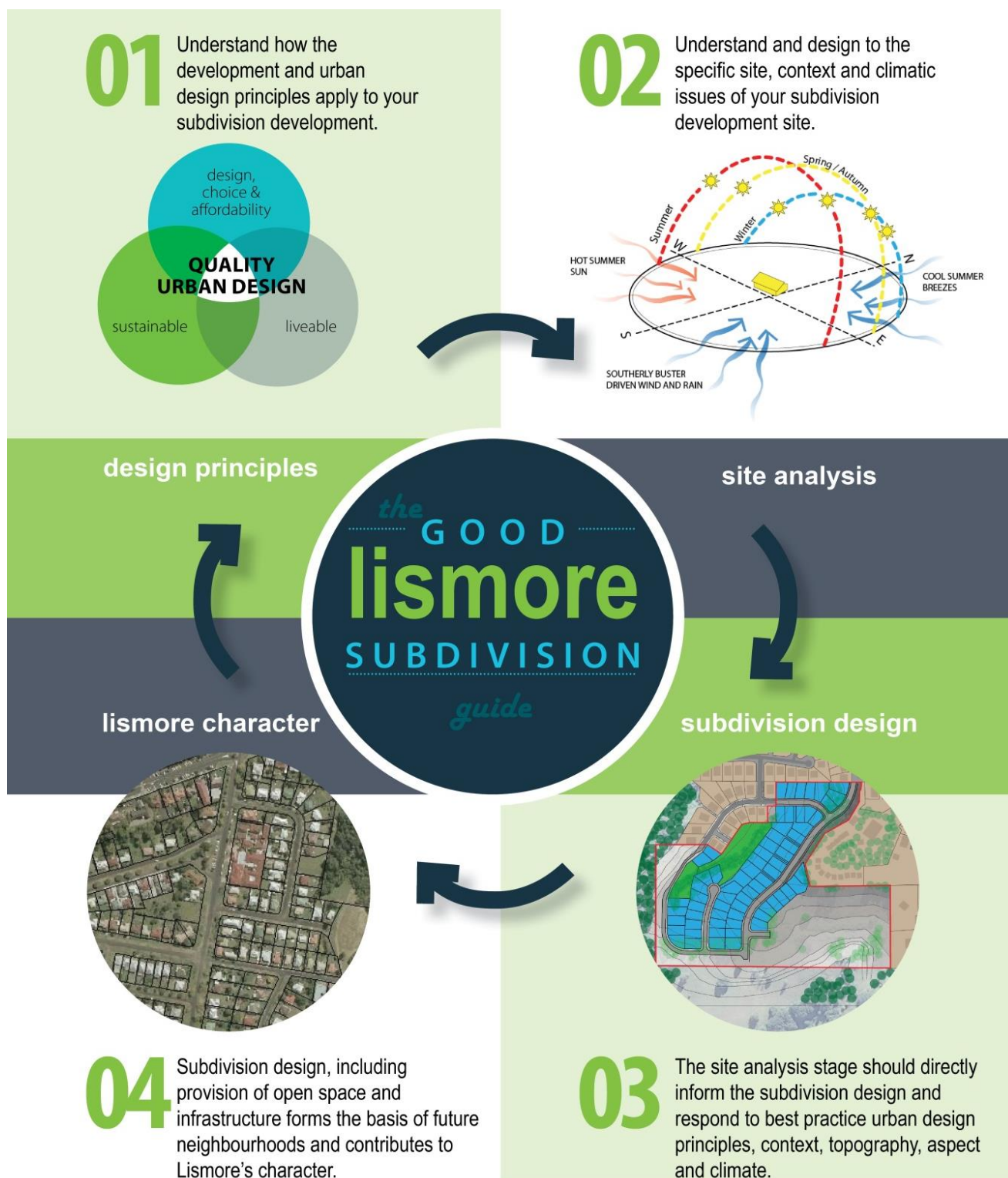


Figure 2: Subdivision guide



Integrated Design Approach - The Subdivision and Infrastructure - Urban subdivision Chapter of Council's Development Control Plan (DCP) encourages site responsive design where the resultant urban structure including road layout, lot size and configuration is based on a site analysis process to determine the layers of constraints and developable footprint. In the residential context it is also important that subdivision design promotes housing diversity and residential densities appropriate to the context, climate and character for the Lismore LGA. Good subdivision design results in the development of liveable neighbourhoods. Good design is linked to the site and locality, existing built form, climate and the community's aspirations and needs. In Lismore, subdivision development needs to take into account the sub-tropical climate, outdoor living, topography and relationship to adjoining properties.

3 SITE ANALYSIS

A detailed site analysis forms the basis for good design. It establishes the development in the context of the site, identifies and explains key influences on the design and how the proposed subdivision responds to the site conditions and relates to the surroundings.

The site analysis should identify opportunities and constraints affecting the proposed development and measures to address these issues in the final design. 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 a negotiating tool that can reduce the possibility of conflict.

A site survey and analysis is carried out at the project feasibility stage, with the final subdivision design taking into consideration the survey and analysis.

The site analysis starts with consideration of the opportunities and constraints including:

- steep land, unstable land, previously filled areas and contaminated soil
- buildings (including any to be retained)
- surrounding land use
- views to and from the site
- existing and proposed roads and access points
- watercourses
- flood planning area
- existing on site or adjoining services
- provision of new services such as water, electricity, gas and telecommunications
- orientation, microclimate, prevailing wind direction and noise sources
- fences, boundaries and easements
- natural resources, including significant vegetation, habitat corridors and wetlands
- bush fire prone land
- archaeologically sensitive areas.

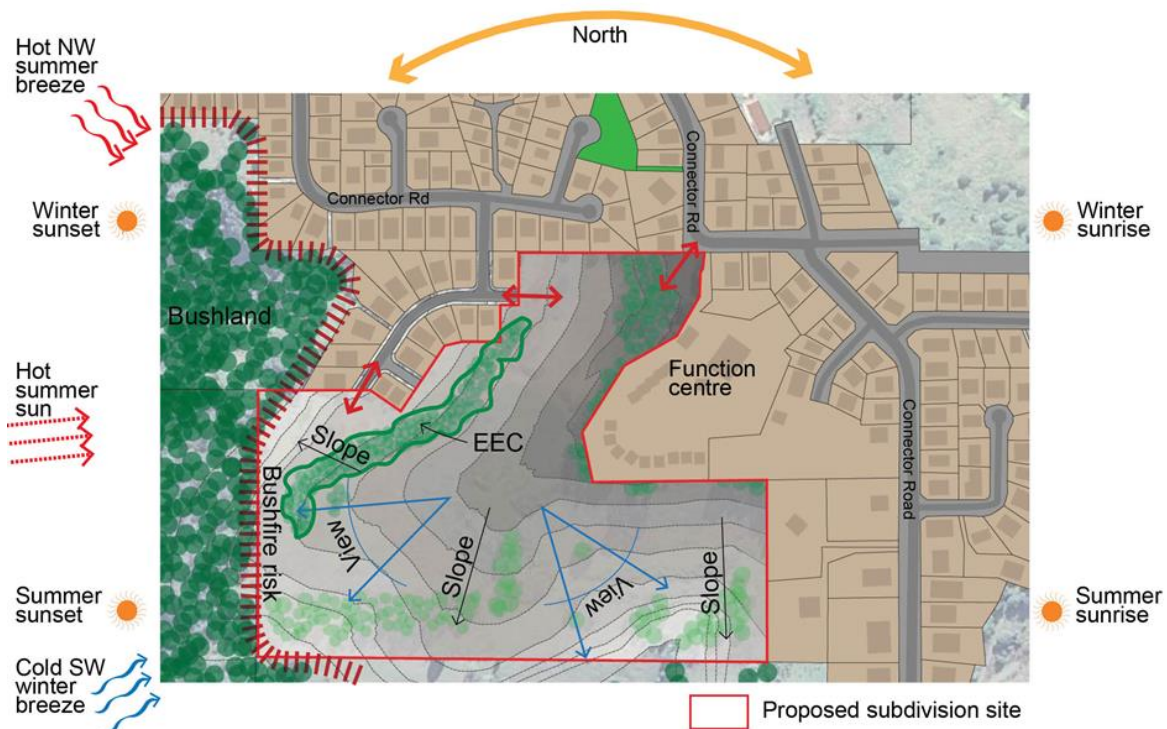
The site analysis also identifies how the site relates to its surrounds with the inclusion of the following information on any site analysis plan:

- adjacent buildings
- existing on site and surrounding land uses
- existing adjacent movement patterns of pedestrians, cyclists, public transport, emergency vehicles and motor vehicles
- existing infrastructure
- environmental and wildlife corridors
- adjacent open space
- significant vegetation adjoining the site
- direction and distances to services and infrastructure
- views
- regional context and growth.

A Site Analysis Plan needs to be prepared for the greenfield subdivisions.

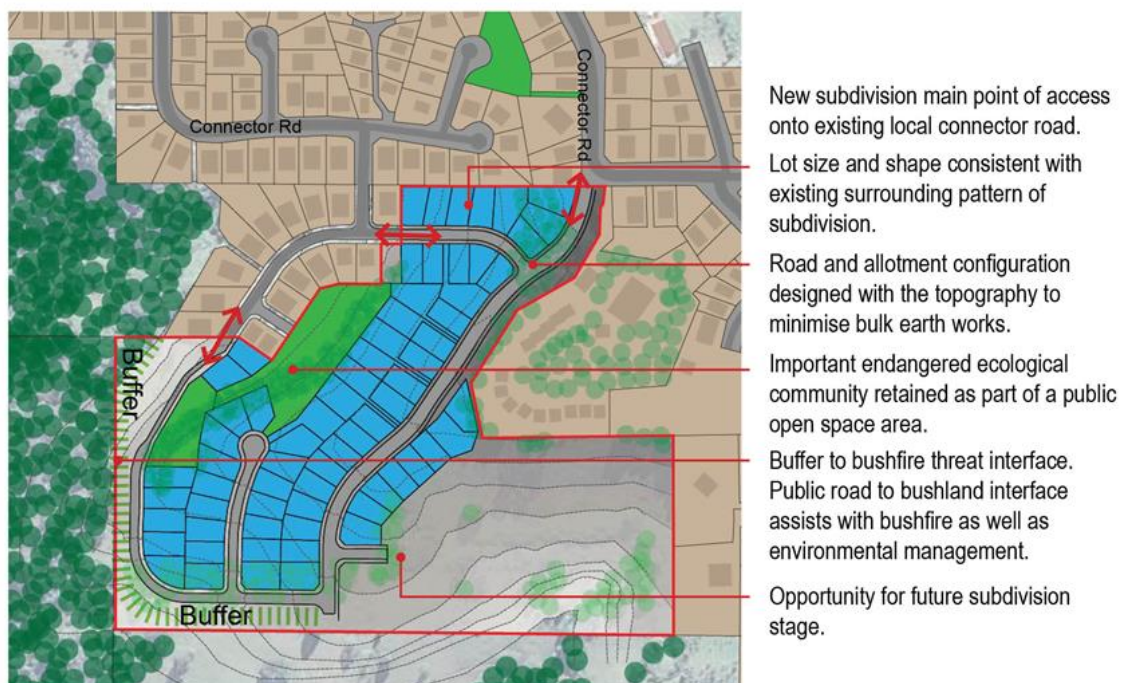
The site analysis provides an overview of the opportunities and constraints (Figure 3). The Plan (Figure 4) shall be drawn to scale, depicting property details; site characteristics (landform & vegetation); existing improvements and how the site relates to surrounding land.

Figure 3: Site analysis – opportunities and constraints



Site Analysis Constraints and Opportunities Overlays - Provide a summary of constraints, which by a process of land area subtraction based on constraints identifies the potential developable footprint. Constraints will vary from site to site but as a minimum should include surrounding context, key topographic features, environmental wildlife and natural features, flooding and drainage constraints, bushfire constraints and climatic influences.

Figure 4: Site analysis structure plan



Site Analysis Structure Plan - should be directly informed from the site analysis opportunities and constraints overlays where a range of designed options can be tested against movement patterns, open space networks, density yields, lot configuration and solar orientation criteria. The preferred scheme should only then progress to a more formalised subdivision plan.

4 GENERAL PROVISIONS

4.1 Element - Lot Layout

The Lismore Housing Strategy 2012 identified the need for an increase in the diversity of housing types. This Element provides controls to guide the delivery of a range of lot sizes, in particular small lot development. A range of other lot layout controls are provided to assist with the provision of liveable neighbourhoods.

Relevant Subdivision Development Principles: 1, 2, 3, 4, 5, 10

Performance Criteria	Acceptable Solutions
Lot size P1 Lot size, shape and dimensions: - take into account the constraints of the site and existing surrounding development; - are appropriate for the siting and construction of a dwelling and ancillary outbuildings, the provision of private outdoor space, convenient vehicle access and parking.	Lot size A1.1 Minimum lot size is specified by Local Environment Plan 2012 lot size map. A1.2 Lots with an area of 400m ² and greater are capable of accommodating an unconstrained building envelope with minimum dimensions of 12m x 15m. A1.3 Lots should be at least 600m ² where slopes are over 20%. A1.4 Lots with an area between 300m ² and 400m ² are capable of accommodating an unconstrained building envelope with minimum dimensions of 10m x 15m.
Small lot development P2 Subdivisions for small lot housing and medium density developments are well designed and will result in attractive and functional living environments.	Small lot development A2.1 Small lots are: - located to minimise the need for earthworks; - square or rectangular in shape; - limited to locations with a slope of less than 10%. A2.2 Small lots are provided with rear lanes for vehicular access, in order to avoid the primary street frontage being dominated by numerous garages and driveway crossovers. A2.3 Where subdivision of land will result in one or more small lots the concurrent submission of a Plan of Development is required. A Plan of Development shows indicative building envelopes, floor plans, length and height of built to boundary walls and identification of all shared walls. The plan must demonstrate how dwelling designs will: - relate to dwellings on adjoining lots;

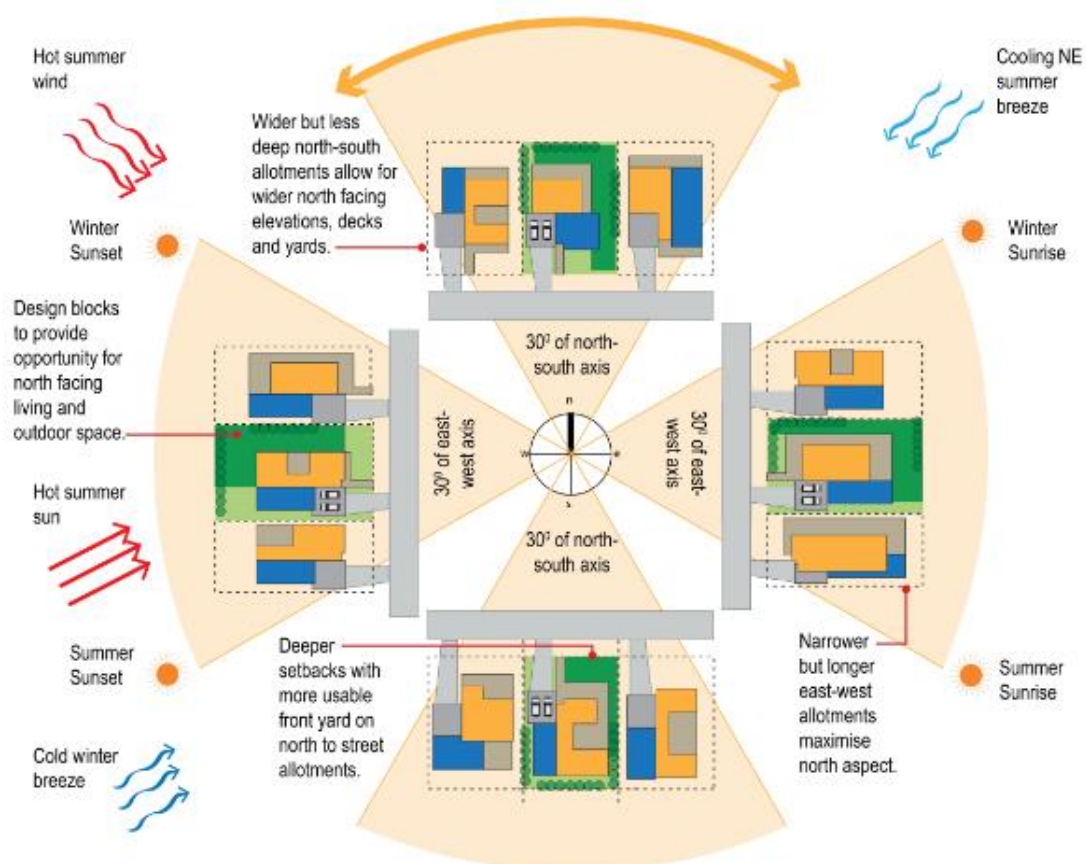
Performance Criteria	Acceptable Solutions
	• provide private outdoor living space and good solar access to the subject dwelling; • avoid/mitigate overlooking and overshadowing of neighbouring dwellings and their private open space.
Diversity P3 Lot sizes meet the requirements of people with different housing needs, and provide for housing diversity and choice. Refer to Figure 5 for an example of how lot diversity can be achieved.	No acceptable solution.
Access P4 Lot access is safe for pedestrians, cyclists and vehicles using the access. P4.1 Battle-axe handles must cater for safe pedestrian and vehicular access, include satisfactory sight line distances and allow for vehicles to enter and exit in a forward direction.	Access A4.1 Lot design precludes the need to reverse onto a Distributor Road. A4.2 New lots shall front onto a designated public street. No new lots shall be created with sole access via Right of Carriageway. A4.3 Access handle width for battle-axe subdivisions is 4 metres Wider access handles should be considered where dual occupancies are proposed. A4.4 A maximum of two (2) adjacent battle-axe allotments are permissible.
Truncated corner lots P5 Corner lots are to be truncated in such a manner as to maintain the minimum verge widths with the kerb returns.	No acceptable solution.
Fencing P6 Highly visible fencing along main roads and public places must be uniform in terms of design, height, materials and colours so that it presents attractively and consistently in the streetscape. Preference is given to transparent fencing, particularly where there are significant views. Such fencing must be erected as part of the subdivision development of the land.	No acceptable solution.
Solar access P7 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.	Solar access A7 Lot design ensures that: • each lot will not be overshadowed by neighbouring houses to the north; • each lot can have a sufficiently long north dimension to receive winter sun; • streets are aligned in a north south or east west direction where practicable (refer to Figure 6).

Figure 5: Mix of lot sizes



Mix of allotment sizes - Good neighbourhood design supports residential and streetscape diversity through a variety of block sizes, lot design and housing mix. A diversity of block types and housing typologies appeals to the broader demographic housing needs from standard suburban blocks and small lot allotments to large allotments facilitating the development of integrated and multi-unit housing. Include pedestrian connectivity (mid block) and link open space areas.

Figure 6: Lot orientation and solar access



4.2 Element - Street Networks

Each street type has a particular function, providing for specific levels of access for a range of transport modes including buses, motor vehicles, pedestrians and cyclists. The street network provides connectivity, linear pathways for essential services and an extension of public open space.

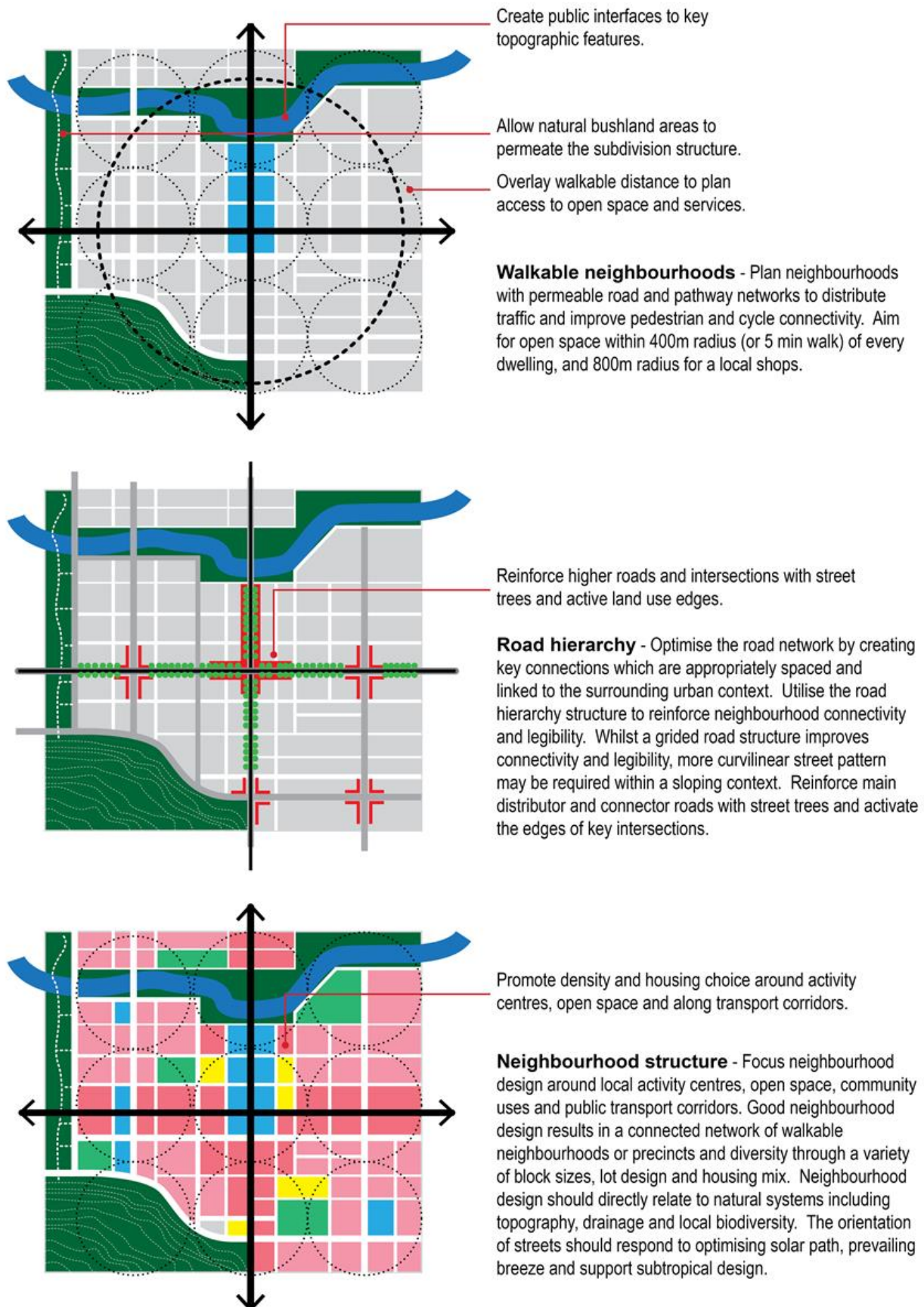
Each street type needs to be designed to safely accommodate a range of traffic volumes at an appropriate speed while incorporating measures to accommodate site constraints and attributes.

Relevant Subdivision Development Principles: 1, 2, 3, 4, 6, 7, 8, 10

Performance Criteria	Acceptable Solutions
Function P8 The street network: • provides a clear structure and component streets conform to their function in the network (refer to Figure 7); • has sufficient capacity to provide safe vehicular access for each lot; • shows clear physical distinctions between each type of street based on function, legibility, convenience, traffic volumes, vehicle speeds, safety and amenity; • incorporates space for the provision of public utility services; • facilitates walking and cycling within the neighbourhood and to local activity centres.	Function A8.1 Streets link to other streets that are no more than two levels higher or lower in the hierarchy. A8.2 Levels of connectivity for each street type is consistent with the requirements of Table 1. A8.3 The street network caters for the provision of public utility services including water, sewerage, electricity and telecommunications. A8.4 Footpaths and cycleways are provided in accordance with the requirements of Table 1.
Design P9 The street network responds to: • existing and future streetscapes; • topography; • significant vegetation; • natural drainage; • site attributes; • solar access. Refer to Figure 7 for an example.	No acceptable solutions.
Safety and access P10 Intersections along residential streets are spaced to create safe and convenient movements for motorists, cyclists and pedestrians.	Safety and access A10 Intersections are spaced in accordance with the requirements of Table 1.
Mode choice P11 Bus routes are: • provided that are direct and safely accessible by foot from all dwellings and activity centres; • aligned for ease of movement between developments and activity centres without complicated turning manoeuvres.	Mode choice A11 Public transport routes and stops are to be provided as set out in <i>Element – Public Transport</i> .

Performance Criteria	Acceptable Solutions
Environmental protection P12.1 Traffic generated by a development is within the acceptable capacity of the roads. P12.2 The street network is designed to reduce traffic speeds and volumes to acceptable levels, with most dwellings fronting streets with low volumes. P12.3 Streets and lots are located so that dwellings are not subject to unacceptable levels of traffic noise.	Environmental protection A12.1 Traffic speeds and volumes are in accordance with Table 1. The following measures assist with the reduction of speed and volume: • designing curvilinear streets; • limiting street lengths; • varying street widths; • installing median islands; • constructing mid-block pedestrian crossings. A12.2 The street network is designed so that future residential development is capable of compliance with the Department of Planning and Environment's <i>Development Near Rail Corridors and Busy Roads – Interim Guideline, 2008</i>.

Figure: 7 Street network and neighbourhood design



4.3 Element – Street Design, Construction and On-Street Parking

Street design depends on street function, traffic volume, desired traffic speed, on-street parking and street alignment.

Relevant Subdivision Development Principles: 1, 3, 4, 8, 9, 10

Performance Criteria	Acceptable Solutions
Function and width P13 The width of the street reserve is sufficient to cater for all street functions, including: • safe and efficient movement of all users; • vehicle parking; • landscaping; • public utilities; • future carriage way widening; • retaining walls; • cycle paths or overland drainage flow paths.	Function and width A13 The following street components are to be consistent with the requirements of Table 1: • 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 P14 The street design: • provides for safe pedestrian use for people of all ages and levels of mobility; • includes speed reduction techniques to achieve desire speeds; • achieves safe sight distances based on vehicle speed, exits from property access points, pedestrian and cyclist crossings and at junctions and intersections.	Designing for safety A14.1 Traffic speeds and projected traffic volumes are in accordance with the requirements of Table 1. A14.2 Street lengths and intersection spacing are in accordance with the requirements of Table 1. Figure 9 provides examples of speed reduction design features.
Driveway access P15.1 Carriageway and verge width allows unobstructed access to individual lots, even when a car is parked on the opposite side of the street. P15.2 Street and lot design ensures safe vehicle access to all lots (refer to Figure 10 for examples).	Driveway access A15 Driveways are provided in accordance with the requirements of the Northern Rivers Design and Construction Manual.

Performance Criteria	Acceptable Solutions
Geometric design P16.1 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. P16.2 The alignment and geometry of streets that form the bus route is designed to allow for the efficient and unimpeded movement of buses. P16.3 The horizontal and vertical alignments satisfy safety criteria and reflect physical land characteristics and major drainage functions. P16.4 Geometric design for intersections, roundabouts and slow points is consistent with the vehicle speed intended for each street. P16.5 Kerb radii at intersections and junctions are kept to a minimum. P16.6 Street and parking design enables adequate servicing of waste collection vehicles for all lots.	Geometric design A16.1 Bus routes have carriageway widths, gradients, stopping sight distances and parking requirements in accordance with the Northern Rivers Design and Construction Manual. A16.2 The following street design features are to be in accordance with the requirements of the Northern Rivers Design and Construction Manual: - horizontal and vertical alignments; - intersections, roundabouts and slow points; - kerb radii; - turning path radii.
Street construction P17.1 The pavement edging and landscaping supports the function and amenity of the street. P17.2 The pavement edge: - controls vehicle movements by delineating the carriageway for all users; - assists in controlling stormwater runoff; - at pedestrian crossings is constructed to cater for mobility assistance devices and visually impaired pedestrians. P17.3 Street pavement surfaces: - have durability suited for travelling and parked vehicles; - ensure the safe passage of vehicles, pedestrians and cyclists; - cater for the discharge of rainfall and the preservation of all-weather access; - allow for reasonable travel comfort. Refer to Figure 11 for examples of pavement treatment.	Street construction A17.1 Pavement edges at pedestrian crossings are constructed to accommodate mobility assistance devices and visually impaired pedestrians in accordance with the Northern Rivers Design and Construction Manual. A17.2 Street pavement surfaces are constructed in accordance with the Northern Rivers Design and Construction Manual.

Performance Criteria	Acceptable Solutions
On-street parking P18 Overflow on-street car parking is designed to consider: - the anticipated residential density; - availability of public transport; - likely future on-site parking provisions; - locations of non-residential uses; - safety for all users including pedestrians, cyclists and vehicles; - efficiency, access and manoeuvrability; - compatibility with the street function; - cost effectiveness; - streetscape and residential amenity.	On-street parking A18.1 On street parking is provided in accordance with Table 1. A18.2 One (1) overflow on-street parking space is provided per lot or where this is not possible, provide cluster parking up to 60 metres away from the lots being serviced. A18.3 Verge parking in lieu of on-street parking is provided where the road reserve has been widened. A18.4 On verge parking bays are located within 20 metres of each lot (refer to Figure 8). A18.5 The design and layout of on street car parking is in accordance with the Northern Rivers Design and Construction Manual.

Table 1 – Street network characteristics

Street Type	Local Access	Local Collector	Primary Collector	Arterial
Northern Rivers Local Government (NRLG) Equivalent	Local Street Access Street	Local Street	Local Collector Collector Street	Collector Distributor Road
Function	Provide direct residential property access	Provide direct residential property access. Provide pedestrian, cyclist and vehicle connectivity	Provide direct residential property access. Provide pedestrian, cyclist and vehicle connectivity	Connects neighbourhoods and key activities. Provide direct residential property access. Provide pedestrian, cyclist and vehicle connectivity
Lots Served	<30	<300	<450	<450
Notional Traffic Volume¹	<200 vpd	<2,000 vpd	<3,000 vpd	>3,000 vpd
Reserve Width²	14m	15-17m	19m +	21m +
Verge Width (Minimum)	4m	4m	4m or 5m (when a 2.5m pathway is required)	4m or 5m (when a 2.5m pathway is required)
Carriageway Width²	6m	7-9m	11m	13m

Street Type	Local Access	Local Collector	Primary Collector	Arterial
Longitudinal Grade ³	16%	16%	16%	12%
One-Way Cross Fall	Optional	No	No	No
Concrete Pathway Width/ Number Street Sides ⁴	1.5m/ One Side	2.0m/ One Side	2.5m/ One Side	2.5m/ One sides
Street Trees	Yes	Yes	Yes	Yes
Bus Route	No	Yes	Yes	Yes
Kerb Type	Mountable with Upright optional	Mountable with Upright optional	Mountable with Upright optional	Upright

Note.

1. Notional 6.5 vehicle trips per day are generated per standard residential lot.
2. All works to be designed and constructed in accordance with the Northern Rivers Development and Design Manual and Construction Manual.
3. Refer to Austroads Guide to Road Design Part 3 "Geometric Design" for steep grade criteria.
4. No need for a footpath for less than 50 lots.

Figure 8: Verge and on-street parking

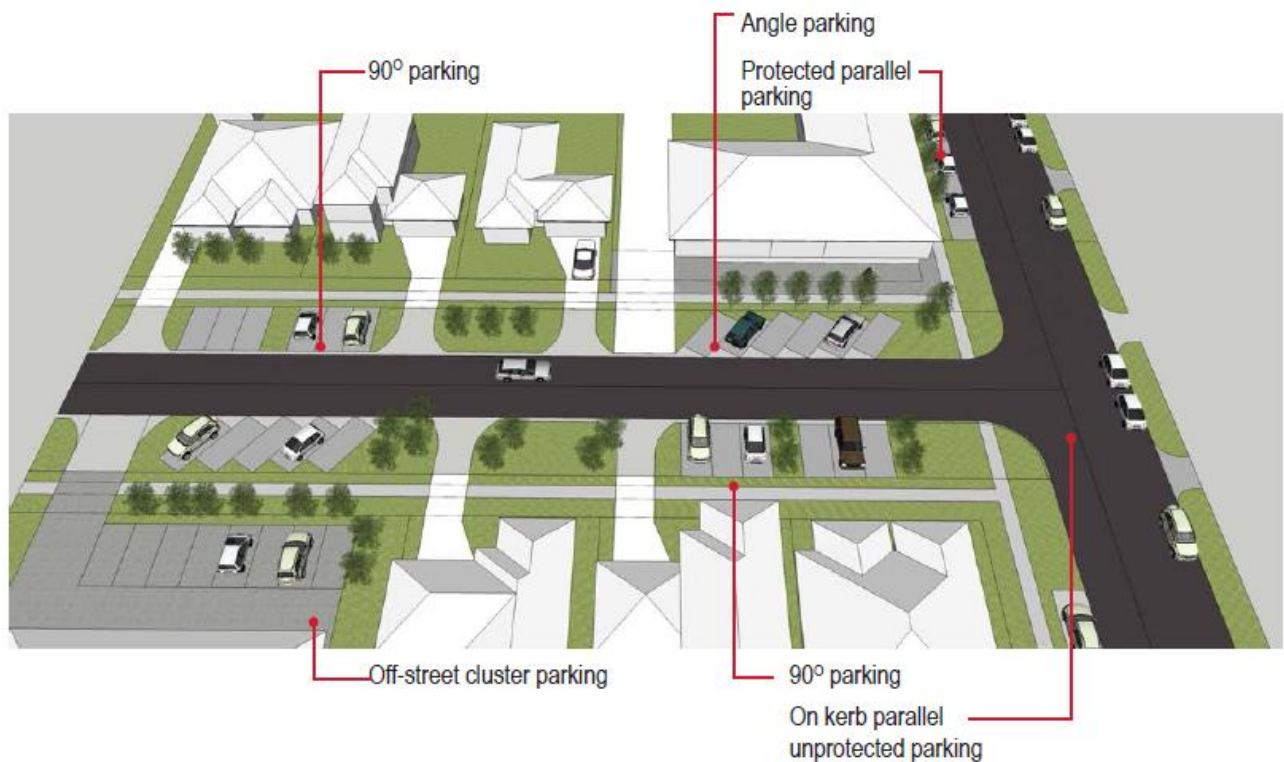


Figure 9: Measures to slow vehicle speed

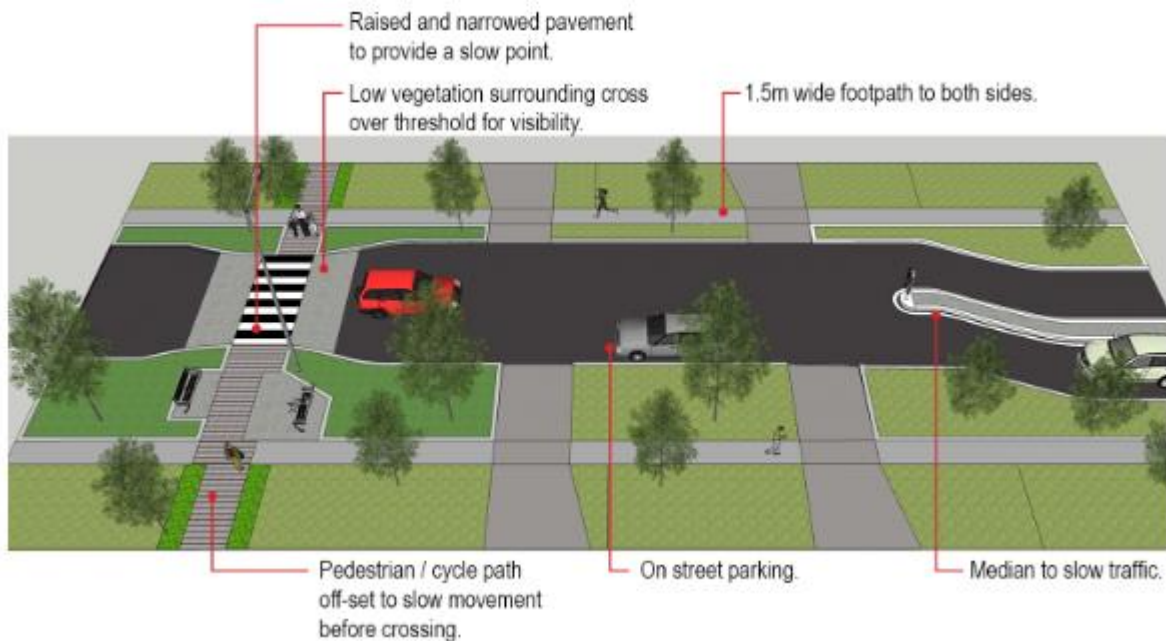
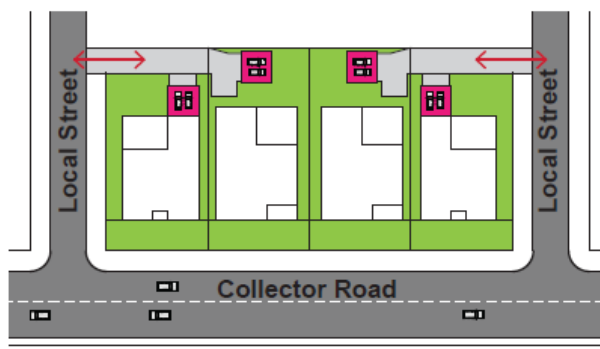
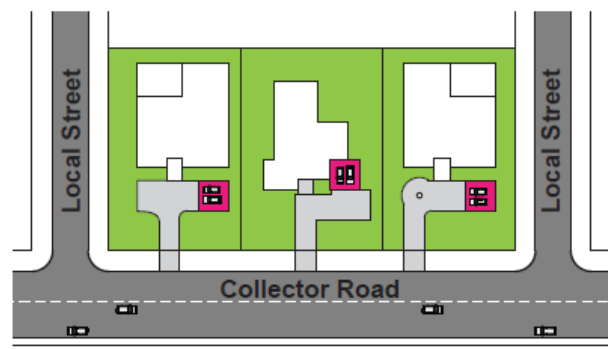


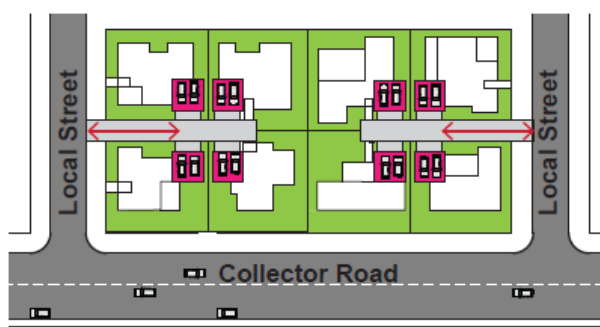
Figure 10: Options to control access to collector streets



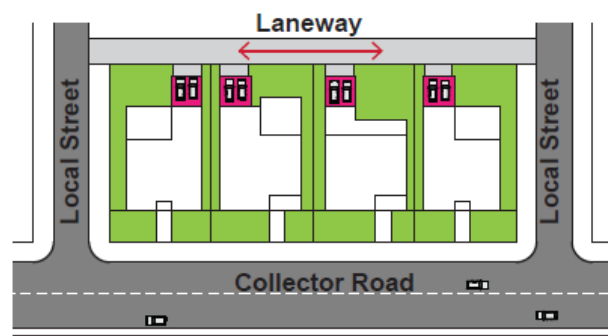
Local Street Access - Vehicular access from lower traffic movement access street with pedestrian and front building street address to major street.



Wider allotments - Wider lots allow for large driveways so vehicles can enter and exit forwards.



Shared Access - Common driveways servicing multiple allotments reduce the number of entry points and allow vehicles to enter and exit forwards.



Rear Lane - Adding a rear lane provides vehicle (including service vehicles and garbage trucks) access for houses fronting a major street.

Figure 11: Pavement treatment



Change in surface material - A change in pavement surface material can distinguish different street functions. In this example above, a change in surface material demarcates an important intersection within a local centre which is generally more pedestrian orientated with lower traffic speeds. Materials should be chosen for robustness and longevity as well as achieving attractive urban design outcomes.



Pavement Threshold - Whilst not a formal pedestrian crossing, the change in surface material from bitumen to an interlocking concrete block more clearly demarcates and alerts the driver to the presence of pedestrian activity.



Pedestrian refuge - A pedestrian refuge provides a safe area in the middle of the road enabling the pedestrian to wait before finishing crossing a road. Pedestrian refuges are typically used when there is a wide road reserve or along a busy road.



Public domain areas - Smaller break out spaces are an important feature within a streetscape and should be demarcated with a higher level of pavement surface finish, landscaping and street furniture.



Universal design and accessibility - Demarcate thresholds, crossings and intersections with tactile indicators.

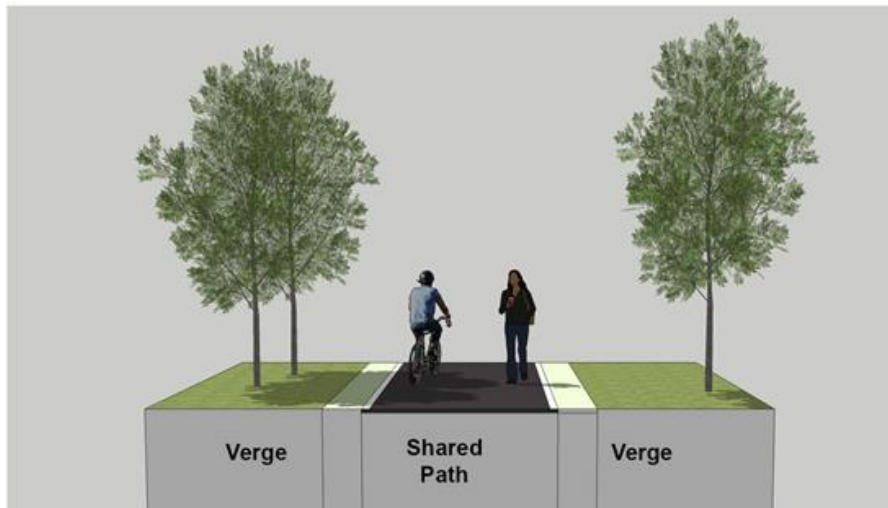
4.4 Element - Pedestrian and Cyclist Facilities

Within any community there is a need for an accessible, equitable, safe and efficient transport system. Walking and cycling provides an alternate method of transport, and an effective means for exercise and recreation.

Relevant Subdivision Development Principles: 1, 3, 4, 7, 8, 9, 10

Performance Criteria	Acceptable Solutions
Planning and design P19.1 A network of footpaths and cycle routes is provided that: - connects to adjoining streets, open spaces and activity centres; - encourages walking and cycling; - caters for all users; - provides opportunities to link open space networks and community facilities, transport, local activity centres and schools; - takes account of the topography. P19.2 The design of the pedestrian and cycleway: - provides for casual surveillance and is illuminated; - includes appropriate landscaping; - is of appropriate dimensions; - preserves trees and other significant features; - provides safe street crossings, with adequate sight distances, pavement markings, warning signs and safety rails; - is stable and easy to maintain.	Planning and design A19 The pathway network is consistent with the requirements of: <i>Austroads 'Guide to Road Design Part 6A - Pedestrian and Cyclist Paths'</i> standards; - the <i>Lismore Walking, Cycling and Micromobility Strategy 2024-2034</i>; - Transport for NSW Cycleway Design Toolbox: Designing for cycling and Micromobility; - the <i>Northern Rivers Local Government Development Design and Construction Manual</i>.
Location P20 Footpaths and cycleways are located in street reservations where: - vehicle speeds and volumes are low; - the use of street pavements by cyclists does not affect the safety of pedestrians; - pedestrians and cyclists are protected from parked vehicles and vehicles moving along the street and on driveways.	Location A20 Footpaths and cycleways are located in accordance with Table 1 and Figures 12 and 13.

Figure 12: Protection for cyclists and pedestrians



Shared path

Figure 13: Designing for cyclists



**Separate Bicycle lane
with painted safety strip**

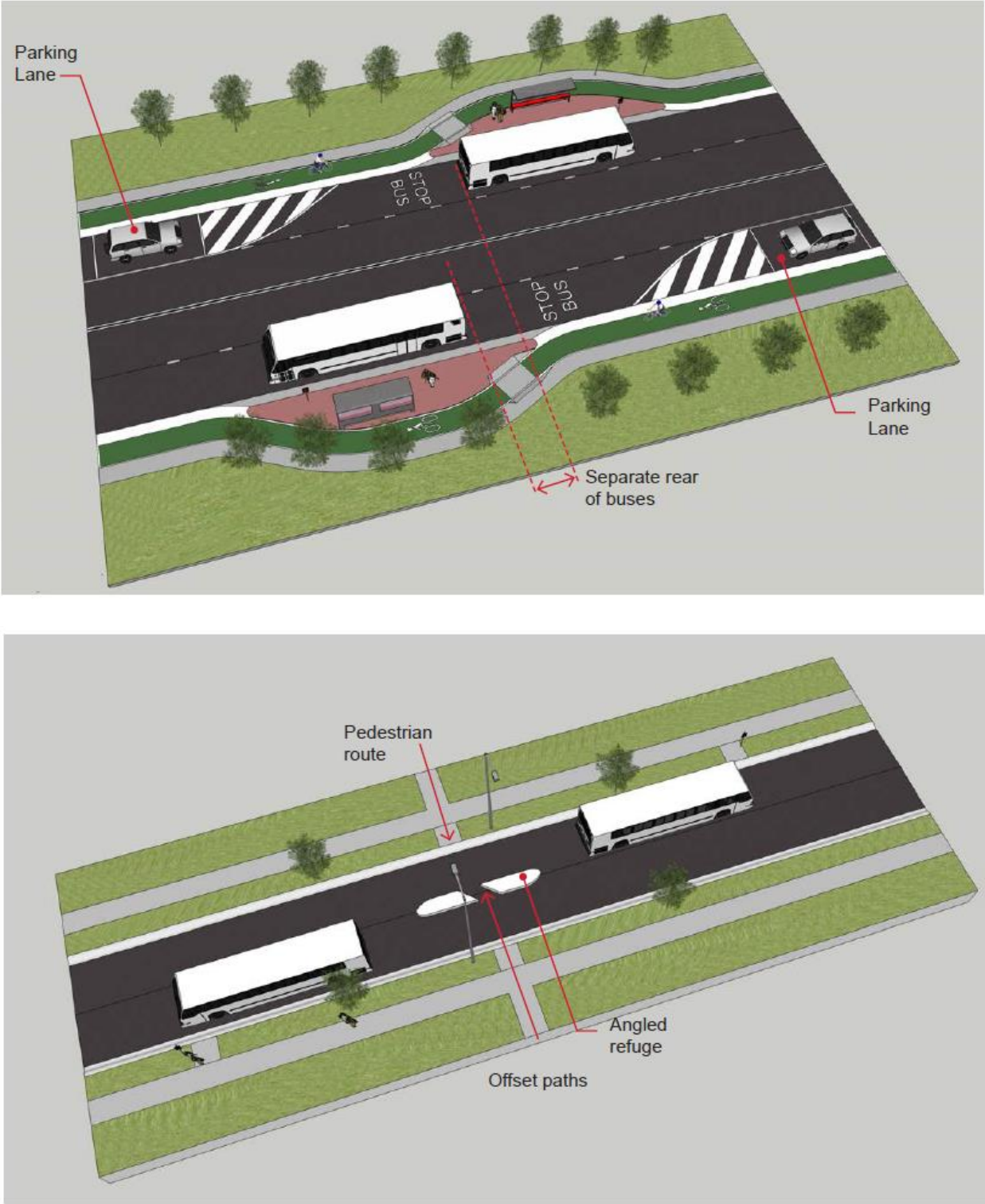
4.5 Element - Public Transport

Public transport within the Lismore Local Government Area and the wider Northern Rivers District is limited to buses. There is a need for accessible, equitable and safe bus networks providing a service between residential developments and activity centres such as schools, commercial premises, recreation facilities and the like.

Relevant Subdivision Development Principles: 1, 2, 3, 4, 10

Performance Criteria	Acceptable Solutions
Planning P21 Residential densities are provided that support walking to public transport stops and at levels that support the economic operation of the bus service.	Planning A21 At least 85% of lots are within a safe five minute walking time from an existing or proposed bus route.
Route location and design P22 Convenient connections are provided to adjoining areas and other public transport routes, for ease of movement of buses between developments and to link activity centres within and external to the development.	Route location and design A22 Bus routes are designed in accordance with Austroads Standards.
Bus stop location and design P23 Bus stops are designed and located to: • provide for pedestrian safety, security, comfort and convenience; • allow vehicles to safely overtake a stationary bus; • provide shelter, seats, adequate lighting and timetable information; • be overlooked from nearby buildings; • minimise adverse impact on the amenity of nearby dwellings.	Bus stop location and design A23.1 Bus stops are located 400 metres apart where the route serves residential development. A23.2 Traffic control measures for buses are in accordance with Figure 14, which illustrates where to locate bus stops to safely allow vehicles to overtake stationary buses, and to allow for safe pedestrian movements. A23.3 Bus shelters are designed in accordance with the relevant Australian Standards.

Figure 14: Traffic control for buses



4.6 Element - Public Open Space

Public open space provides opportunities for active and passive recreation and can contribute to the healthy lifestyles of residents. Public open space can also serve to protect natural and cultural features, improve amenity and provide a location for public utilities.

Relevant Subdivision Development Principles: 1, 2, 3, 4, 6, 7, 8, 9, 10

Performance Criteria	Acceptable Solutions
Public open space - location and site description P24 Local parks are located to: • create a focal point for adjoining residents; • be accessible to users; • provide opportunities to incorporate existing natural and cultural features; • be free from constraints; • provide an appropriate area for the intended use; • provide high levels of visibility for crime prevention with adequate road frontage.	Public open space - location and site description A24.1 Public open space(s) shall be provided in accordance with any approved structure plan or masterplan for the site. A24.2 Where there is no approved structure plan or masterplan for the site, then public open space shall be provided in accordance with the desired standards of service for a Social and Family Recreation (SFR) space set out in the adopted Lismore Open Space Strategy. A24.3 For small subdivisions (<20 lots) that do not propose a new public open space allotment, embellishment of a nearby public open space and / or a shared path connecting the subdivision to a nearby area of public open space is to be provided.
Public open space embellishments P25 Public open space: • provides a range of accessible active and passive recreational facilities that meet the needs of all users; • provides attractive corridors for community paths and attractive urban environment settings; • incorporates existing trees, rocks, streams and other sites of natural or cultural value, and link to habitats and wildlife corridors; • provides linkages to a legible open space network; • provides high levels of amenity for adjoining residents; • contains appropriate fencing and landscaping.	Public open space embellishments A25 Public open space areas, whether new or an upgrade, should be embellished in accordance with elements as set out in the Play Hierarchy on P9-10 and the desired standards of service for a Social and Family Recreation (SFR) classification on P18 in the adopted Lismore Open Space Strategy.
Purpose of public open space P26 The intended use of the public open space is clearly indicated.	Purpose of public open space A26 Subdivision plans are to clearly indicate the intent of the space e.g. urban bushland, stormwater management, infrastructure or local park.

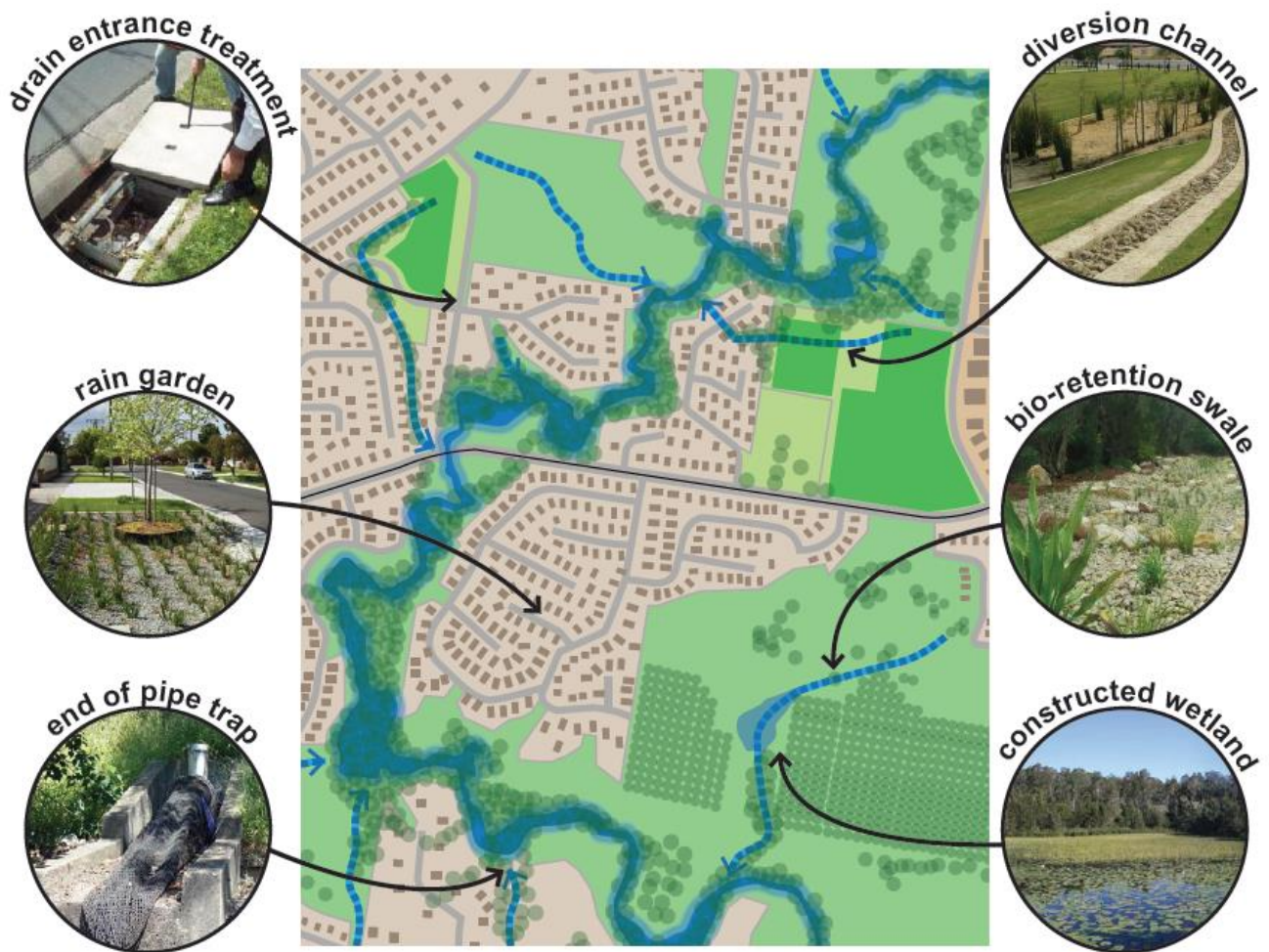
4.7 Element - Essential Services

Residential subdivisions require, among other things, the provision of essential services in accordance with LEP 2012 clause 6.9 *Essential Services*. Each residential lot needs to have adequate arrangements for services, including sewerage, supply of water, stormwater management, electricity and telecommunications.

Relevant Subdivision Development Principles: 1, 3, 5, 6, 7, 8

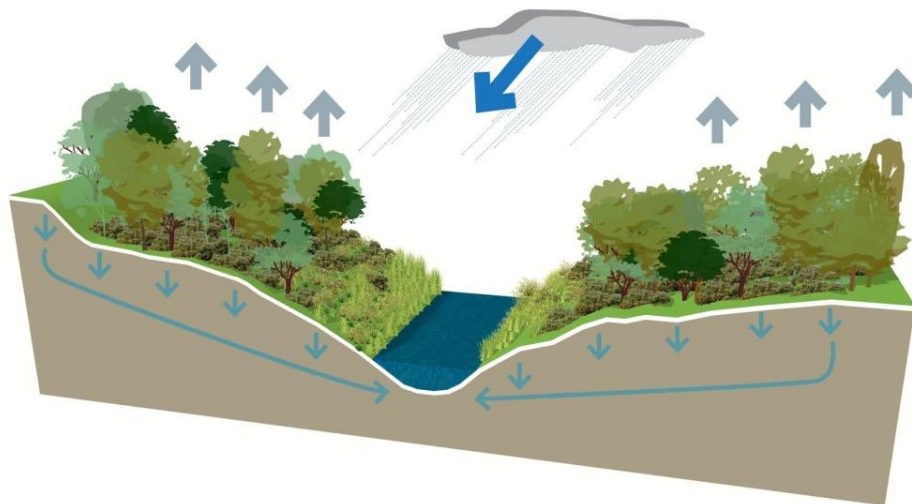
Performance Criteria	Acceptable Solutions
Water and sewerage P27.1 Adequate arrangements are to be made for the supply of water and the disposal and management of sewage. P27.2 The provision of water supply and sewerage is to: • be cost effective; • minimise the land required; • minimise environmental impacts; • be accessible and easy to maintain. P27.3 There is adequate water supply for fire fighting purposes.	Water and sewerage A27.1 The provision of water and sewerage are in accordance with the requirements of the Northern Rivers Development and Design Manual, Construction Manual and relevant Council policy documents. A27.2 Locate compatible services in common underground trenching. A27.3 The installation of water supply for fire fighting is in accordance with the relevant Australian Standards and the requirements of the Rural Fire Service <i>Planning for Bush Fire Protection 2006</i> .
Stormwater management P28 Provision of stormwater management measures will: • slow water flows; • provide for on-site treatment; • deliver high standards of water quality to receiving waters; • integrate into the subdivision design; • protect natural watercourses; • enhance public amenity; • retain riparian vegetation.	Stormwater management A28 Subdivision design and construction complies with DCP Chapter 22 <i>Water Sensitive Design</i> . Figures 15 and 16 provide examples of Water Sensitive Urban Design.
Electricity and telecommunications P29 Adequate arrangements are made for the provision of electricity and telecommunications.	Electricity and telecommunications A29 Electricity and telecommunications are to be located underground in accordance with the relevant Council policies.
Public lighting P30 Adequate arrangements are made for the provision of public lighting.	Public lighting A30.1 The design of public lighting is in accordance with: • relevant Australian Standards; • NSW Public Lighting Code. A30.2 New street lighting must incorporate energy efficient technology to reduce power consumption and carbon footprint.

Figure 15: Stormwater drainage

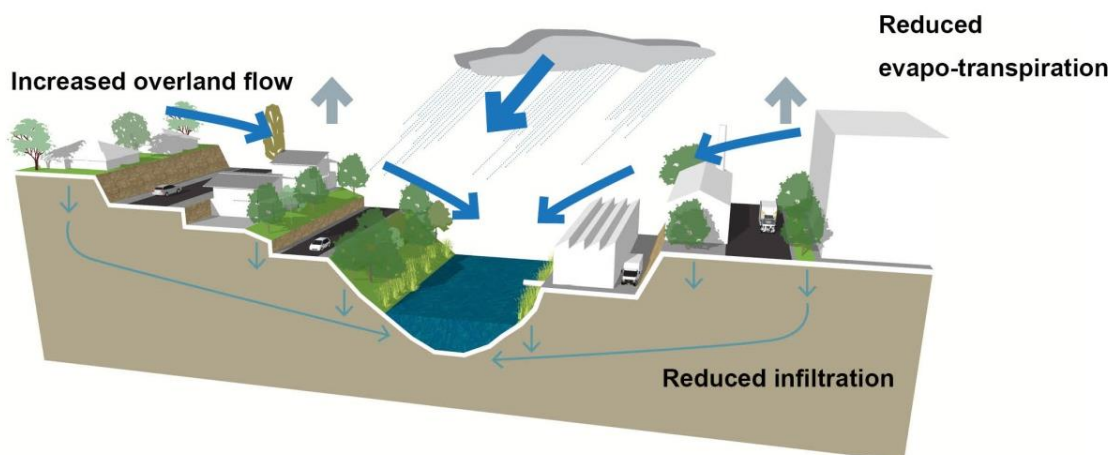


Integrated Stormwater System - An integrated stormwater system must have the capacity to safely convey major storm event flows as well as providing opportunity for adequate infiltration and stormwater treatment outside of major storm events. Design of stormwater systems should achieve community benefit through the retention of natural streams and vegetation where ever practical and safe. Incorporate sports grounds and less sensitive landuses into the drainage corridor and place detention basins and gross pollutant traps where necessary to control stormwater water quality.

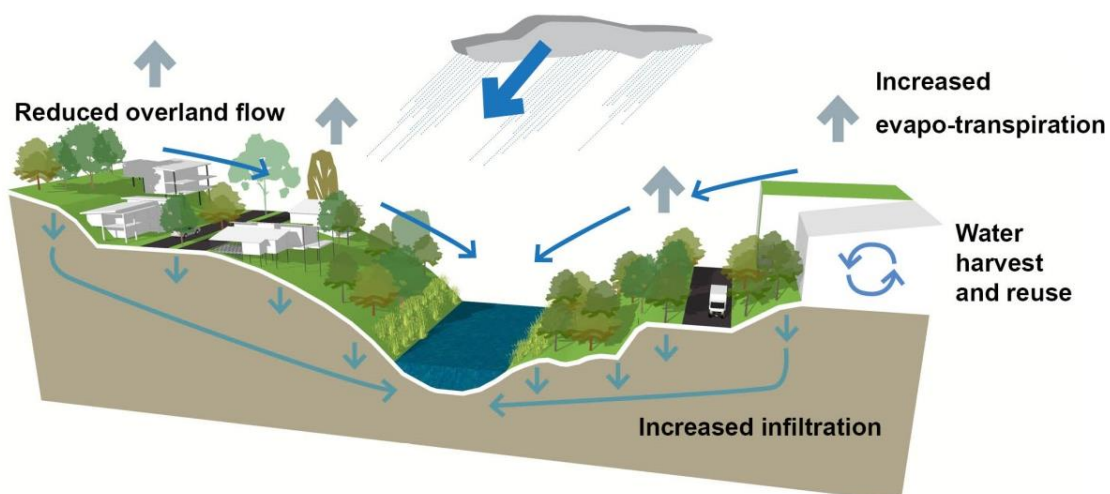
Figure 16: Stormwater run-off



Natural System: The water cycle interacts with plant and soil systems that captures, infiltrates and transpires rainwater and stormwater runoff.



Developed catchment: A developed catchment with increased overland flow and reticulation flows directed rapidly to receiving environment and bypassing natural systems and processes.



Water Sensitive Urban Design: A WSUD approach protects natural systems and directs stormwater runoff to landscape areas that have been enhanced for natural processes.

4.8 Element - Water Quality Management

The Lismore LEP 2012 Drinking Water Catchment Map delineates the areas within various drinking water catchments in the Lismore Local Government Area. Much of the Lismore urban area and adjacent northern and western rural land is located in the Wilsons River Drinking Water Catchment. Water is pumped from the 'Wilsons River Source' approximately 300m downstream of the confluence of Lagoon Creek and the Wilsons River. Water from the river at this point is pumped via a 20km long rising main to the Nightcap water treatment plant.

Prior to determining a development application for subdivision located within the Drinking Water Catchment Map, Council is required to consider compliance with LEP clause 6.4 Drinking Water Catchments. The objective of the clause is to protect drinking water catchments by minimising the adverse impacts of development on the quality and quantity of water entering drinking water storages. The following provisions compliment the requirements of LEP clause 6.4.

Relevant Subdivision Development Principles: 1, 5, 6, 7, 8

Performance Criteria	Acceptable Solutions
P31 The management of water quality incorporates measures to: • reduce water borne pollutants; • reduce urban runoff; • identify and treat point sources of pollutants in the development area so as to enhance water quality; • deliver appropriate water quality standards for urban runoff to receiving waters within Drinking Water Catchment areas; • protect watercourses and riparian areas.	A31 Stormwater quality solutions are consistent with DCP Chapter 22 <i>Water Sensitive Design</i> and LEP clause 6.4 Refer to Figure 16.

4.9 Element - Street Trees

Street trees contribute to the identity of the locality through the provision of pleasant streetscapes and enhancement of residential amenity. The selection of street trees in residential areas can reinforce the functions of the street and provide a theme for the area. Street trees also play a role in enhancement of biological diversity.

Relevant Subdivision Development Principles: 1, 3, 4, 6, 7, 8, 9, 10

Performance Criteria	Acceptable Solutions
P32 Street tree selection should: • enhance the streetscape and residential amenity; • not affect the safety of pedestrians, cyclists and motorists; • provide shade in the summer months; • minimise detrimental potential impacts on public and private infrastructure; • be native species, preferably locally indigenous; • maximise stormwater infiltration; • be at an appropriate scale relative to the width of the street and existing or future development; • incorporates existing vegetation where possible.	A32.1 Street tree selection is consistent with the Lismore City Council Landscape Guidelines and the Northern Rivers Local Government Development Design and Construction Manual. A32.2 Advanced trees in a 45 litre pot shall be used. A32.3 Street trees are: • to be planted at a density of 1 tree per 18 metres of street frontage; • not planted over services or under overhead power lines. A32.4 Street trees should be chosen for their: • non-invasive root system;

Performance Criteria	Acceptable Solutions
	• good canopy spread and shade provision; • mature height under 8 metres; • colour and appeal; • low maintenance requirements.

4.10 Element - Biodiversity Conservation

Biodiversity, or biological diversity, is a term used to describe the variety of all life forms including plants, animals, fungi, their genetic composition and the ecosystems in which they live. All species depend on other species for survival, so the conservation of endemic biodiversity provides many tangible benefits for various life forms including humans.

The Northern Rivers region, including the Lismore Local Government Area, is recognised as an extremely biologically diverse part of Australia due to a combination of climatic and geographic conditions. The region supports a disproportionately large percentage of threatened species and ecological communities.

It is important to conserve biological diversity, and to incorporate measures that protect threatened species, populations and ecological communities. Subdivisions must take into account endemic vegetation, and where appropriate include environmental buffers to minimise potential conflicts with new housing.

The following provisions apply to urban greenfield subdivisions that are on or adjacent to sites that support or contain remnant native vegetation¹ (including scattered remnant trees); threatened native flora and/or fauna species, endangered ecological communities or their habitats²; or watercourses³.

¹ As defined in the *Native Vegetation Act 2003*

² As listed in the schedules of the *Threatened Species Conservation Act 1995* and/or the *Environmental Protection and Biodiversity Conservation Act 1999*

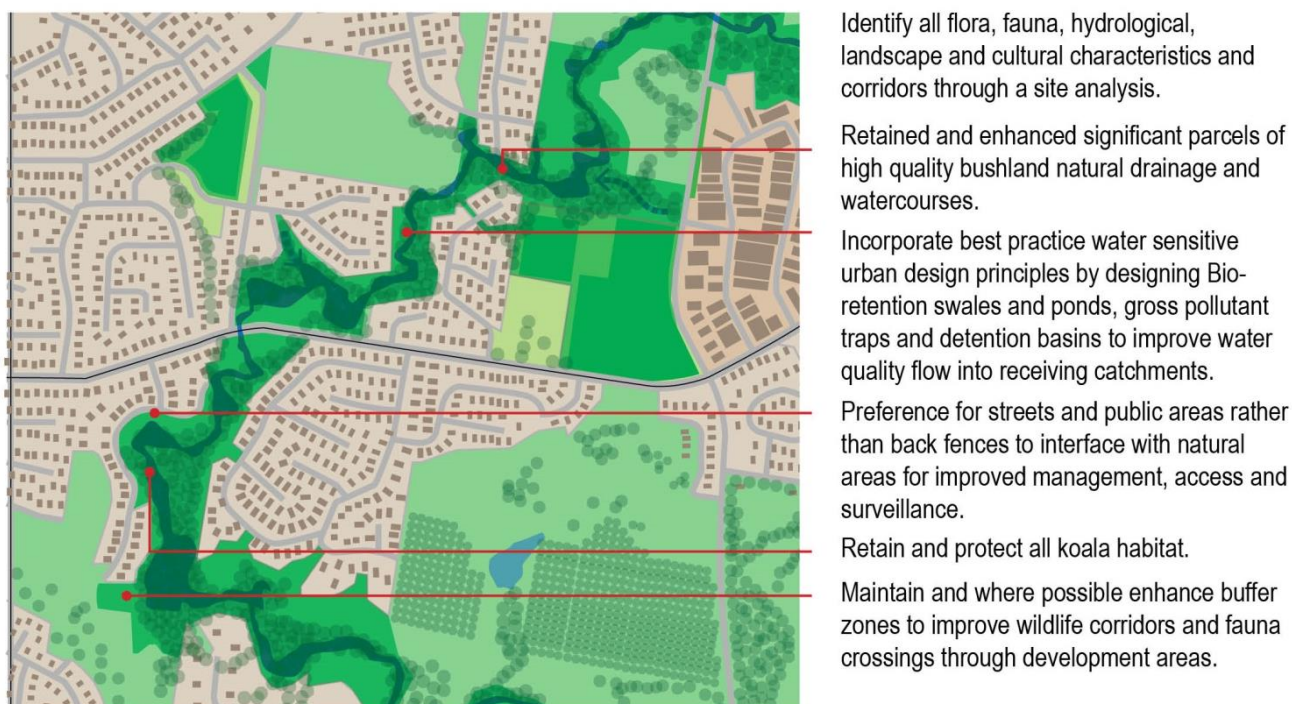
³ As defined in the *Water Management Act 2000*

Relevant Subdivision Development Principles: 3, 6, 7 & 8

Performance Criteria	Acceptable Solutions
P33 The subdivision design: • retains and enhances areas of significant ecological value; • provides for rehabilitation areas to offset vegetation removal; • provides appropriately sized riparian vegetation zones if the land contains watercourses; • includes revegetation buffer areas around ecologically sensitive vegetation; • accommodates corridor connectivity for areas of ecologically significant vegetation.	A33.1 A Vegetation Management Plan (VMP) is to accompany the development application and is prepared in accordance with the requirements of Lismore City Council's Guidelines for the Preparation of Vegetation Management Plans 2010 and DCP Chapter 14 (Vegetation Protection). A33.2 Management zones nominated in the VMP for revegetation or retention of existing native vegetation are to be located outside of the following areas: • asset protection zones as required by NSW Rural Fire Service's Planning for Bush Fire Protection 2006 or standards applicable at the date of lodgement of the DA; • areas that can be cleared under the NSW Rural Fire Service's 10/50 Vegetation Clearing Code of Practice.

Performance Criteria	Acceptable Solutions
	Note: Figure 17 illustrates how subdivision design can incorporate measures to protect and enhance significant ecological values. Pineapple Road Precinct A33.3 In addition to A33.1 and A33.2, revegetation of the site is to be in accordance with the Pineapple Road Precinct Structure Plan (Appendix A of this DCP Chapter). Consistency with matters raised in A33.2 of this Element will need to be addressed. A33.4 The VMP submitted with the development application for subdivision is to be consistent with the preliminary concept details contained in the VMP submitted as part of the rezoning planning proposal, prepared by Blackwood Ecological Services, dated August 2014. Note. Additional vegetation management areas may be required under a Controlled Activity Approval pursuant to the <i>Water Management Act 2000</i>. Refer to the Office of Water's Guidelines for Riparian Corridors on Waterfront Land. 1A & 1B Northcott Drive Structure Plan A33.5 In addition to A33.1 and A33.2, revegetation of the site is to be in accordance with the 1A & 1B Northcott Drive Structure Plan at Appendix D of this DCP Chapter. A33.6 The VMP submitted with the development application for subdivision should address the management and enhancement of vegetation on the site, in particular: • regeneration of land retained in Zone RU1 to provide koala habitat and movement corridors to koala habitat located on adjoining land • restoration of native vegetation near the riparian area at the eastern boundary. Note. Additional vegetation management areas may be required under a Controlled Activity Approval pursuant to the <i>Water Management Act 2000</i>. Refer to the Office of Water's Guidelines for Riparian Corridors on Waterfront Land.

Figure 17: Environmental protection



Environmental protection and subdivision design -The early site analysis stages of subdivision design must identify areas and items of environmental and cultural significance and then design to protect, manage and enhance these areas. Significant environmental areas include but are not limited to rare and endangered ecological flora and fauna communities, natural landscape features such as ridge lines, valleys, water courses, stands of trees as well as aboriginal and cultural heritage.

4.11 Element – Aboriginal Cultural Heritage

The *National Parks and Wildlife Act 1974* is the primary legislation that provides protection for Aboriginal places and objects. The Act is administered by the Office of Environment and Heritage (OEH). The OEH has published various guidelines to assist with the conservation of Aboriginal cultural heritage.

The Lismore LEP Heritage Map and the associated clause 5.10 and Schedule 5 aim to conserve Aboriginal and European cultural heritage. These DCP provisions are to be read in conjunction with LEP clause 5.10.

Relevant Subdivision Development Principles: 6, 7, 10

Performance Criteria	Acceptable Solutions
P34 Aboriginal objects and places are protected and the impact of the proposed subdivision on Aboriginal heritage determined in accordance with NSW Office of Environment and Heritage (OEH) guidelines and requirements.	A34.1 Protection of Aboriginal objects and places is consistent with the OEH guideline '<i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW in 2010</i>'. A34.2 Where the due diligence process identifies that Aboriginal objects or places are present or may be present or there is uncertainty about whether or not the proposed activity has potential to harm Aboriginal objects and / or places, then: (a) consultation with relevant Aboriginal parties must be undertaken in accordance with

Performance Criteria	Acceptable Solutions
	OEH guideline 'Aboriginal Cultural Heritage Consultation requirements for proponents (April 2010)' and (b) a 'Cultural Heritage Assessment Report' in accordance with OEH guideline 'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW' is submitted for approval by Council and OEH. A34.3 If harm to Aboriginal objects and places is anticipated, application for an Aboriginal Heritage Impact Permit (AHIP) is made to OEH. An AHIP application is 'Integrated Development' pursuant to s91 of the <i>Environmental Planning and Assessment Act 1979</i>. A34.4 Aboriginal objects and places are protected by following the procedure for inadvertent discoveries of items of potential cultural heritage value as listed in Appendix B.

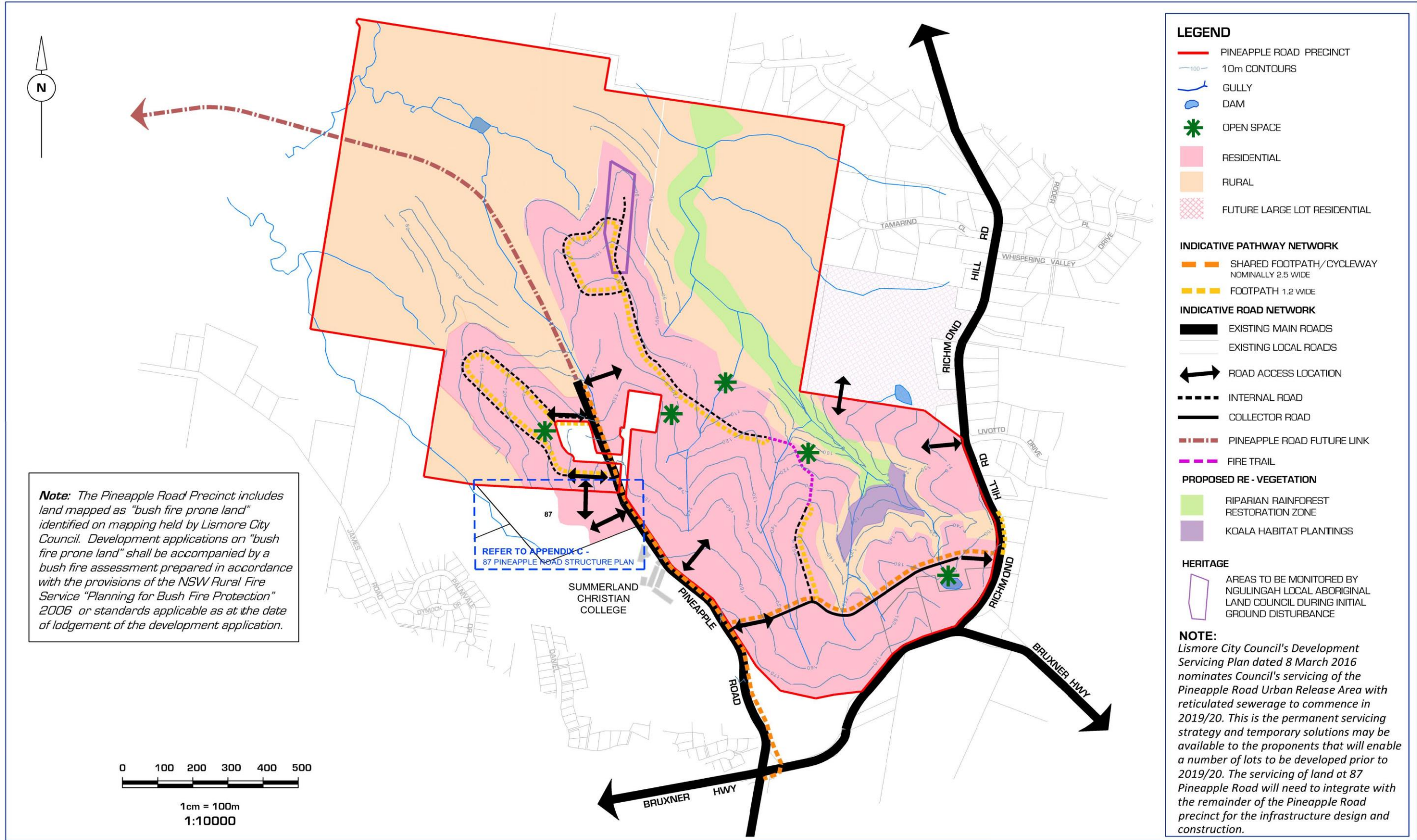
5 REFERENCES

1. *The Australian Model Code for Residential Development (AMCORD, Commonwealth Department of Housing & Regional Development), 1997.*
2. *Creating Places for People, An Urban Design Protocol for Australian Cities.*
3. *A Guide to the Use of Kerbside Bike Lanes, Alta Planning & Design, September 2010.*
4. *The New Queensland Street, Complete Streets, Guidelines for Urban Street Design, Institute of Public Works Engineering Australia Queensland Division Inc, August 2010.*
5. *Street and Movement Network, Urban Land Development Authority, Guidelines Number 06, April 2012.*
6. *Northern Rivers Local Government Development Design and Construction Manual.*

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APPENDICES

APPENDIX A – Pineapple Road Precinct Structure Plan



REV	DATE	AMENDMENT
B	26.05.15	APZ & TABLE ADDED
C	01.06.15	AS PER G.Y. LSC EMAIL DATED 28.05.15
D	03.06.15	AS PER G.Y. LSC EMAIL DATED 02.06.15
E	05.04.16	AS PER G.Y. LSC EMAIL DATED 31.03.16
F	06.04.16	ADD NOTE

SOURCE PLAN: n/a

k:\jobs\2004\04652 - pineapple rd\planning\planning plans\plans\2014 - pineapple road\autocad files\2004\652 - rev e structure plan.dwg - structure plan

Newton Denny Chapelle
Surveyors Planners Engineers
Email: office@newtondennychapelle.com.au
LISMORE 31 Carrington St. Lismore 2480 PH: 6622 1011
CASINO 100 Barker St. Casino 2470 PH: 6662 5000
ABN: 86 220 045 469

PINEAPPLE ROAD PRECINCT STRUCTURE PLAN

CLIENT: D KERLE, RICHMOND HILL HOLDINGS PTY LTD & UNITING CARE AGEING
LOCATION: LOT 2 DP1064627 LOT8 DP253464
LOT 101 DP594434 LOT 12 DP810542
PINEAPPLE ROAD GOONELABAH NSW
DATE: 12.05.16 REF: 04/652
SCALE: 1 : 10,000 @ A3 DRAWN: bk

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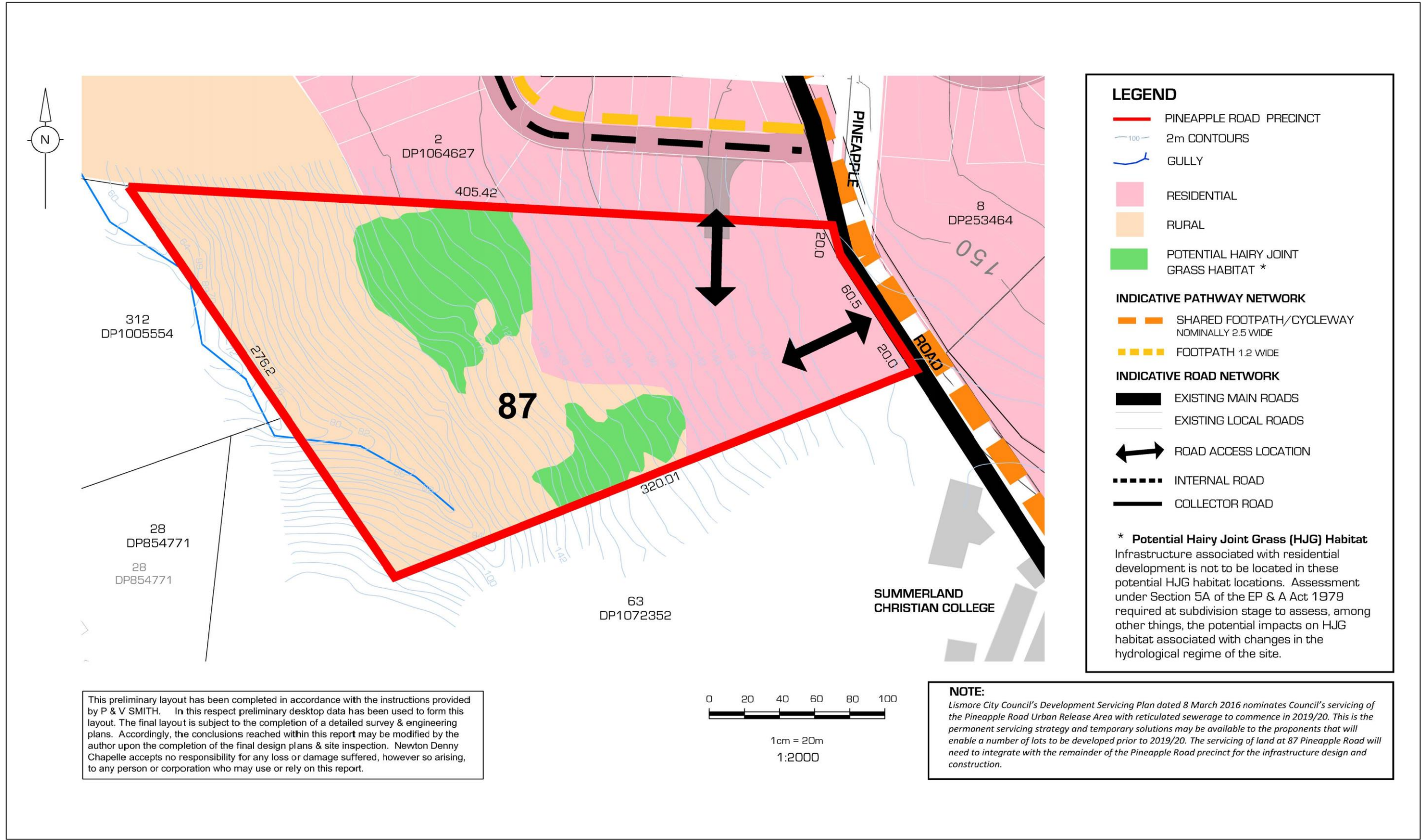
APPENDIX B – Process for inadvertent discoveries of items of potential cultural heritage value applicable to all development applications for subdivision of land.

1. If it is suspected that Aboriginal material has been uncovered as a result of development activities within the project area:
 - a. Work within the project area is to stop immediately;
 - b. A temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;
 - c. An appropriately qualified archaeological consultant is to be engaged to identify the material; and
 - d. If the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the OEH guidelines: *Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)*.
2. In the event that human remains are located at any stage during earthworks within the site, all works must halt in the immediate area to prevent any further impact on the remains. The site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Lismore), the Ngulingah Local Aboriginal Land Council and the OEH regional office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided that it is in accordance with all parties' statutory obligations. In all dealings with Aboriginal human remains, the proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.
3. If Aboriginal cultural materials are uncovered as a result of development activities within the project area, they are to be registered as sites in the Aboriginal Heritage Information Management System (AHIMS) managed by the OEH. Any management outcomes for the site will be included in the information provided to the AHIMS.
4. All effort must be taken to avoid any impacts on Aboriginal cultural heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the proponent, OEH and the Aboriginal community.

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APPENDIX C – 87 Pineapple Road Structure Plan

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REV	DATE	AMENDMENT
A	12.04.16	
B	12.05.16	ADD NOTE LOC
C		
D		
E		

SOURCE PLAN: N/A
k:\jobs\2014\14545-smith\planning\planning plans\ndc plans\cad files\14545-structure plan.dwg - structure plan

NBS
Newton Denny Chapelle
Surveyors Planners Engineers
Email: office@newtondennychapelle.com.au
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CASINO 100 Barker St. Casino 2470 PH: 6662 5000
ABN: 86 220 045 469

87 PINEAPPLE ROAD STRUCTURE PLAN	
CLIENT: P & V SMITH	REV B
LOCATION: LOT5 DP253464 87 PINEAPPLE ROAD GOONELLABAH NSW	
DATE: 12.05.16 SCALE: 1 : 2000 @ A3	REF: 14/545 DRAWN: bk

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