Armidale Dumaresq
Development Control Plan 2012

Section 3 Subdivision Development Controls

Chapter 3.1 Urban Residential Subdivision

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Table of Contents

Step 1

Is your subdivision Exempt Development?

The *SEPP (Exempt and Complying Development Codes) 2008* allows some minor subdivision and boundary adjustments to be undertaken as exempt development.

Yes

Undertake subdivision under the provisions of *SEPP (Exempt and Complying Development Codes) 2008*

Step 2

Check the zoning of your land and the Lot Size Map (see LEP 2012).

Does your proposed subdivision meet the minimum lot size?

(see Lot Size maps and LEP 2012 Part 4)

No

Read clause 4.6 of LEP 2012 for exceptions to development standards

Yes

Step 3

Read Chapter 2.1 Site Analysis and General Controls

Read this Chapter 3.1 Urban Residential Subdivision

Step 4

Undertake preliminary site analysis and prepare conceptual sketch plans and ideas.

Meet with Council staff for a pre-development application meeting.

Bring concept plans and sketches to this meeting.

Bring your surveyor and/or consultant to this meeting.

Step 5

Consult with your Planning Consultant and/or Registered Surveyor to produce your plans, SEE and other relevant specialist reports using the relevant parts of these Chapters to complete your Development Application.

Step 6

Make an appointment with a Planner to submit completed:

- Development Application form;
- Site Analysis, Engineering and Subdivision plans;
- Statement of Environmental effects (SEE); and
- any relevant specialist reports.

Step 7

Subdivision Application checked by Council, application lodged and fees paid.

Outstanding matters?

Address matters and return to Council.

Note: Common delays in obtaining approval relate to the applicant not meeting relevant requirements or providing insufficient information for Council officers to complete the assessment of applications.

Step 8

Development Application assessed.

Approved: Conditions of Consent issued.

Refused: Applicant advised of refusal.

Step 9

Applicant addresses all Conditions of Consent and makes application to Council for a Construction Certificate.

Step 10

Once the Construction Certificate has been issued and Notice of Commencement given to Council subdivision works may commence.

Arrange for relevant inspections by Council's Development Engineers.

Step 11

When construction is complete, application is made to Council for a Subdivision Certificate.

Part 1 General Provisions

1.1 Introduction

This chapter provides information about subdividing urban land in the Armidale Dumaresq local government area.

The purpose of this chapter is to provide guidance to developers on planning and design principles at the subdivision stage of the design process, and to ensure that urban subdivision design maximises site opportunities and provides site layouts that create a safe, functional, energy efficient and attractive places to live.

This chapter is to be read in conjunction with all relevant chapters in Section 2 Site Analysis and General Controls. All relevant matters relating to the development must be addressed in the development application, the SEE and on site analysis plans and site plans. The site analysis process may highlight the requirement for specialist reports to be undertaken.

1.2 Objectives

The objectives of this chapter are:

O.1 To encourage well thought out design at the subdivision stage.

O.2 To ensure consideration of site opportunities and constraints, including layouts that allow future development to maximise solar access to primary living/working areas.

O.3 To ensure that large subdivision design provides for a range and mix of lot sizes and shapes.

O.4 To ensure that the layout design of the subdivision provides for the maximum retention of existing trees and native vegetation.

O.5 To ensure that subdivision design provides for adequate and well designed road, stormwater drainage, and utility infrastructure in a logical position on the land.

O.6 To ensure that street and pedestrian networks provide for safe and efficient travel for vehicles, bicycles and pedestrians.

1.3 Land to which this chapter applies

This chapter applies to the following zones:

R1	General Residential
R2	Low Density Residential
R5	Large Lot Residential

1.4 Addressing the guidelines in this chapter

The guidelines for subdivision are set out in this chapter. These are expressed in the form of objectives that need to be addressed for each development proposal. For each objective (O), 'acceptable solutions' (S) are provided which, if met, will ensure compliance. Alternative approaches may be proposed, provided these adequately address the relevant objectives and comply with legislation.

1.5 Developer contributions

Infrastructure contributions will be levied on physical and social infrastructure in accordance with Council's *Water Supply and Sewerage Development Servicing Plan*; *Section 94 Contributions Plan* and any other adopted Contributions Plan relevant to the site. This contribution may be a financial contribution, dedication of land and/or provision of a material public benefit be made by a

developer to provide for or upgrade public services or facilities for which the development is likely to create a demand. Contributions that apply to development in rural and rural residential zones are outlined in the Council's adopted Contributions Plan and Water Supply and Sewerage Development Servicing Plan.

Depending upon the likely demand for public services or facilities that a development proposal is likely to generate, Council may also require preparation of a specific Contributions Plan or enter into a Planning Agreement with the developer prior to determining a particular development proposal.

Part 2 Lot design, layout and dimensions

Objectives

O.1 To provide a range of lot sizes to suit a mix of housing types and sizes.

O.2 To ensure that lot shape, orientation and dimensions provide for adequate separation between adjoining residential developments for privacy and to maximise solar access for future dwellings.

O.3 To provide for lots of a regular shape for maximum lot yield.

O.4 To ensure that all new lots are provided with adequate frontage to a public road and long, narrow lots and battleaxe lots are avoided.

O.5 To retain and expand areas of natural habitat, and direct development away from environmentally sensitive areas.

O.6 To ensure sites are designed to retain and protect flora, fauna and watercourses.

O.7 To protect natural, cultural and heritage features.

O.8 To take account of topography and slope to minimise the need for cut and fill associated with future dwellings and driveway construction.

O.9 To ensure lots are designed to make adequate provision for utility services.

2.1 Minimum lot size

S.1 Refer Clause 4.1 Minimum Subdivision Lot Size and the relevant Lot Size Maps in *Armidale Dumaresq LEP 2012*.

2.2 Lot layout, orientation and solar access

S.2 The lot layout (orientation, size and dimensions) should facilitate the future siting of dwellings to take advantage of:

a) micro-climatic benefits;

b) on-site solar access and access to breezes;

c) Armidale's climatic conditions; and

d) conservation of non-renewable energy sources.

S.3 All new lots must have a 4 star rating or higher in accordance with Solar Access for Lots - Guidelines for Solar Efficient Residential Subdivision in Armidale (Appendix 1).

S.4 Lot design ensures that each lot:

a) will not be overshadowed by neighbouring houses to the north.

b) can have a sufficiently long north facade to receive winter sun.

S.5 Streets are aligned in a north-south or east-west direction.

S.6 East-West Streets - suitable for small lots, with narrow lots on the north side and wide lots on the south side of the street.

S.7 North-South streets to increase the width of lots.

2.3 Lot dimensions and shapes, and lot ratios

S.8 A new lot created as a result of a subdivision shall be of a regular shape where possible.

S.9 The depth of the lot should not exceed the width of the lot by more than 4:1, unless it can be justified based on the site analysis that there are no viable alternative solutions.

S.10 Wedge shaped lots are to be kept to a minimum, and will generally only be supported at the head of a cul-de-sac.

S.11 Lot size and dimensions should consider the slope of the land and the desirability of minimising earthworks/retaining walls associated with dwelling construction.

2.4 Minimum lot frontage to a public road

LEP Zone	Minimum Public Road Frontage
R1 General Residential	12 metres
R2 Low Density Residential	30 metres
	Wedge shaped lots shall have a minimum width at the front setback of 30m
R5 Large Lot Residential	75 metres; or, the depth of the lot does not exceed the lot frontage width by more than 4:1.
	Wedge shaped lots shall have a minimum width at the front setback of 50m

2.5 Battleaxe lots

S.12 Battleaxe blocks are not permitted in the R1 General Residential, R2 Low Density Residential and R5 Large Lot Residential zones except where it can be demonstrated that no alternative solution is possible.

S.13 Where the creation of a battleaxe block is justified (above) and is acceptable to Council, the minimum width of the driveway handle is to be 4m wide in the R1 zone, and 20m wide in the R2 and R5 zones.

S.14 Where the battleaxe handle is longer that 50m, provision for passing must be made.

S.15 No battleaxe handles are to be directly adjoining.

S.16 Subdivisions creating multiple battleaxe lots will not be allowed.

Part 3 Building envelopes

Objectives

O.1 To ensure that lots created from subdivision of land for residential purposes contain a building envelope free of major environmental and infrastructure/services constraints and have good solar access.

O.2 To ensure that the subdivision layout responds appropriately to the findings of the site analysis.

O.3 To protect existing vegetation and the scenic qualities of the locality.

3.1 Building envelopes

S.1 In urban residential zones, lots must have the appropriate area and dimensions for the siting and construction of a dwelling and ancillary outbuildings, the provision of private open

space, and vehicle access and parking.

S.2 A building envelope must be identified on a lot where there are significant identified site constraints.

S.3 Where a building envelope is identified, it should be positioned to ensure future tree removal is minimised.

S.4 Lots must not have a slope greater than 15%, unless the application is supported by a geotechnical investigation demonstrating that the land is suitable for the erection of a dwelling and its associated infrastructure.

S.5 Lots must be able to provide setbacks from road frontages, side and rear boundaries in accordance with this chapter.

Part 4 Street layout and landscape design

Objectives

O.1 To provide attractive streetscapes and landscapes 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 locality.

O.2 To reinforce the attributes of heritage significant streetscapes and landscapes.

O.3 To provide streetscapes that promote safety and casual street surveillance.

O.4 To maximise landscaped areas where appropriate, including the incorporation of existing vegetation where possible and desirable.

4.1 Design of new streets

S.1 New streets should define a street 'theme', or complement existing streetscapes nearby.

S.2 The scale of the street should be relative to both the street reserve width and existing or expected future building bulk.

S.3 Streets should terminate with views that make the most of the special features of a site or enhance its character (such as a park, a stand of mature trees, distant hills, water or significant building).

S.4 Where streets terminate with a view of a house (or other building), the house (but not the garage) should be on axis with the street.

S.5 Street alignments should be straight or gently curved where possible to enable edges (such as street trees and building frontages) to frame vistas.

S.6 Existing neighbourhoods should connect to new developments through connecting street systems.

S.7 Streets must achieve lines of sight specifications for pedestrians, cyclists and vehicles.

S.8 Street design should:

a) provide adequate lighting for pedestrian and vehicle safety.

b) provide attractive and coordinated street furniture and facilities to meet user needs.

c) satisfy maintenance and utility requirements and minimise the visual impact of above ground utilities.

4.2 Design for sloping sites

S.9 Where the land slopes at a grade of 6% or more, the predominant street alignment should be perpendicular to contours.

S.10 Where a lot slopes from one side to the other, the design should reduce or avoid retaining

	walls on side boundaries.
S.11	Avoid street layouts that result in lots being considerably higher or lower than the street level.
4.3	**Street layout and landscape plan**
S.12	A Streetscape/Landscape Plan is required, showing the following: a) the relativity to the natural landscape; b) 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; c) where identifying features exist (such as views, vistas, existing vegetation and landmarks), and how these key features are used in the design layout; d) the indicative location of existing buildings; e) the location of boundaries and identification of areas of communal open space and specific recreational uses; f) the proposed position, style and height of street lighting; g) the location and species of existing vegetation for proposed removal or conservation; h) the proposed position, species and potential growth height of street trees; i) information on the selection and positioning of species, including solar access requirements, soil types, growth habits, climate adaptability etc.; j) the location and species of other plantings and soft landscape treatments; k) general arrangement of hard landscaping elements including fencing, access points, furniture, pavement style, and treatment of the verge including any associated parking or drainage requirements; l) the location of existing and proposed services; m) major earth cuts, fills and mounding; n) indicative treatment of floodways and drainage lines;
S.13	In areas where desired future urban character has been defined (through a precinct specific development control plan), the street and landscape design must conform to the specifications of that plan.
4.4	**Landscaping for staged development**
For staged development proposals, landscaping is to be completed as far as practicable in the early stages of the development, to ensure establishment in advance of any subsequent building activity. Landscaping is to be adequately protection from potential damage associated with construction activities.	
4.5	**Landscaping in the R5 zone**
S.14	For subdivisions in the R5 zone, screen landscaping is to be provided on the frontage to existing nominated rural roads to integrate the development into the rural landscape. Permanently fenced multiple row plantings of a majority of indigenous New England species must be 10m in width and provided for the full frontage of any lot (excluding driveways) to any of the following roads: a) Kellys Plains Road b) Platform Road

c) Old Gostwyck Road
d) Castledoyle Road
e) Grafton Road
f) Link Road
g) Cluny Road
h) Fittler Road

S.15 Council may also require additional landscaping buffers where a development adjoins agricultural activities on neighbouring property; a rail corridor; or other activities that require separation from residential activities.

4.6 Fences in the R5 zone

S.16 Developers shall provide a stock proof fence to all public road frontages and public open space areas in the R5 zone. To maintain the landscape values and character of the locality, such fencing is not to be metal panel fencing (of any height).

S.17 For staged subdivisions, landscaping and fencing is to be implemented for each stage of the development.

Part 5 Street networks and neighbourhood design

Objectives

O.1 To provide a hierarchy of interconnected streets that gives safe, convenient and clear access, including access for emergency vehicles.

O.2 To ensure that the hierarchy of streets is clearly discernible through variations in carriageway width, on-street parking, street tree planting, and pedestrian amenities.

O.3 To provide a legible and permeable movement network for vehicles, pedestrians and cyclists along streets and paths to points of attraction within and adjoining any development.

O.4 To ensure sufficient carriageway and verge widths are provided to allow streets to perform their designated functions within the street network and to accommodate public utilities and drainage systems.

O.5 To encourage the use of streets by pedestrians and cyclists, and to allow cars, buses and other users to proceed safely, and without unacceptable inconvenience or delay.

O.6 To encourage design that responds to the topographical features of the site.

O.7 To ensure design reinforces desired traffic speed and behaviour.

O.8 To integrate and form linkages with parks, reserves and transport corridors.

5.1 Subdivisions with internal road networks

S.1 All internal road networks and layouts are to comply with the requirements of Council's Engineering Code.

S.2 Emergency and/or footpath connections are to be provided into residential areas with only one road access and with more than 30 allotments.

5.2 Street and common driveway construction

S.3 All pavement construction and kerb and gutter profiles are to comply with the requirements of Council's Engineering Code.

S.4 Street and common driveway pavement surfaces and edges must be designed to be durable enough to carry wheel loads of travelling and parked vehicles; ensure the safe passage of

	vehicles, pedestrians and cyclists; contain the discharge of rainfall; and the preservation of all-weather access.
5.3	**Signage, street furniture and street lighting**
S.5	Signage, street furniture and lighting is to be: a) designed to reinforce the distinct identity of the development; b) co-ordinated in design and style; c) located so as to minimise visual clutter and obstruction of the public domain; and d) of a colour and construction agreed by Council.
S.6	Locating entry signage and the like within a public road reserve is subject to Council's agreement.
S.7	The location and design of any signage, street furniture and non-standard street lighting is to be indicated on the Landscape Plan and on engineering construction drawings.
S.8	Street lighting, including the frequency and position of required lighting that provides the best outcome for pedestrian and vehicle safety, is to be designed to meet current Australian Standards.
S.9	Applicants must provide written evidence that they have consulted the relevant energy authorities in relation to proposed street lighting.
S.10	The position of any street lighting is to be identified on site plans for the subdivision. The verge must be clearly identified on these plans.
5.4	**Street trees**
S.11	Street trees are required for all streets. Street tree planting is to: a) be consistently used to distinguish between public and private spaces and between different classes of street within the street hierarchy; b) minimise risk to utilities and services; c) to be positioned and consist of species selected in accordance with *POL 120 Urban Streetscape (Street Vegetation) Policy.* d) maintain adequate lines of sight for vehicles and pedestrians, especially around driveways and street corners; e) provide an attractive landscape character and shade.
S.12	Proposed street tree positioning and species are to be identified on site plans for the subdivision. The verge must be clearly identified on these plans.
5.5	**Street naming and lot numbering**
Objectives	
O.1	To identify roads and individual premises to the public, the relevant authorities, and to emergency and essential services.
S.1	Where there is no existing road name, the application should provide a written proposal together with a plan indicating the location of the place to be named. This should include the names of new road(s).
S.2	Where more than one street exists within a subdivision, consideration should be given to a street naming 'theme' to help create a distinct identity for the area.
S.3	Street names are to be selected from a list in 'POL 071 Policy for Local Place Naming'.
S.4	New street name signs are to be paid for by the developer.

S.5 All occupied properties shall be individually numbered.

S.6 Numbers shall be displayed adjacent to the entrance driveways.

Note: Council is responsible for the allocation of address numbering of lots. Address numbers are allocated at subdivision stage when the location of driveway entrances is determined. At the subdivision stage, property numbering shall be displayed on the street frontage.

Part 6 Vehicle access

Objectives

O.1 To ensure all development has legal and properly constructed access.

O.2 To prevent private access arrangements over adjoining land (rights-of-carriageway) for new lots.

O.3 To ensure that the standard of public roads is sufficient for traffic likely to be generated by a development.

O.4 To minimise future costs to the community associated with road improvement.

O.5 To ensure property access is located with safe sight distances on public roads.

6.1 Access and minimum road standards

S.1 All new lots created by a subdivision must have legal and properly constructed access. Depending on the circumstances, the following options are available for providing access:

a) Public Road as defined under the Roads Act 1993

b) Construction and dedication of a Crown Road as a Council public road.

S.2 Where a road is to be constructed or upgraded it shall be constructed to the minimum road standard as shown in *Tables 1 & 2* (below).

S.3 Each new lot created by a subdivision shall have public road access to the minimum road standard specified in *Tables 1 & 2*.

S.4 In all subdivisions, access to the lots created shall be by way of constructed and dedicated Public Road, as defined under the Roads Act 1993.

S.5 Applicants should consult with Council concerning the need to provide links to adjoining land which is likely to be subdivided in the future and to ascertain whether a provisional road network has been or will be developed for the area.

S.6 In the R1 and R2 zones, the road shall be constructed across the full frontage of the property.

S.7 In the R5 zone, where the subdivision road is likely to be extended in the future to serve other development, the road shall be constructed to a minimum of 20 metres beyond the property access and provided with a temporary turning area.

S.8 Provision of a suitably sited and constructed bus lay-by in accordance with Council's policy POL141-Roads: Rural Bus Stops may be required in association with road works.

S.9 Council may require suitable arrangements to be made for the provision of verge tracks for pedestrians and horse riders to traverse along roadsides clear of vehicular traffic.

S.10 Collector roads within the R5 zone shall accommodate the safe passage of cyclists.

S.11 Where subdivisions will have frontage to an existing Public or Crown Road that is unconstructed or is not maintained by Council, the full cost of upgrading that road to Council's specification is to be borne by the developer.

S.12 Conflict with arterial and distributor roads is to be avoided. Direct access to a classified road will not be permitted where another practical option exists.

S.13 Where the subdivision proposes access to a classified road, the access will require concurrence from the RMS, and must be located and constructed in accordance with the relevant road authority requirements.

S.14 Dedication of a splay corner of minimum dimensions 5 metres x 5 metres will be required to improve and maintain safe sight distance at the intersection of roads associated with the subdivision. A greater splay dimension may be required at the intersection of major roads.

Table 1: Minimum road access standards

All road construction, including driveways, shall comply with the requirements of Council's Engineering Code, and the relevant Australian Standards and Austroads Guidelines.

LEP Zone	Circumstances	Minimum Road Standard
R1 General Residential	All subdivisions	Two lane sealed road with kerb and gutter.
R2 Low Density Residential	All subdivisions	For roads internal to the subdivision: • Two lane sealed road; and • Each lot is to connect to a sealed road.
		For unsealed connecting roads: • Two lane sealed road with gravel shoulder.
		Where a sealed connecting road exists: • Widen road to achieve half road construction to the sealed two lane road standard (see Figure 1 below).
R5 Large Lot Residential	Road will serve a maximum of 5 lots (including existing lots) and is not likely to be extended or to form part of a through road.	Single lane sealed road to nearest two lane sealed road connection.
	All other subdivisions	Two lane sealed road to nearest two lane sealed road connection.

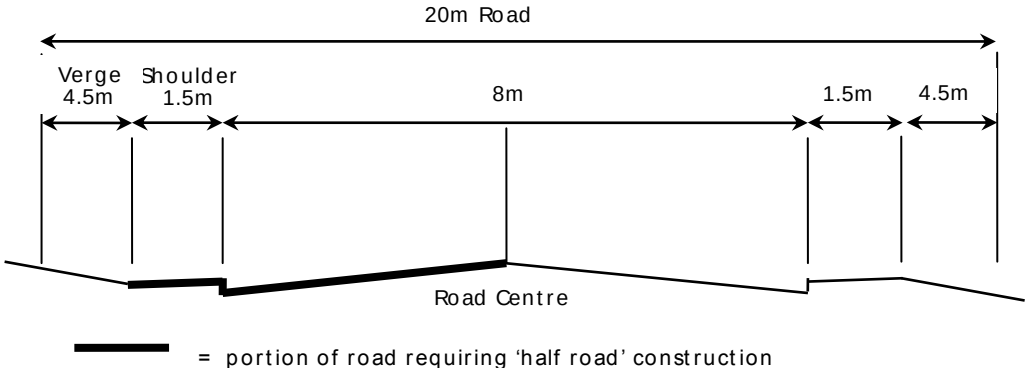


Figure 1 – Half Road Construction for Subdivision in the R2 zone

Table 2: Characteristics of Street Types

Street Type (7)	Indic. max. traffic vol. (vpd) (1)	Target street speed (km/h)	Carriageway width (metres) (2)	Parking provision within street reserve	Kerb (5)	Foot-path	Cycle-way	Verge width min.(m) each side (6)
Access Place	300	15	6	Carriage-way	Roll-over	Not required	Not required	Total 7m (3)
Access Place: The lowest order of street providing access to sites without any traffic generated by sites in other streets.								
Minor Access Street	1000	30	6	Carriage-way	Roll-over	One side	(8)	Min. 4m each side
Access Street	2000	40	8	Carriage-way	Roll-over or upright	One side	(8)	Min. 4.5m each side
Minor Access Street And Access Street: *Generally streets where the residential environment is dominant, traffic is subservient, speed and volume are low and pedestrian and cyclist movements are facilitated.*								
Local Collector	3000	50 (20 at designated pedestrian/ cycleway crossing) (4)	Site specific design required	Indented to leave 6m min. clear carriage-way	Upright	Both sides	(8)	Min 4.5m each side with adequate road reserve width for widening for future bus route if required
Local Collector: *The collector street collects traffic from access streets and carries higher volumes of traffic. A reasonable level of residential amenity and safety is maintained by restricting traffic volumes and vehicle speeds. Vehicle speeds are controlled by street alignment, intersection design and, in some cases, by speed control measures.*								
Minor or Major Distributor	Site specific design required							
Minor or Major Distributor*: These are the major roads within Armidale. They carry traffic from Regional Roads to the CBD as well as providing links between Regional Roads. They also serve as key routes for local Armidale traffic.* *Major distributors in Armidale include: Barney Street between Markham and Dangar Streets; Beardy Street between Markham and Niagara Streets; Canambe Street between Kentucky and Erskine Streets; Clarks Road/Elm Avenue; Donnelly Street/Queen Elizabeth Drive from the bypass to Marsh Street; Erskine Street; Handel Street; Kentucky Street east of Dangar Street, Link Road; Madgwick Drive; Markham Street; Miller Street; Niagara Street; Rockvale Road; Dumaresq and Rusden Streets between Markham and Marsh Streets.*								

1. *For single allotments apply a traffic generation rate of 10 vpd (vehicle per day). For multi-unit dwellings apply a rate of 6 vpd per dwelling.*
2. *The maximum width within the range needs to be used when bus use is anticipated or when upright kerbs are used. Widening may be required to allow for wider vehicle paths but should not negate the function of bends serving as slow points.*
3. *Typical verge widths of 3.5m each side, with indented parking to within 1.5m of boundary.*
4. *Requires special design and control so that vehicle speeds are reduced progressively.*
5. *Roll-over kerbs are preferred for safety reasons. Upright kerbs may be considered for drainage purposes or in locations where on-street parking should be clearly defined and parking within the verge is not desired.*
6. *Additional width may be required to accommodate cycle path.*
7. *Refer to Council's Policy POL035 – Vehicular Driveway Construction, Maintenance and Location.*
8. *Refer to the Armidale Bicycle Strategy and Action Plan 2012.*

6.2	**Right-of-Carriageway**
S.15	Access by right-of-carriageway is not encouraged and will only be permitted in cases where no other practical alternative exists.
S.16	The right-of-carriageway shall only serve one lot or holding and must not be located on a lot containing an existing right-of-carriageway.
S.17	The right-of-carriageway shall have a width of not less than 20 metres.
6.3	**Construction and dedication of a Crown Road as a Council Public Road**
S.18	Where access is proposed via a Crown Road, the road is to be constructed by the developer to Council's specification and dedicated as a Council public road.
S.19	The applicant is to provide written agreement from the responsible authority (currently NSW Crown Lands) for the use of the Crown Road for access.
6.4	**Undedicated roads**
Undedicated roads are roads that are not dedicated as Council or Crown Roads and include Forestry Roads, Rural Lands Protection Board reserves and Ministerial Roads.	
S.20	The applicant is to provide written agreement from the responsible authority for the use of the road for access.
6.5	**Driveways**
S.21	Where the land adjoins an existing sealed public road, the driveway crossover shall be sealed from the road shoulder to the boundary.
S.22	The driveway shall be located so as to minimise earthworks and removal of vegetation/street trees in the road reserve.
S.23	Driveways on collector road and roads that carry more than 3000 vpd must be designed to allow forward movement of vehicles across the verge. Site plans must demonstrate that each lot with a driveway onto such roads have the facility to turn within the lot.
S.24	Direct driveway access to a classified road will not be permitted where another practical option exists.
S.25	Entrances shall be limited to one per lot unless otherwise approved by Council. The relocation of an existing entrance may require the complete removal of the existing entrance.
S.26	Any new driveway on a local road shall have safe intersection sight distance in accordance with the relevant Australian Standards AS 2890 or the *Austroads Guidelines*.
S.27	All driveways must be designed in accordance with Council's Policy POL035 – Vehicular Driveway Construction, Maintenance and Location.
6.6	**Kerb and guttering**
S.28	All kerb and guttering is to be provided as required by *Table 2: Standards for Street Types* (above) and the Engineering Code.

Part 7 Public transport design

Objectives

O.1 To ensure new public transport services link to adjoining areas and other public transport routes (including future routes).

O.2 To provide for ease of movement of buses between developments; and link activity centres within and external to the development.

7.1 Bus routes

S.1 Consultation with Armidale's local bus transport provider and Transport for NSW is required to determine whether a bus service is required.

S.2 Where the size of the subdivision is likely to require bus movements throughout the internal road network, road widths external to and within the subdivision must be designed to cater for potential bus service provision.

S.3 All bus routes are to be designed in accordance with Council's Engineering Code.

S.4 Road networks must be designed to allow buses to access and move through the street network without complicated turning manoeuvres.

S.5 The position of the bus route should ensure at least 90% of dwellings are within 400m safe walking distance from an existing or potential bus route.

7.2 Bus stop location and design

Bus stops must be designed in accordance with Austroads Guidelines and Council Policy *POL185 Bus Shelters within the Urban Areas*.

S.6 Bus stops are, or are planned for, 300 m spacings where the route serves residential development. The bus stop bay is to be designed to meet the current relevant AUSTROADS Guidelines and in accordance with Council Policies POL 141 Rural Bus Stops and POL 185 Bus Shelters within the Urban Areas.

S.7 Bus stops are to be designed to prevent vehicles from overtaking a stationary bus, or vehicle speeds are reduced to ensure safe pedestrian crossing.

S.8 The siting of bus stops should relate to the pedestrian path network.

S.9 Bus stops are to be located and designed to provide shelter, seats, adequate lighting, and timetable information, and to minimise adverse impact on nearby dwellings.

Part 8 Pedestrian and cyclist facilities

Objectives

O.1 To ensure residential street and path design creates safe pedestrian and cyclist routes that connect to adjoining streets, schools, open spaces and activity centres.

O.2 To ensure that footpaths and cycle routes meet the needs of the primary users (ie. children, parents with prams, people with disabilities, aged pedestrians and cyclists, and commuter and recreational cyclists.

8.1 Planning and design

S.1 All new bicycle facilities, including shared pedestrian/cyclist paths, on-road bicycle routes and bicycle parking facilities must be incorporated into street network plans in accordance with the *Armidale Dumaresq Bicycle Strategy and Action Plan 2012,* Council's Engineering Code and the relevant Australian Standards.

S.2	For details on technical design and construction of bicycle and pedestrian paths, please refer to Council's Engineering Code and the relevant Australian Standards and Austroads Guidelines.
S.3	Pedestrian and cyclist paths are to be constructed to meet contemporary engineering standards (ie. be designed and constructed of appropriate width, longitudinal gradient and sight distance to cater for the number of projected pedestrians and cyclists, and user types). Design must take into account the topography, safe street crossings, adequate markings, warning signs, safety rails and lighting.
S.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.

8.2 Inter-allotment access

S.5	Pedestrian links between streets, or connecting to open space areas or cycleways must provide an all-weather footpath and sufficient land either side for landscaping, with a minimum width of 5 metres.

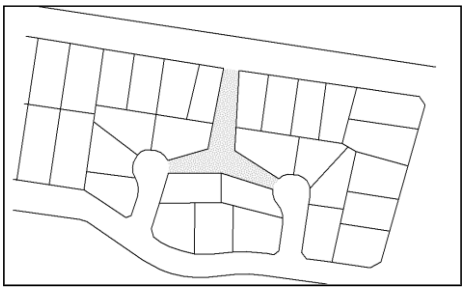
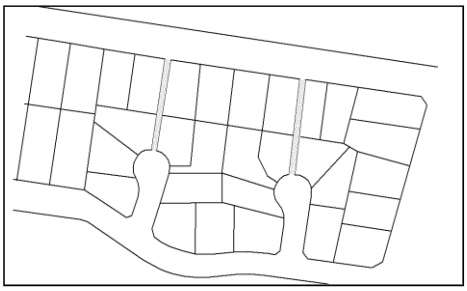
	
✓	✖
Inter-allotment pedestrian/cycle access allowing for path and landscaping	Inter-allotment with narrow pathway and no opportunity for landscaping

Figure 2 – Examples of effective Inter-allotment drainage designs

Note: The *Armidale Dumaresq Bicycle Strategy and Action Plan 2012* provides a strategic planning framework for the development of a quality environment for all types of bicycle riding. Proposals to construct new facilities that are not currently included within the plan will be assessed on their merits.

Part 9 Public open space

Objectives

O.1	To provide public open space/parkland for outdoor recreational and social activities.
O.2	To landscape public open space so that it contributes to the visual amenity, usability and environmental health of the neighbourhood.
O.3	To provide grassed and soft landscaped areas for absorption of stormwater.

S.1	Public open space/parkland or contributions for such must be provided in accordance with Council's Development Contributions Plan.
S.2	For subdivisions of 20 or more lots, public open space provisions must be made.
S.3	Where dedication of land for public open space/parkland is required, a Site/Landscape Plan must be submitted that addresses: a) street reserves, carriageways, parking bays, footpaths, cycleways and street and park

lighting on or adjacent to the proposed dedicated site;

b) existing vegetation and proposed general character of tree planting and landscaping (including proposed species);

c) existing rare or significant vegetation, natural habitats and features (eg creeks) which are to be retained, enhances or otherwise affected;

d) general arrangement of hard landscaping elements and major earth cuts, fills and mounding;

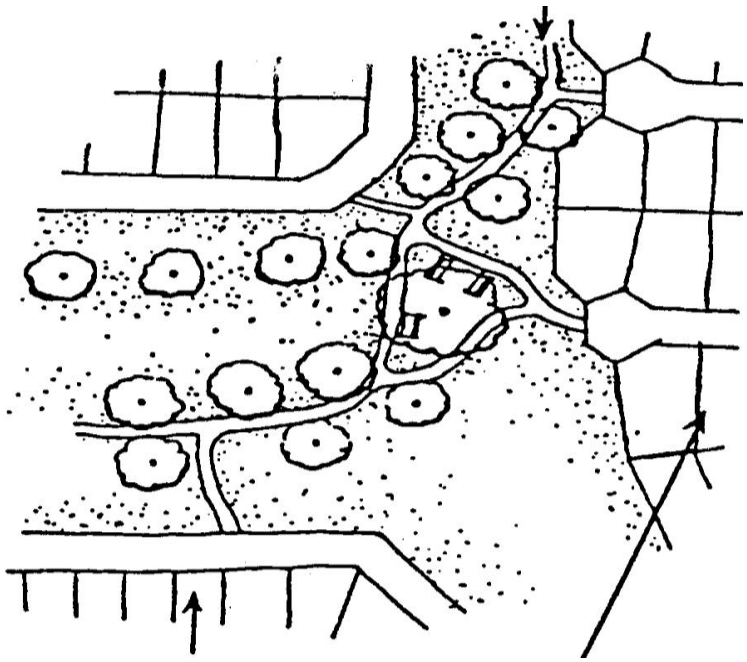
e) indicative treatment of any drainage systems, along with general information on fencing, access points and furniture.

S.4 Parks must outline a clear relationship between public open space and adjoining land uses by using treatments including fencing and landscaping to define boundaries.

S.5 Continual lengths of solid fencing along open space areas should be avoided for security, surveillance, aesthetic and maintenance reasons.

S.6 Parks must include provision for lighting in accordance with *Australian Standard 1158.1*.

Minimise the number of lots/dwellings backing onto open space to improve surveillance of open space and its users.	*Open space may form part of pedestrian network connecting adjacent areas.*



Lots fronting open space across street.	*Lots siding open space can have dwellings designed to address both the street and the park.*

Figure 3 – Public open space design

Part 10 Public land

For the purpose of this clause, public land may include areas of public open space, riparian reserves, pedestrian access corridors or the like, but does not include formed public roads.

Objectives

O.1 To ensure public land retains its amenity and is maintained for its intended use.

O.2 To provide for the fair and orderly use of public land.

10.1 Access to public land

S.1 Direct vehicular access shall not be permitted from any significant development or newly

	created allotments on to areas of public land. Any significant development that has a common boundary with public land shall include a 'restriction to user' over the subject land prohibiting vehicular access to the public land.
10.2	**Development adjoining public land**
S.2	Proposed developments adjoining or adjacent to areas of public land shall seek to minimise the number of lots/dwellings backing on to the public land.
S.3	Significant development proposals that adjoin, or create new allotments that adjoin areas of public land, shall include details of the proposed treatment of the common boundary (e.g. timber fencing 1800mm high, landscaping) to establish a clear relationship between the public land and the adjoining land use.
10.3	**Fencing and landscaping of public land**
S.4	Any fencing provided in connection with significant development along a common boundary with public land shall: a) avoid continual lengths of solid fencing along the public land frontage for surveillance and aesthetic purposes; and b) create a consistent appearance when viewed from the adjacent area of public land.
S.5	Additional landscape planting may be required within the area of public land to minimise visual impacts of a development. Details of the visual appearance of the development when viewed from adjacent public land, and details of any screen plantings, shall be included in any significant development proposal.
S.6	Fencing and landscaping proposed under this clause shall be established prior to issuing of a Subdivision Certificate/Occupation Certificate. A bond shall be paid to Council in respect to any additional landscaping to ensure its satisfactory establishment and maintenance for a period of not less than 12 months. The amount of any such bond shall be determined in relation to the extent and nature of landscaping provided.
S.7	Any significant development proposing fencing under this clause shall include a caveat over the subject lot requiring future replacement of fencing to be consistent (in terms of colour, materials and style) with that provided in the original development.
Part 11	**Utility infrastructure**
Objectives	
O.1	To ensure that land within Council's Development Servicing Plan for Water and Sewerage is provided with services in accordance with that Plan.
O.2	To ensure that all development has an adequate water supply to meet domestic and commercial use and fire fighting purposes.
O.3	To ensure that satisfactory provision is made for the safe and nuisance free disposal of effluent.
O.4	To ensure the design and construction of infrastructure services are provided to the standards outlined in the Council's Engineering Code; the relevant servicing authorities; and other relevant management plans and policies.
O.5	To ensure that the design and provision of utility services are cost effective and create minimal environmental impact over their life cycle.
O.6	To ensure that the location of services/future services minimise the use of land, are accessible for future repair work, and are positioned to protect future occupants health.
O.7	To ensure lots that are greater than twice the minimum lot size will have access to adequate

	infrastructure to service future subdivision of land.
O.8	To ensure that an adequate electricity supply is available for the intended use.
11.1	**Infrastructure servicing for staged subdivision**
S.1	Where development is staged, Council must authorise that each stage is fully serviced before any new area is released.
11.2	**Common trenching and buffers for utility infrastructure**
S.2	Compatible public utility services should be located in common trenching in order to minimise the costs and the land required for underground services.
S.3	Adequate buffers are to be maintained between utilities trenching and existing buildings to protect occupants amenity and health.
S.4	The lot size and shape design must allow for the location of services/future services in a position that minimises use of land, is accessible for future maintenance, and is positioned to protect the health of future occupants.
11.3	**Water supply**
Servicing Authority: Armidale Dumaresq Council	
S.5	Each allotment created by subdivision of land within the 'Water DSP Development Area' in Council's Development Servicing Plan for Water and Sewerage must be provided with a connection to Council's reticulated water supply.
S.6	Water supply is to be designed to the standards specified in Council's Engineering Code.
S.7	For new subdivisions, a reticulated potable water supply system is to be provided from Council's mains. This supply and all connections must meet the minimum standards for both domestic supply and fire fighting purposes.
S.8	Water systems must be designed to be easily accessible and maintained.
11.4	**Sewerage system requirements in the R1 and R2 zones**
Servicing Authority: Armidale Dumaresq Council	
S.9	Each allotment created by subdivision of land within the 'Sewer DSP Development Area' in Council's Development Servicing Plan for Water and Sewerage must be provided with a connection to Council's reticulated sewerage system.
S.10	Sewerage reticulation is to be designed to the standards in Council's Engineering Code.
S.11	Sewerage systems must be designed to be easily accessible and maintained.
S.12	A sewerage reticulation system is to be designed to allow the whole of each new allotment to be serviced by gravity drainage.
S.13	The public sewer main is to be extended to each individual allotment.
11.5	**Sewerage system requirements in the R5 zone**
Servicing Authority: Armidale Dumaresq Council	
S.14	In the R5 zone, where the size of the lots to be created by subdivision of land within the 'Sewer DSP Development Area' in Council's Development Servicing Plan for Water and Sewerage is less than 2 hectares, the lot must connect to Council's reticulated sewerage system.
S.15	Each allotment created by subdivision of land within the 'Sewer DSP Development Area' in

	Council's Development Servicing Plan for Water and Sewerage that is greater than 75 metres from an existing sewer main must be provided with a connection to Council's reticulated sewerage system, except where the applicant can justify, to Council's satisfaction, that connection to Council's sewerage system is not required based on the criteria below: a) The proposed on-site sewerage management system(s) must be able to demonstrate that it can satisfy Council's Policy POL 225 – Regulatory: Local Approvals Policy - On-site Waste Water Systems. b) The case for on-site waste management is consistent with the type and scale of the development relative to its proximity to the existing reticulated sewerage system. c) The sequence of infrastructure provision identified under the Servicing Plan relative to the proposed development. d) The case for on-site waste management considers potential future development of nearby land, including type and timing of development(s). e) A case for on-site waste management is consistent with and accounts for future development on the subject land with respect to the area of the land parcels, type of development and sensitivity of the environment. f) The economic feasibility of connection to Council's sewer compared to providing an on-site sewerage management system. A cost benefit analysis is to be submitted, including the total cost to install, run and maintain an on-site system compared to the cost of connecting to the sewer over a substantial period being 20 years.
S.16	On all other land on-site effluent disposal is acceptable. It must be demonstrated that each lot created by the subdivision will be suitable for on-site effluent disposal in accordance with this Council's Policy POL 225 – Regulatory: Local Approvals Policy - On-site Waste Water Systems.
S.17	Where connection to the sewerage reticulation is required, it must be designed to the standards in Council's Engineering Code, and allow the whole of each new allotment to be serviced by gravity drainage.
S.18	Sewerage systems must be designed to be easily accessible and maintained.
S.19	A sewerage reticulation system is to be designed to allow the whole of each new allotment to be serviced by gravity drainage.
S.20	The public sewer main is to be extended to each individual allotment.
11.6	**Stormwater drainage**
S.21	Stormwater drainage systems are to be designed in accordance with Chapter 2.7 Floodplain Protection and Stormwater Drainage.
11.7	**Electricity supply**
S.22	Electricity supply requirements are outlined in Chapter 2.1 Site Analysis.
Part 12	**Earthworks**
S.1	Where earthworks are required, including excavation, fill, retaining walls, batters and geotechnical investigations (including soil, slip and spring activity), the relevant provisions in *LEP 2012* Clause 6.1 Earthworks and Chapter 2.6 – Earthworks and Geotechnical Assessment must be applied.

Part 13 Strata and community subdivision (subdivision of buildings)

Objectives

O.1 To allow separate titles to be created for parts of a building.

O.2 To provide for effective and efficient management of common or shared facilities.

13.1 Suggestions for managing body corporate activities

Suggested Solutions:

- Create separate sites for each dwelling with their own public street frontage.
- Limit communal land to driveways and utilities areas only.
- Design dwellings to minimise the need for corporate building management.
- Ensure that communal open space or shared facilities are designed to be cost effective to maintain and service.

13.2 Building standards

S.2 Strata subdivision of an existing building may require the building to be upgraded to comply with the provisions of the Building Code of Australia (BCA).

13.3 Definition of public, communal and private areas

S.3 Private open space areas are to be attached to a specific dwelling unit.

S.4 Private open space areas are to be clearly defined.

S.5 Communal spaces are to be accessible to all residents of the strata building.

13.4 Car parking spaces

S.6 Car parking spaces must be assigned to a specific dwelling.

S.7 Visitor car parking spaces are to be maintained as common property.

S.8 Visitor car parking spaces are to be signposted as such.

13.5 Utility service meters

S.9 A separate water meter, or a private sub meter may be required for each strata unit/dwelling.

S.10 For new construction, sewer connections must comply with the requirements of Clause 162 of the Local Government (General) Regulation 2005.

S.11 Where there is a large amount of common property, including gardens and landscaped areas, swimming pools and the like, separate metering is to be provided for the common area.

S.12 A separate electricity meter is to be provided for each strata unit/dwelling.

13.6 Issuing a Subdivision Certificate for strata subdivision

S.13 Before a Subdivision Certificate on the relevant title plan is issued, either:

a) a Construction Certificate must be issued for the proposed building and work completed to the point where the boundaries can be defined by survey; or,

b) in the case of subdivision of an existing building, a Building Certificate may be required to ensure compliance with the relevant building standards.

What is Solar Access?

Solar access is a measure of how much solar energy (sunshine) is available to assist with the heating of a building.

In winter, north facing windows gain more heat from the sun than they lose. In summer they have the advantage of being able to be easily shaded. By ensuring the windows to heated parts of the house face north you can benefit from free solar heating which reduces your energy bills and helps to save the environment. If the sun can not shine on these north windows due to overshadowing (eg. by surrounding buildings) then the free solar heating is lost.

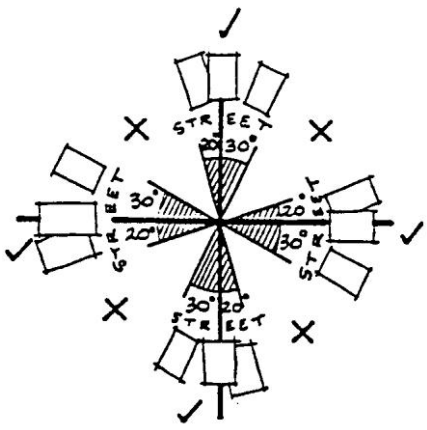
Subdividing for Solar Access

This brochure provides information about how to design subdivisions to minimize houses overshadowing each others north windows. It incorporates information on:

- how to maximize solar access through the careful design of the orientation and size of house lots;
- how to site each house to ensure that it has solar access; and
- how to measure solar access on a scale from 1 to 5 stars.

Design Guidelines for Solar Access

To maximize solar access the design of residential subdivisions should be based on the following principles:



1. Street layout

Align streets east-west and north-south wherever possible.

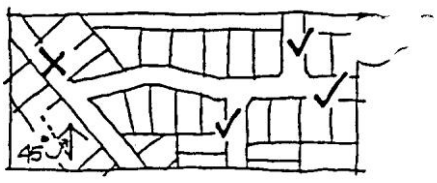
Aim for north-south streets within 20° west and 30° east of true north.

Aim for east-west streets within 30° south and 20° north of true east.

2. Land uses and densities

Concentrate smaller lots on north slopes or adjacent to lightly treed open space.

Locate larger lots, non-residential uses or public open space where solar access is poor.



3. Laying out the lots (see diagrams page 21 and 22)

Lot shape and orientation

Where streets are within the acceptable orientation range

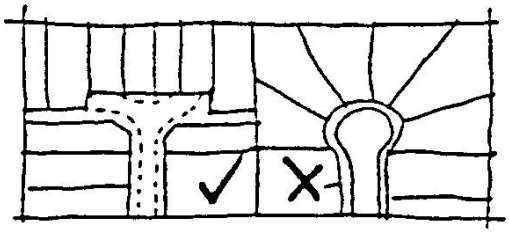
use rectangular lots.

Locate as many long lot boundaries as possible within the permissible orientation range.

Where the street is not within the orientation range use skewed lots.

Use the Solar Lot Width Guidelines

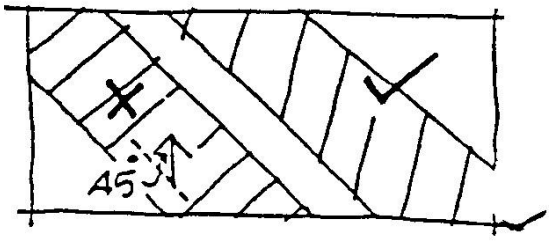
Select the appropriate lot width from the tables 1 and 2 on page 18 & 19.



Show the setback on the lot plan

Help builders, designers and home buyers to make best use of the sun by showing the preferred setback line for each lot on the subdivision plan.

Street orientation, lot width and rating



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 car access.

East-west lots need to be wider unless two storey construction is to be restricted.

East-west lots can be narrower if there is road or open space to the north (eg. a corner lot).

Adjust the Lot Rating to Reflect the Impact of the Slope

Lots on south facing slopes need more open space to the north to protect solar access while lots on north facing slopes need less open space (see diagram page 20).

Additional Controls

Where narrow lot widths are involved limiting the height of buildings relative to the south boundaries provides additional protection of solar access.

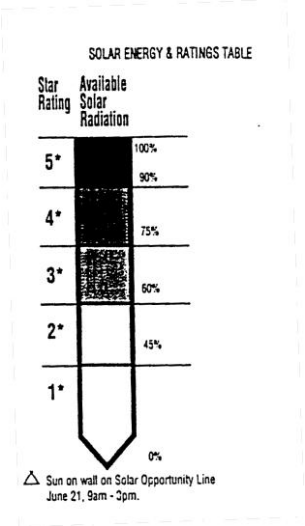
Matching the House to the Lot

An energy efficient house can still be build on a lot with poor solar access. By raising window sill heights or using clerestory windows actual overshadowing of windows can be minimized. Where solar access is limited insulate to higher levels, minimize air leakage, and keep glass areas to moderate sizes.

Rating Solar Access

Solar Access Star Ratings

The Solar Access 5 star rating provides a measure of the amount of solar radiation available to assist in the heating of a house. The adjacent chart shows the rating thresholds as a percent of the solar radiation which would enter a house through north windows with no overshadowing.



Applicability of the rating

The rating system only applies to separate lots which are 200-1000m² in area. For smaller lots solar access must be more closely integrated with building design and siting. Lots larger than 1000m² have a greater opportunity to achieve good solar access, however, building should be set back the required amount from the north boundary.

Various lots receive only a 1 star rating. These are:

Lots with all their long boundaries outside the permissible orientation range. This may not stop the house being correctly oriented; however, as most houses are built parallel to boundaries clear guidelines would be needed. If mandatory house siting rules were attached to the lot it could then be rated according to setback as shown in Figure 1 on page 20.

Lots with a slope of 20% or more (1:5). Such lots should be avoided through better subdivision layout and are therefore only given a 1 star rating.

Determining Lot Orientation

The tables 1 & 2 show how lot rating depends on the lots predominant orientation and width. This orientation is determined by the bearing of the longer boundaries on the lot, and general orientation of the lot to the street. (see also diagrams page 21.).

East/West: Bearing long side within 250° and 300°, street on east or west side

North: Bearing of one long side within 340° and 30°, street on southern side.

South: Bearing of one long side within 340° and 30°, street on northern side, note that greater lot widths are to allow for car access to north.

Lot Width

Lot width is measured at right angles to the long boundary of the lot which falls within the acceptable orientation range. For east/west facing lots the required lot width is determined by taking into account:

- the minimum setback of buildings sited to the north,
- the distance between buildings required to achieve the rated solar access, and
- an allowance for a minimum building width and setback from the south boundary of the lot.

For north/south lots the required lot width is determined by taking into account:

- the amount of northern facing wall available for north facing windows, and
- the distance required between buildings to the east and the west to minimize their overshadowing of northern windows and to achieve the rated solar access.

Determining the Star Rating

Lots are rated on their ability to accommodate a house with good solar access. The width of the lot is an indicator of its ability to provide sufficient open space to the north of the house to ensure that surrounding buildings will not block out the sun. The table below shows the minimum lot width required to achieve the various star ratings depending on the orientation of the street frontage.

Table 1 – Use this table if two storey houses are allowed on lots to the north

Lot Orientation	**Lot width (metres) and Star Rating**	
	★★★★★	★★★★
East/West	>16.3	16.2-15.0
North	>12.9	12.9-11.0
South	>14.9	14.9-13.0

The effect of limiting building height

If buildings to the north are less than two storeys lot width may be reduced. The table below shows rated lot widths assuming the height of buildings on the lot to the north are limited as shown in the diagram opposite. Note that the Armidale Dumaresq Council will not allow a rating based on Table 2 unless conditions are to be placed on the property titles to limit building height.

Heigh limits assumed for table 2

Table 2 – Use this table with height restriction on lots to the north

Lot Orientation	Lot width (metres) and Star Rating	
	★★★★★	★★★★
East/West	>12.1	12.0-11.0
North	>12.4	12.4-10.5
South	>14.4	14.4-12.5

Allowing for Easements, Public Open Space and Road Reserves

Where there is guaranteed open space to the north of the lot, the lot width and required setback (shown in Figure 1) may be reduced accordingly. For example if the lot to the north has a 3m easement on its south boundary the lot width and setback may be reduced by 2.1m, as a 0.9m setback has already been assumed.

Siting Your House to Achieve Solar Access

Setback from the North Boundary

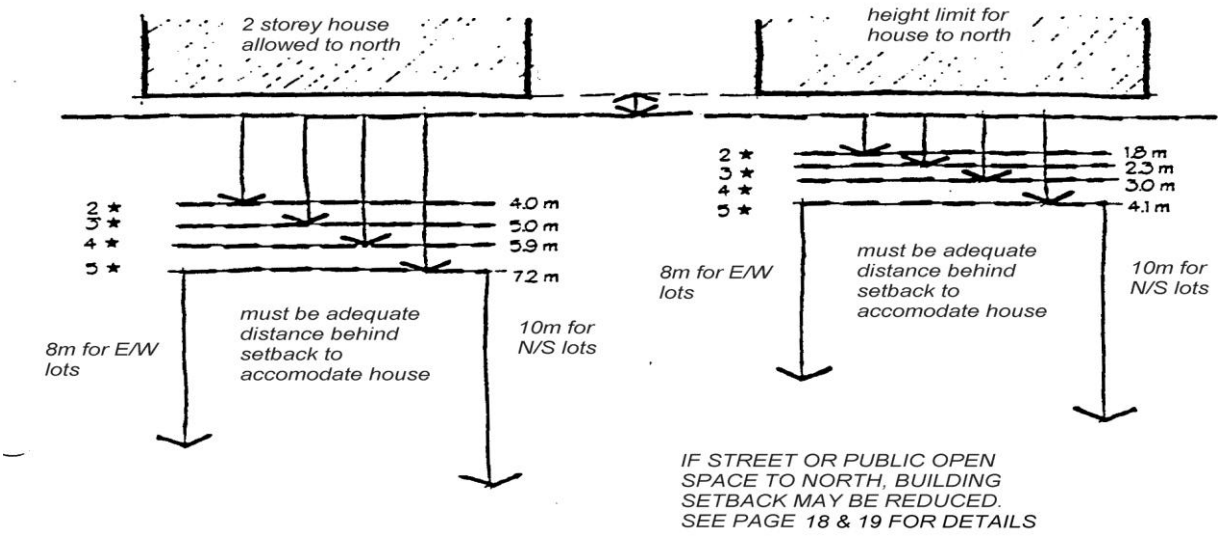
Having sufficient lot width alone will not guarantee solar access. A house must be sited so that it's north facing windows are sufficiently set back from the north boundary of the lot to ensure they will not be overshadowed by surrounding houses. The diagrams on the next page show the setbacks required to achieve solar access potential at each star rating given the height of buildings to the north. The minimum building size and setback of adjacent buildings and the minimum building dimensions assumed in the lot width tables are as shown.

Showing Setback Lines on Subdivision Plans

Subdivision plans shall show the setback line for the maximum rating obtainable given the building height on lots to the north, the after allowance for the minimum building width and setback from the south boundary. Note that only those heated areas of the house need be setback to this line.

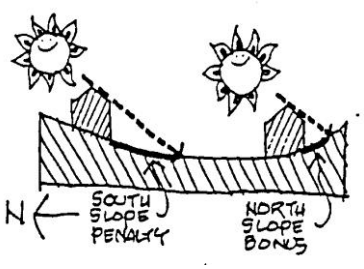
Figure 1

Building setback from south boundaries required to achieve various star ratings



What About Slope?

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.



Slope table adjustments to lot width (metres)

Rating	**5<10%**	**10<15%**	**15<20%**
	(1:20, 1:10)	**(1:10, 1:6.7)**	**(1:6.7, 1:5)**
★★★★★	±1.2	±2.0	±2.5
★★★★	±0.8	±1.5	±1.8
★★★	±0.8	±1.2	±1.5

East/west slopes reduce the amount of solar radiation available to north windows in the morning and afternoon. As the radiation is much less at these times such slopes are ignored. Note that with extreme east/west slopes this may not be true and detailed calculation would be required to determine actual solar access.

Height of Windows Above Ground

The information on setbacks and lot widths required to maintain solar access in these guidelines assume that the window sill is positioned at ground floor level. Overshadowing is greater on the portions of the window closest to the ground. The Solar Access of the house can be improved on poorly rated lots by raising the sill level to eliminate the most overshadowed sections of the windows. Clerestory windows and upper floor windows can be rated on the basis of single storey construction to the north where two storey construction is allowed on the lot to the north.

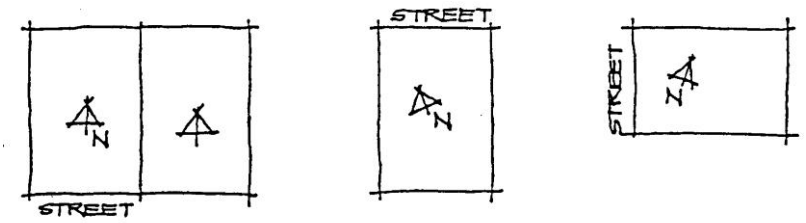
How to Use the System

NORTH-SOUTH LOT NORTH SIDE OF STREET

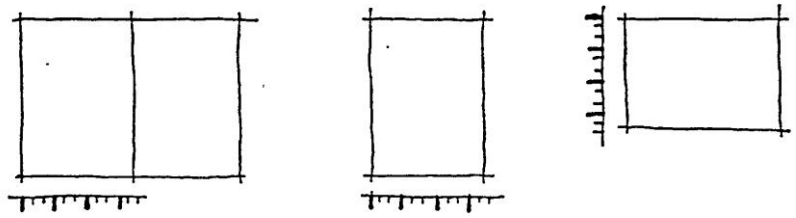
NORTH SOUTH LOT SOUTH SIDE OF STREET

EAST WEST LOT

1. Check that long boundary is within permissible orientation (P.1)

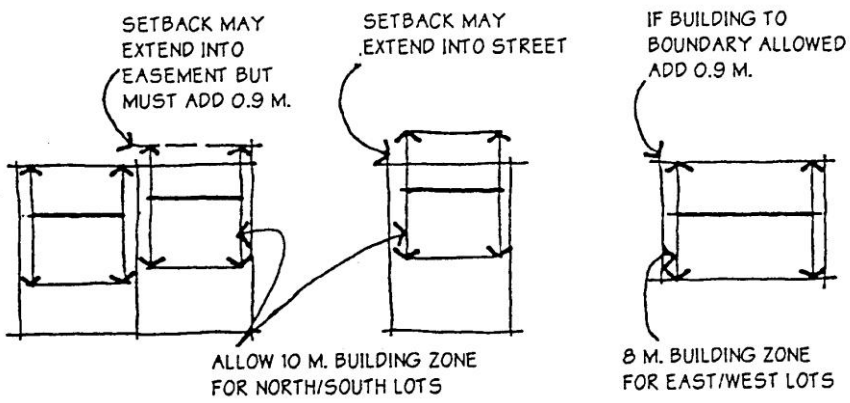


2. Measure lot width and determine rating (Table 1)

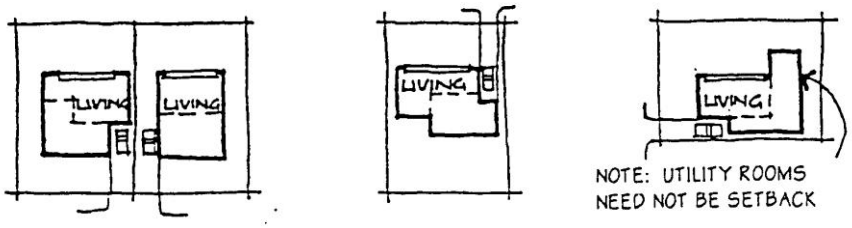


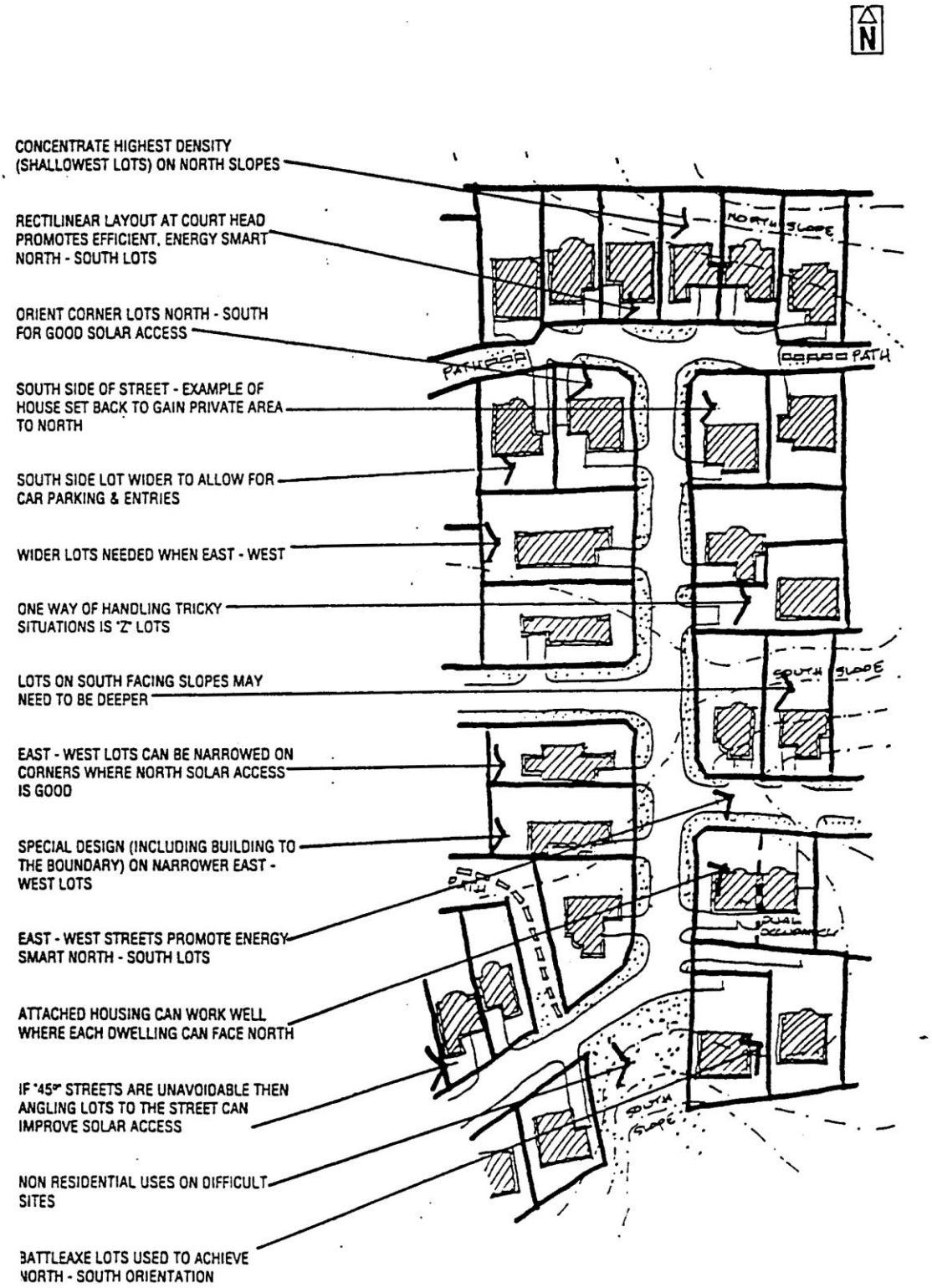
3. If desired, modify lot width or use height limit on lot to the north (Table 2) to improve rating

4. Show the setback required to achieve the rating on the plan of subdivision.



5. The setback can then be used as a starting point to siting and selection an energy efficient house.




N
CONCENTRATE HIGHEST DENSITY (SHALLOWEST LOTS) ON NORTH SLOPES
RECTILINEAR LAYOUT AT COURT HEAD PROMOTES EFFICIENT, ENERGY SMART NORTH - SOUTH LOTS
ORIENT CORNER LOTS NORTH - SOUTH FOR GOOD SOLAR ACCESS
SOUTH SIDE OF STREET - EXAMPLE OF HOUSE SET BACK TO GAIN PRIVATE AREA TO NORTH
SOUTH SIDE LOT WIDER TO ALLOW FOR CAR PARKING & ENTRIES
WIDER LOTS NEEDED WHEN EAST - WEST
ONE WAY OF HANDLING TRICKY SITUATIONS IS "Z" LOTS
LOTS ON SOUTH FACING SLOPES MAY NEED TO BE DEEPER
EAST - WEST LOTS CAN BE NARROWED ON CORNERS WHERE NORTH SOLAR ACCESS IS GOOD
SPECIAL DESIGN (INCLUDING BUILDING TO THE BOUNDARY) ON NARROWER EAST - WEST LOTS
EAST - WEST STREETS PROMOTE ENERGY SMART NORTH - SOUTH LOTS
ATTACHED HOUSING CAN WORK WELL WHERE EACH DWELLING CAN FACE NORTH
IF "45°" STREETS ARE UNAVOIDABLE THEN ANGLING LOTS TO THE STREET CAN IMPROVE SOLAR ACCESS
NON RESIDENTIAL USES ON DIFFICULT SITES
BATTLEAXE LOTS USED TO ACHIEVE NORTH - SOUTH ORIENTATION
NORTH SLOPE
SOUTH SLOPE
SOUTH SLOPE