

TABLE OF CONTENTS:

1	INTRODUCTION.....	2
2	SUBDIVISION DESIGN AND APPLICATION PROCESS.....	3
3	PHASE 1 – SITE ANALYSIS	5
4	PHASE 2 – STRUCTURE PLANS AND WATER CYCLE (STORMWATER) STRATEGY	8
5	RESIDENTIAL SUBDIVISION AND ENERGY EFFICIENCY STAR RATING FOR LOTS	16
5.1	WHAT IS SOLAR ACCESS?	16
5.2	SUBDIVIDING FOR SOLAR ACCESS	16
5.3	DESIGN GUIDELINES FOR SOLAR ACCESS	16
5.3.1	Street layout.....	16
5.3.2	Land uses and densities	16
5.3.3	Lot layout.....	16
5.4	RATING SOLAR ACCESS	17
5.4.1	Solar Access Star Ratings	17
5.4.2	Applicability of the rating	17
5.5	STEPS FOR DETERMINING LOT STAR RATING	17

FIGURES:

FIGURE 1 -	FLOW CHART – DESIGN PROCESS.....	4
FIGURE 2 -	PHASE 1 – SITE ANALYSIS PLAN EXAMPLE.....	7
FIGURE 3 -	PHASE TWO – STRUCTURE PLAN EXAMPLE.....	10
FIGURE 4 -	BUILDING SETBACK FROM NORTH BOUNDARIES REQUIRED TO ACHIEVE VARIOUS STAR RATINGS	20
FIGURE 5 -	REDUCTION IN SETBACK ALLOWED – COASTAL ZONE.....	21
FIGURE 6 -	REDUCTION IN SETBACK ALLOWED – INLAND ZONE	21
FIGURE 7 -	EXAMPLE OF HOW TO USE THE SYSTEM.....	22

TABLES:

TABLE 1 -	DETERMINING THE STAR RATING	18
TABLE 2 -	DETERMINING THE STAR RATING (DWELLINGS TO THE NORTH ONE STOREY HIGH).....	19
TABLE 3 -	SLOPE ADJUSTMENTS TO LOT WIDTH (METRES).....	20

1 INTRODUCTION

This guideline is divided into two parts:

1. Subdivision design and application process, and
2. Residential subdivision and energy efficiency star rating for lots.

Part 1 provides further detailed information on the studies and reports to be prepared during the subdivision design process. The design process is divided into six phases. The requirements of each phase are detailed below. Part 1 also outlines the subdivision application process to be followed by proponents when considering subdivision of land.

Part 2 provides further information and guidance on the design of residential subdivision to ensure lots meet a 5 star energy efficiency rating.

2 SUBDIVISION DESIGN AND APPLICATION PROCESS

Council's Development Control Plan (DCP) promotes the use of a design process when preparing proposals for the subdivision of land.

The design process is described below and is provided to explain the requirements of this section of the DCP.

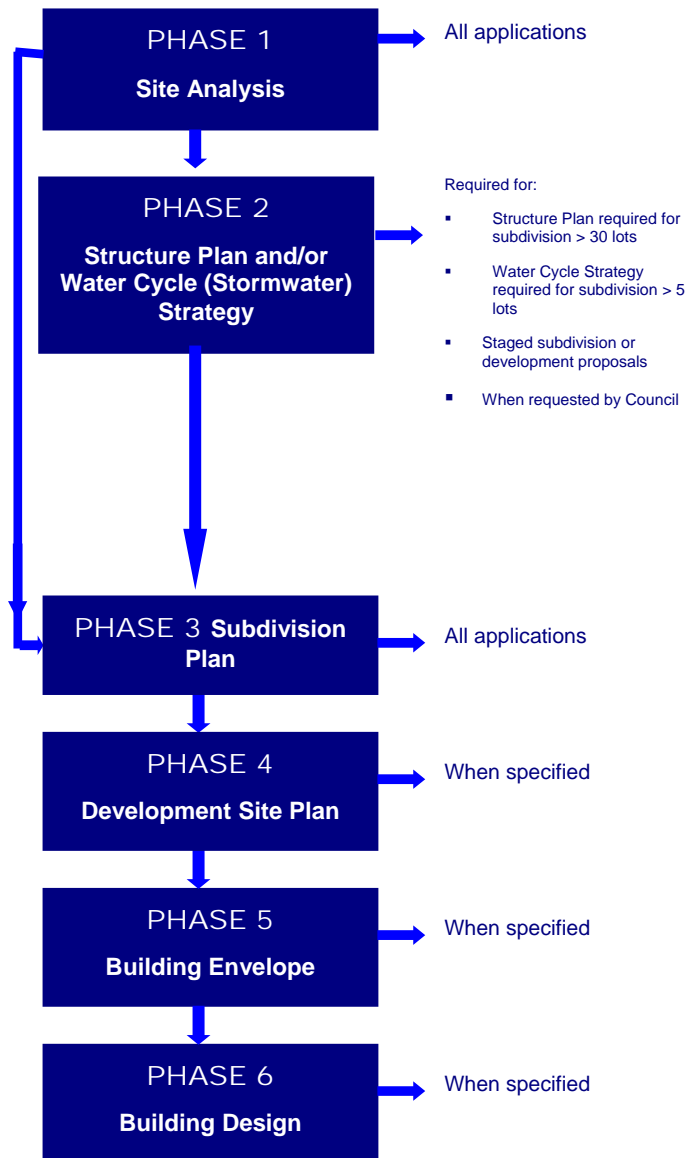
Design Process

Flow Chart 1 describes the various phases of the Subdivision Design Process promoted by this DCP and each step is explained in further detail following the flow chart.

Application process

The Application Process for the subdivision of land is detailed in the *Environmental Planning & Assessment Act (EP&A Act) 1979*.

Figure 1 - Flow Chart – Design Process



3 PHASE 1 – SITE ANALYSIS

Site Analysis is the first phase in the subdivision design process and should include preparation of a graphical plan or a series of thematic plans, supported by a report that describes the opportunities and constraints associated with the site and surrounding land.

A Site Analysis Report and Plan/s is the end-product of synthesising the investigation undertaken.

Checklist: Site Analysis Information Requirements

Submit four (4) copies of the Site Analysis Report and Plan/s with the Subdivision Development Application. The report may form a component of the resulting Statement of Environmental Effects.

Matters detailed in the Site Analysis include, but are not limited to:

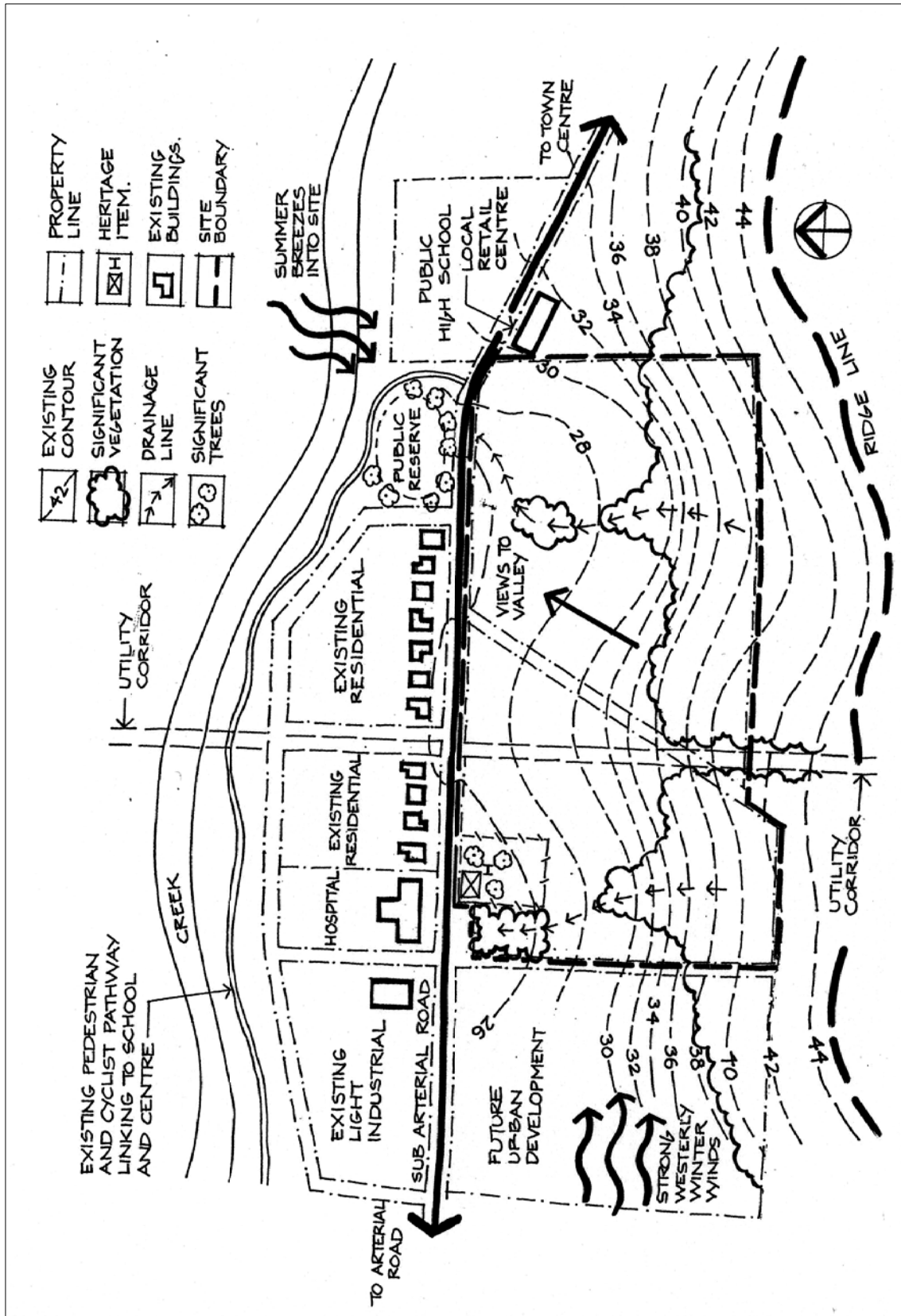
- A North point.
- The real property description of the land.
- Site size and dimensions.
- A site location plan.
- Description of present and past land uses.
- Contours at 1 metre intervals. Where the site is less than 1000m² illustrate contours at 0.5m intervals.
- Slope analysis, which illustrates land that is 1 in 5 or steeper, 1 in 5 to 1 in 10, 1 in 10 to 1 in 20, and less steep than 1 in 20. This information will vary in detail depending on the site.
- Identification of flood-prone land at 1 in 1, 1 in 5 and 1 in 100 year ARI. **(These levels must also include, where applicable, the impact of sea level rise / climate change)**
- Bushfire prone areas.
- Identification of any land contaminants present on the site.
- Identification of any acid sulphate soils present on the site.
- Existing water bodies, wetlands or waterways (permanent or intermittent).
- Land containing elements of the Green System, as illustrated in *Lifestyle 2030 Strategy – Green System Map*.
- Land containing significant ecological species, communities and habitats or ecological corridors.
- Significant trees, including those contained in the Significant Tree Register. Refer to Council's [Tree Preservation Guidelines \(2013\)](#).
- Location, width and purpose of all existing easements / encumbrances (including right of ways).
- Land containing a Heritage Item or Area whether Indigenous, other than Indigenous (European) or Natural as identified in Council's Local Environmental Plan (LEP).
- Land that has significant topographic, landscape or scenic interest and exhibit one or more of the following characteristics:
 - Is important to the scenic quality of the City. Refer to *Scenic Management Guidelines (2013)*. Consideration should be given to the Objectives and Strategies detailed in that document.
 - Visually screens inharmonious, intrusive or unattractive development and movement corridors.
 - Establishes the scenic character and identity of the area because it contains:
 - A rare or uncommon landscape.
 - A good representative example of natural landscape types common in the local area.
 - Part of an escarpment or other slope steeper than 1:5 and is unsuitable for urban development because of potential instability, erosion or other hazards.

Checklist: Site Analysis Information Requirements

- Land or structures that:
 - Are important in demonstrating the evolution or pattern of the City's history. (See Part 10 – Area Plans)
 - Demonstrate important aspects of the City's cultural heritage.
- Existing building(s), fences and other improvements to the land.

The above list, is not intended to be exhaustive. The attributes and issues relating to the site will determine the extent of information necessary for the preparation of a Site Analysis Report and Plan/s.

Figure 2 - Phase 1 - Site Analysis Plan example



4 PHASE 2 – STRUCTURE PLANS AND WATER CYCLE (STORMWATER) STRATEGY

Structure Plan

In most cases, a **Structure Plan** is prepared as a precursor to Subdivision Plans and is a required component of applications for:

1. Subdivision resulting in more than 30 lots in any zone,
2. Staged subdivision,
3. Subdivision on sites larger than 3ha in any zone.

A Structure Plan establishes a framework to guide the development of the site and to integrate the proposal with existing or potential surrounding development. The Structure Plan provides a comprehensive approach for the subdivision and/or future development of land and identifies (among other elements):

- Higher order road networks,
- Open space networks,
- Community facilities,
- Services and infrastructure,
- Environmental conservation measures,
- Pedestrian / cyclist links, and
- Mix of land use types.

Land identified in the Site Analysis as having environmental or scenic constraints should be identified in the Structure Plan. In some cases, it may be possible to develop part of a constrained site carefully and sensitively, for example, through lower development yields, or clustering of development.

Land that is constrained and unable to support development should also be identified on the Structure Plan.

Checklist: Structure Plan Information Requirements

Submit four (4) copies of the Structure Plan with the Subdivision Development Application. A Structure Plan should contain a degree of detail appropriate to the particular proposal and its circumstances. At a minimum, it should include a plan and statement that:

- Identifies the opportunities and constraints established through Site Analysis.
- Illustrates the location, mix and density of the range of proposed land uses.
- Illustrates how the proposal fits into the overall road hierarchy, supported by traffic assessment, if necessary.
- Demonstrates that consideration has been given to potential subdivision and development of adjoining land.
- Illustrates, where applicable, the approximate location and extent of on-site facilities such as community, retail, childcare and education, among others.
- Identifies existing nearby open space, community, retail, childcare and education facilities, among others.
- Illustrates the general location of public open space including open space linkages and networks within the site.
- Shows, where applicable, notional pedestrian/cycle network and links to internal and external land facilities adjoining neighbourhoods.
- Shows existing and proposed public transport networks and routes.
- Broadly shows physical infrastructure to be provided.
- Illustrates the initial concept for staging of the development.

Checklist: Structure Plan Information Requirements
<ul style="list-style-type: none">• Demonstrates that consideration has been given to all relevant environmental issues, including those pertaining to any short-term and cumulative impacts on ecological, scenic and heritage values.

Relationship to Other Plans

Council's Local Environmental Plan and any relevant Area Plan contained in this DCP should be considered when preparing a Structure Plan.

Where there is no Area Plan, development should be designed to integrate with existing land uses and open space, road, service and infrastructure networks.

To ensure Council considers the Structure Plan for future development of a site, it may adopt a Structure Plan by:

1. Preparing on its own initiative or in partnership with others a Structure Plan that is incorporated into this DCP in the form of an Area Plan, or
2. Granting consent to a Subdivision Development Application that incorporates a Structure Plan, or
3. Advancing a Structure Plan, following approval of a Subdivision Development Application to the status of an Area Plan and its subsequent incorporation into this DCP.

Staged Subdivision

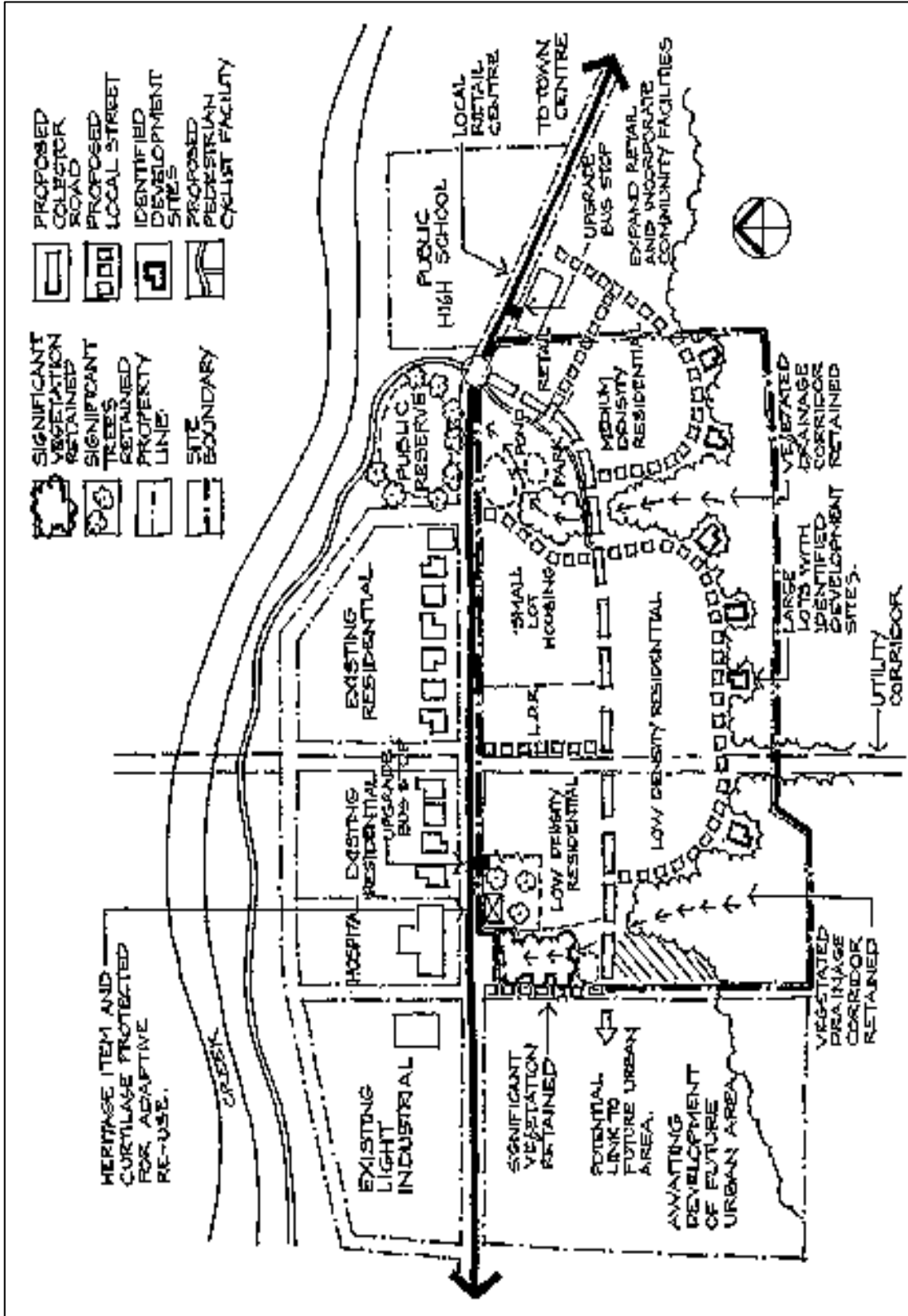
For staged subdivision, the Structure plan will act as a measure by which subsequent Development Applications will be assessed.

Scope and Format of Structure Plans

A Structure Plan should be a conceptual plan and incorporate the major elements of the locality surrounding the development site. At the Structure Plan Phase, site development should be shown conceptually to allow flexibility, refinement and improvement, as detailed design considerations become known.

The scope of a Structure Plan should be tailored to match the scale and likely impact of the individual development, supported by the Water Cycle (Stormwater) Strategy and any additional technical information to support the rationale of the proposal adopted.

Figure 3 - Phase Two – Structure Plan example



Water Cycle (Stormwater) Strategy

In all cases, a **Water Cycle (Stormwater) Strategy** is prepared as a precursor to Subdivision Plans and is a required component of Applications for:

- Subdivision for more than 5 lots in any zone,
- Staged subdivision,
- Subdivision on sites larger than 1 hectare in any zone.

A Water Cycle Strategy details the systems, devices and techniques to be implemented as part of the development's water cycle management within the boundary of the site.

The Water Cycle Strategy should ensure these systems are compatible with the natural systems and form an integrated part of the proposed development.

The Water Cycle Strategy provides a comprehensive approach to water cycle management for the subdivision of land and identifies and responds to (among other elements):

- Watercourses (natural or modified whether constant or intermittent), creeks, floodplains, wetlands,
- The existing water balance, water quality and water quantity of the natural drainage system,
- Artificial stormwater flow paths that affect the development,
- Existing and proposed stormwater management measures, devices and techniques,
- Existing and proposed on site detention and retention ponds, wetlands and basins,
- The potential to integrate the ecological hydrological assets of the water cycle into the built environment.

Land identified in the Site Analysis as forming part of the site's natural drainage system should be retained, restored and incorporated into the Water Cycle Strategy for the development. The natural drainage system should form the spine of the open space or ecological corridor system within the subdivision.

The Water Cycle Strategy should implement treatment measures, devices and techniques at the development (street, allotment) and between the development and the natural drainage system.

Checklist: Water Cycle Strategy Information Requirements

Submit four (4) copies of the Water Cycle Strategy with the Subdivision Development Application. The Water Cycle Strategy should be a comprehensive document that contains a degree of detail appropriate to the particular proposal and its circumstances. At a minimum, it should include:

- Site conditions, catchment context and land capability.
- Details of the hydrological and ecological functions of the water systems and remnant native vegetation.
- The location of all stormwater flow paths and proposed water cycle management measures, including all on-site harvesting, re-use strategies, detention and retention areas. Note that subdivisions of 3 or more lots will, in most circumstances, require the provision of stormwater detention measures.
- Quantity and quality of all water flow.
- Strategies including measures, devices and techniques for managing water efficiency, water quality, discharge volumes and concentrations, flood protection and aquatic environments.

Checklist: Water Cycle Strategy Information Requirements

- Integrated water infrastructure systems.
- Layout and street design measures that minimise disturbance to natural water systems and incorporate source controls.
- Subdivision design that protects and integrates natural features that improve water quality and provide recreational and amenity opportunities.
- Proposed landscape practices that retain, restore and manage natural landscape features and water flows to reduce the demand for water, fertilisers and herbicides.
- Provision of tanks, infiltration devices and reuse techniques for on-site stormwater systems.
- Wastewater reuse and management.
- Erosion, sediment and pollution control.
- Management, maintenance and monitoring of water cycle measures, devices and techniques.

Phase 3 – Subdivision Plan

The Subdivision Plan is the third phase in the subdivision design process and is followed by Engineering Design Approval of construction plans.

The Subdivision Plan requires sufficient detail to allow Council to fully assess the Development Application. Where preliminary or additional construction specification information is required, it shall comply with the requirements of [Volume 2 Engineering Guidelines – Design Specifications](#) as modified from time to time.

The Subdivision Plan should be supported by a report that describes how the plan addresses the Site Analysis, Structure Plan and Water Cycle Strategy components of the Subdivision Design Process.

Checklist: Subdivision Plan Information Requirements

Submit four (4) copies of the Subdivision Plan and Statement of Environmental Effects with the Subdivision Development Application.

The Subdivision Plan should include a level of supporting information appropriate to the scale and complexity of the subdivision proposed. Following is a list of items that may be required to be shown on plan(s)

The subdivision plan must be consistent with a prepared Structure Plan and contain the following information:

- A North point.
- A date and drawing number of the plan.
- The name of the person / company who prepared the plan.
- The real property description of the land.
- A site location plan.
- The site area and dimensions of existing and proposed lots.
- The energy efficiency star rating for each lot.
- Contours at 1-metre intervals. Where the site is less than 1000m² provide contours at 0.5m intervals.

Checklist: Subdivision Plan Information Requirements

- Pre and post development, preliminary engineering long and cross sections at various locations across the site when the land:
 - Is steeper than 1 in 7 (15%), or
 - Where earthworks are expected to be greater than a combined cut and fill of 1 metre
- Trees, including habitat trees and vegetation to be retained and removed on the site.
- Site constraints eg; flooding, EEC's, threatened species and ecological corridors that may limit the land's subdividable area.

The following details should be shown to the extent relevant to the particular subdivision application:

- Details of subdivision stage boundaries, including the area of each stage, the number of lots and where residential development the mix of housing types and densities for each stage.
- Location and size of any significant natural or built features to be removed or retained on or adjoining the subject site.
- Flood levels.
- Existing and/or proposed water bodies, or waterways (permanent or intermittent).
- Development Site Plans and/or identify Building Areas where:
 - The slope of the site is steeper than 1 in 7 (15%).
 - The subdivision is proposed in a Rural and/or Environment Protection Zone.
 - The subdivision is proposed under the *Community Land Development Act 1989* and *Community Land Management Act 1989*.
 - The site is in a Bushfire Prone Area, identified in the *Lake Macquarie Bushfire Prone Area Maps*.
 - Otherwise requested by Council.
- Proposed open spaces, embellishments, recreational facilities and location of any existing parks and reserves abutting the land.
- Landscape documentation
- A range of detailed street sections, depending on the variety of road types within the development.
- Proposed water cycle management and sewage pumping stations.
- Proposed detention/retention areas and water cycle systems and reserves.
- Location and width of driveways on lots adjacent and opposite the site.
- Names, location and widths of rights of way, carriageways, and footpaths of adjacent and relevant roads (within 100 metres of the site).
- Services in the road reserve.
- Location and width of internal roads.
- Existing and proposed access restriction strips.

Checklist: Subdivision Plan Information Requirements

- Identification of roads where direct lot access is not permitted or the number of access points is restricted.
- Road truncations.
- Location and method of traffic speed control device requirements.
- Road widening.
- Type and treatment of proposed intersections.
- Location of proposed pedestrian and bike paths.
- Location of proposed footpaths that is based on a strategy of:
 - Internal and external desire lines
 - Existing footpaths, and
 - Road design
- Location of existing and proposed bus routes and stops.

The following additional information may be submitted to support the application:

- Details of consultation with any relevant public authorities
- Studies that demonstrate compliance with all relevant SEPPs, the *Council's Lifestyle Strategy*, Council's LEP, DCP and Area Plans.
- Details and findings of any additional consultations.

Phase 4 – Development Site Plan

Development Site Plans are required to ensure development will not be subject to unreasonable impacts or risks and achieves acceptable urban design and/or environmental outcomes.

A Development Site Plan identifies all development associated with the proposal, including clearing, bushfire hazard zones, infrastructure, drainage, building location and access. Any subsequent buildings, structures or activities will be required to locate within the nominated area as shown on the Development Site Plan.

Development Site Plans will be requested where:

- The proposal is within a Rural and/or Environmental Zone.
- Investigation identifies constraints associated with land in any other Land Use Zone.

These may include but are not limited to:

- Ecological Values
- Scenic Values
- Bushfire Risk
- Slope
- Soil Conditions
- Noise
- Odour or Air Pollutants

Phase 5 – Building Envelope

Subdivision proposals for Dual Occupancy, Multi Dwelling Housing and Residential Flat Buildings require a Building Envelope Plan. The Building Envelope Plan is a plan that illustrates:

- A building envelope on each lot illustrating the location of the side, rear (and/or built to the boundary) walls, and street setback.
- The number of storeys of each building.
- The variation in side and/or rear setbacks and built to the boundary or front setbacks for upper storey/s.
- The notional location of private outdoor areas for each lot.
- Restrictions to lot access where constrained by engineering or other considerations.

Phase 6 – Plan of Building Design

Subdivision proposals and applications for Dual Occupancy, Multi Dwelling Housing will only be approved following consideration of a Development Application for the Building Design. This is to ensure that the proposed subdivision and building are compatible. The Final Plan of subdivision (ie Subdivision Certificate) will not be released by the Council until the dwellings associated with the development have been completed to “lock up stage and landscaping and accesses have been completed.

5 RESIDENTIAL SUBDIVISION AND ENERGY EFFICIENCY STAR RATING FOR LOTS

Energy efficient subdivision of lots facilitate the construction of homes that, through their design, construction and choice of appliances, maximise use of renewable energy sources (such as sunshine), and use less energy and use that energy more efficiently.

5.1 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 heat from the sun thereby helping to heat the home. In Summer, they have the advantage of being able to be easily shaded to keep the house cool. By ensuring the windows to heated parts of the house face north, occupants can benefit from free solar heating which reduces energy bills and helps the environment. If the sun cannot shine on these north windows due to overshadowing (eg. surrounding buildings) then the free solar heating is lost.

5.2 SUBDIVIDING FOR SOLAR ACCESS

This guideline provides information about how to design residential subdivisions to minimise the overshadowing of neighbouring north windows. It incorporates information on:

- How to maximise 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.

5.3 DESIGN GUIDELINES FOR SOLAR ACCESS

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

5.3.1 STREET LAYOUT

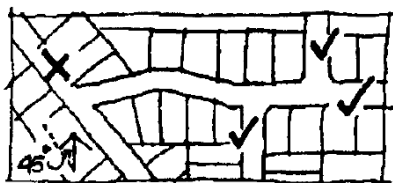
- Align streets east-west and north-south wherever possible.
- Aim for north south streets within 20° west and 30° east of true north.
- Aim for east-west streets within 30° south and 20° north of true east.

5.3.2 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.

5.3.3 LOT LAYOUT

- **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 Tables 1 and 2.

- **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 ratings 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 Table 3).

- **Heights of adjacent buildings**

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 built on a lot with poor solar access. By raising window sill heights or using clerestory windows actual overshadowing of windows can be minimised. Where solar access is limited insulate to higher levels, minimise air leakage, and keep glass areas to moderate sizes.

5.4 RATING SOLAR ACCESS

5.4.1 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.

5.4.2 APPLICABILITY OF THE RATING

This rating system only applies to separate lots which are 300-1000m² in area. For smaller lots solar access must more closely integrate with building design and siting. Lots larger than 1000m² have a greater opportunity to achieve good solar access, however, buildings should still be set back the recommended distance 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, in order to achieve good solar access, clear guidelines for house siting will need to be provided.
- 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.

5.5 STEPS FOR DETERMINING LOT STAR RATING

Step 1 Determining Lot Orientation and Lot Width

Tables 1 and 2 below show how lot rating depends on the lot's predominant orientation and width. This orientation is determined by the bearing of the longer boundaries on the lot, and the general orientation of the lot to the street (see also Figure 2).

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 minimise their overshadowing of northern windows and to achieve the rated solar access.

Step 2 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 tables below show the minimum lot width required to achieve the various star ratings depending on the orientation of the street frontage.

Table 1 - Determining the star rating

Lot Orientation	Minimum lot width (metres)				
	★★★★★	★★★★	★★★	★★	★
East/West					
(Coastal NSW)	>16.2	15.1-16.2	14.2-15.0	13.4-14.1	<13.4
(Inland)	>16.8	15.6-16.8	14.4-15.5	13.8-14.3	<13.8
North					
(Coastal NSW)	>13.5	11.7-13.5	10.9-11.6	10.5-10.8	<10.5
(Inland)	>14.1	12.2-14.1	11.1-12.1	10.5-11.0	<10.5
South					
(Coastal NSW)	>15.5	13.7-15.5	12.9-13.6	12.5-12.8	<12.5
(Inland)	>16.1	14.2-16.1	13.1-14.1	12.5-13.0	<12.5

Note: Use this table if the height of buildings to the north is not limited or unknown. (Source: Gosford City Council DCP No. 108)

Definitions

East/West: Bearing of one 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.

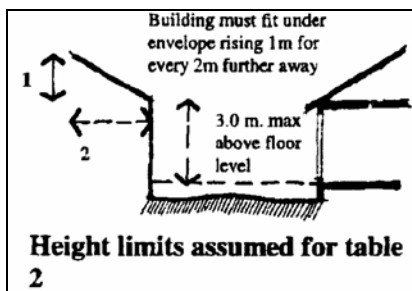
It will be noted from Table 1 that reducing lot width results in a reduction in the solar access star rating. This need not be the case. Lot width can be reduced without impacting on the solar access rating by placing height restrictions to houses to the north boundaries.

Table 2 below shows the ratings of lot widths where the height of buildings on the lot to the north are known to be one storey.

Table 2 - Determining the star rating (dwellings to the north one storey high)

Lot Orientation	Minimum lot width (metres)				
	★★★★★	★★★★	★★★	★★	★
East/West					
(Coastal NSW)	>12.7	11.7-12.7	11.0-11.6	10.4-10.9	<10.4
(Inland)	>12.9	11.8-12.9	10.9-11.7	10.4-10.8	<10.4
North					
(Coastal NSW)	>13.1	11.6-13.1	10.8-11.5	10.3-10.7	<10.3
(Inland)	>13.3	11.7-13.3	10.7-11.6	10.4-10.6	<10.4
South					
(Coastal NSW)	>15.1	13.6-15.1	12.8-13.5	12.3-12.7	<12.3
(Inland)	>15.3	13.7-15.3	12.7-13.6	12.4-12.6	<12.4

Note: Use this table if it's known that buildings to the north will be limited. (Source: Gosford City Council DCP No. 108)



(Source: Gosford City Council DCP No. 108)

Step 3 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 below) 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.

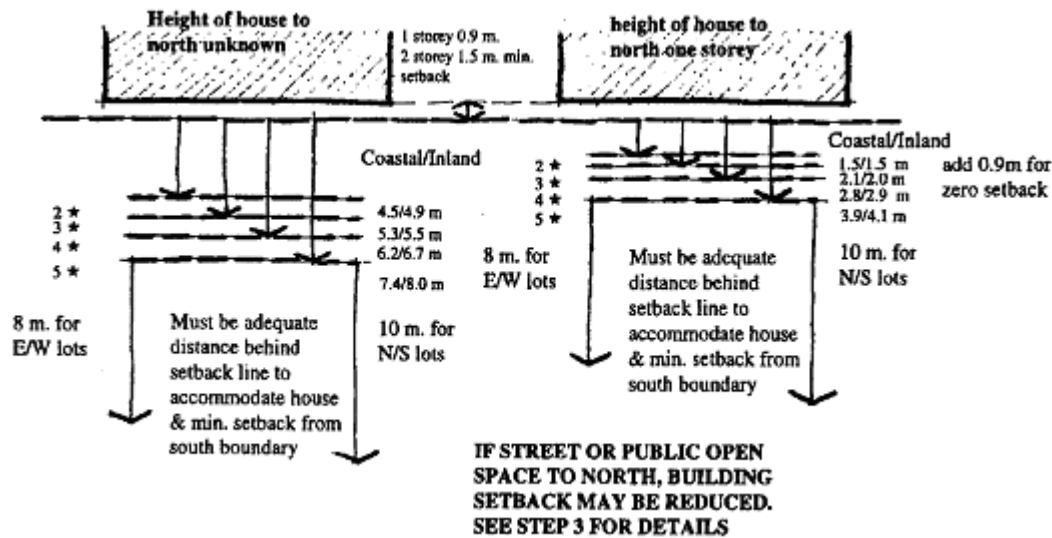
Step 4 Siting Your House to Achieve Solar Access

Setback from the north boundary

Having sufficient lot width alone will not guarantee solar access. A house must be sited so that its north facing windows are sufficiently set back from the north boundary of the lot to ensure they will not be overshadowed by surrounding houses. Figure 1 shows 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 in the lot width tables assumed are also shown.

Showing setback lines on subdivision plans

It is suggested that subdivision plans show the setback line for the maximum rating obtainable – allowing for building height on lots to the north after allowance is made 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.



(Source: Gosford City Council DCP No. 108)

Figure 4 - Building Setback from north boundaries required to achieve various star ratings

Consideration of 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.

Table 3 - Slope Adjustments to Lot width (metres)

	Star Rating			
	★★★★★		★★★★ or less	
	1 storey	2 storey	1 storey	2 storey
5<10% (1:20, 1:10) All zones	0.8	0.8	0.6	0.6
10<15% (1:10, 1:6.7) All zones	1.0	1.5	0.8	1.2
15<20% (1:6.7, 1:5) All zones	1.4	2.1	1.1	1.7

(Source: Gosford City Council DCP No. 108)

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 calculations would be required to determine actual solar access.

Reduction in setback allowed for increasing sill height Coastal Zone		
Sill height	★★★★ or more	★★★ or less
Above floor		
300	0.4	0.4
600	0.9	0.7
900	1.5	1.0

(Source: Gosford City Council DCP No. 108)

Figure 5 - Reduction in setback allowed – Coastal Zone

Step 5 Design an Energy Efficient House

After following the above steps to provide good solar access to a dwelling, the next step to consider is the design of the actual house.

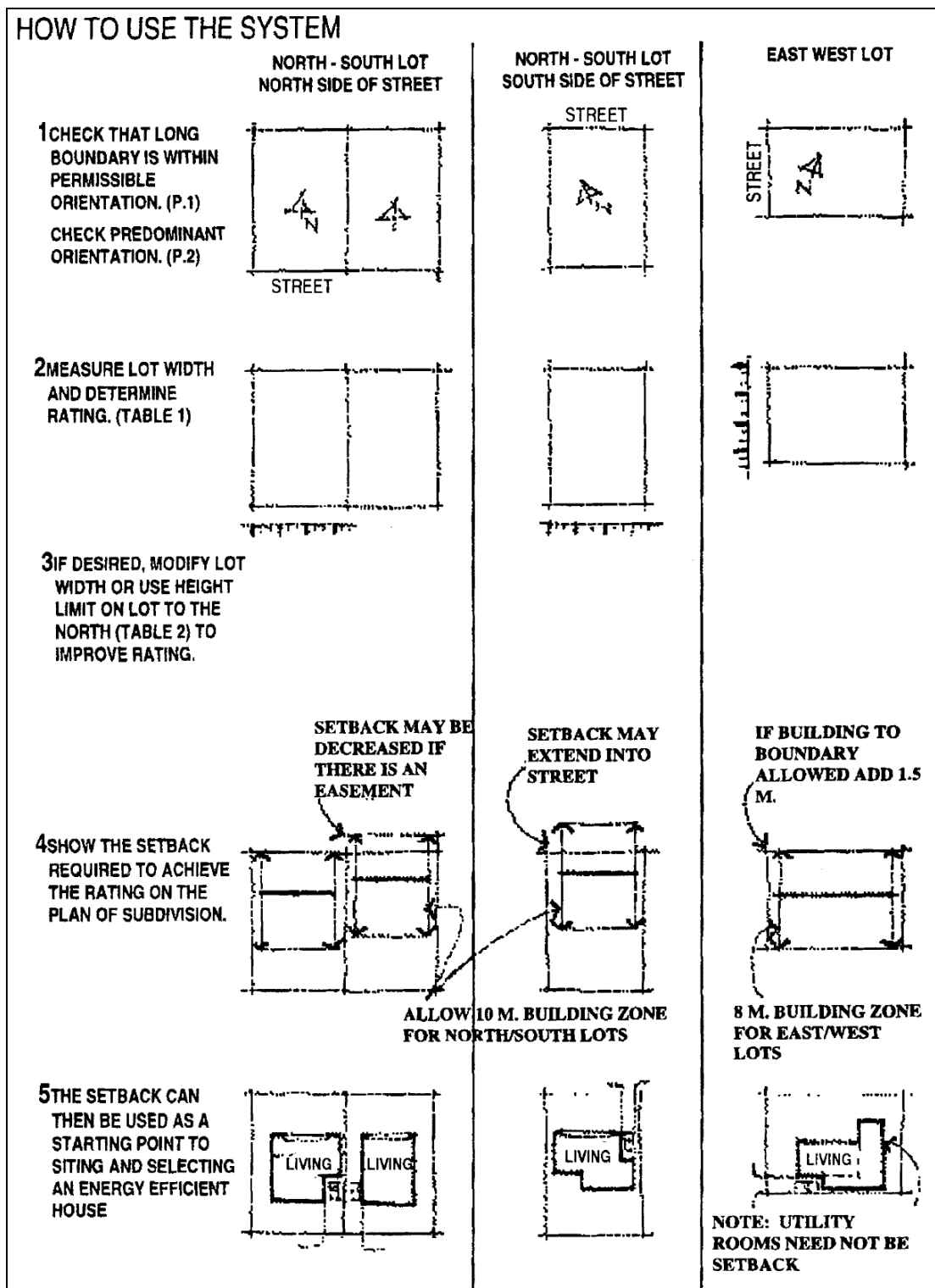
Reduction in setback allowed for increasing sill height Inland Zone		
Sill height	★★★★ or more	★★★ or less
Above floor		
300	0.5	0.4
600	0.9	0.7
900	1.5	1.0

(Source: Gosford City Council DCP No. 108)

Figure 6 - Reduction in setback allowed – Inland Zone

Height of windows above ground

Prior to undertaking the house design, the sill height of overshadowed windows can have an impact upon the setback. 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. The table opposite shows the reduction in setback allowable if sill levels are raised. Clerestory windows and upper floor windows can be rated where 2 storey construction is allowed on the lot to the north.



(Source: Gosford City Council DCP No. 108)

Figure 7 - Example of how to use the system