

Development Control Plan

Townhouses and Villa Houses in 2(a1) & 2(a2) residential zones

Sutherland
Shire
Council



9.1/05
edition 5

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1. Where does this Plan Apply?

This plan applies to all land zoned 2(a1) and 2(a2) Residential under Sutherland Shire Local Environmental Plan 2000 (SSLEP 2000). It applies to all development applications for townhouses and villa houses in those zones.

Sutherland Shire Local Environmental Plan 2000 defines townhouses and villa houses as:

Townhouse means a two storey dwelling on a site containing three or more dwellings, where each dwelling has an individual entrance and there is open space at ground level or ground floor level for the exclusive use of the occupants of the dwelling.

Villa house means a single storey dwelling on a site containing three or more dwellings, where each dwelling has an individual entrance and there is open space at ground level for the exclusive use of the occupants of the dwelling.

For the purposes of this plan, “**multi-dwelling development**” or “**multi-dwellings**” includes existing and approved:

- villas and townhouses (where three or more dwellings are located on one allotment); and
- dual occupancy development that has been subdivided or has development consent to be subdivided; but does not include Housing for Older People or People with a Disability.

2. What is the Purpose of the Plan?

The purpose of this plan is to provide development controls to ensure that townhouse and villa house developments are compatible with other housing in the locality and will meet community expectations and the objectives of the 2(a1) and 2(a2) Residential zones.

The plan also provides for controls relating to the capacity, location, separation, height and size of villa and townhouse developments.

3. What are the Objectives of this Plan?

The objectives of this plan are:

- a) To ensure that townhouses and villa houses are compatible in scale and character with existing housing and do not adversely affect the local environment or the amenity of adjacent residents.
- b) To encourage an increased housing choice for Shire residents.
- c) To encourage the scattering of townhouses and villa houses throughout the 2(a1) and 2(a2) Residential zones.
- d) To complement the statutory requirements of Sutherland Shire Local Environmental Plan 2000 (SSLEP 2000).

4. How does this Plan relate to other Plans?

SSLEP 2000 provides the objectives, land use controls and development standards for development in the Shire. The basis for the LEP includes the Housing Strategy and Heritage Study.

Extracts from SSLEP 2000 are shown in *italics*.

This DCP provides detailed guidelines for townhouses and villa houses in addition to the provisions contained in SSLEP 2000.

Together with this DCP there are other DCPs that apply to townhouse and villa house development on land zoned 2(a1) or 2(a2) Residential, including:

- ◆ Duration of development consents
- ◆ Notification of development applications
- ◆ Landscape
- ◆ Swimming pools
- ◆ Private tennis courts
- ◆ Bush Fire.

You should contact Council’s Customer Service Centre for more information.

5. Can the Plan be Varied?

This plan contains two types of planning controls – development standards and controls:

Development Standards are contained in the Sutherland Shire Local Environmental Plan 2000 (SSLEP2000) as amended. Any proposal to vary those standards from the local environmental plan must be accompanied by a formal objection to the standard under the provisions of the State Environmental Planning Policy No. 1.

More detailed provisions consisting of objectives and controls have been set for all aspects of this plan. Each application will be considered on the individual circumstances and merits of the case in terms of the achievement of the objective.

The **Controls** that are set out in this plan are generally more detailed than the Sutherland Shire Local Environmental Plan 2000. Any variation to these controls must be supported by a statement demonstrating how the objectives are fully satisfied. Any submission in support of a variation to a standard or control must be in writing and demonstrate how the objectives will be achieved.

6. Does your Proposal need Approval?

You need to submit a development application to obtain consent from Council for most development proposals involving new buildings or subdivision.

Other proposals may be exempt or complying development as set out in the SSLEP 2000. Exempt development does not require approval. Complying development can be approved by Council or a private accredited certifier.

7. Making an Application

After researching this document it is recommended that intending applicants consult directly with Council's Environmental Assessment staff prior to making any commitments to a specific site or to preparing detailed development plans.

Pre-application consultation with staff can assist in the time taken to assess applications and reduce amendments required to plans. A prerequisite of consultation is the preparation of a Site Analysis and possibly a Development Concept Plan.

To submit a development application you need to complete a Development Application form together with the following plans (5 copies) and information:

1. **Site plan** – illustrates the location of all structures both proposed and retained on site and must include a north point.
2. **Site analysis** – identifies existing natural elements of the site, such as existing vegetation, property dimensions, footpath crossing levels and alignments, slope and topography and all structures on neighbouring properties, including location of windows, doors, balconies, entertainment areas. It must include photos of the site frontage and streetscape. Refer to Section 8 for more detail.
3. **Survey** – needs to include existing site levels at the corners of the proposed site, the site contours at 1 metre intervals and the proposed floor levels using a fixed benchmark related to the Australian Height Datum. The plan should also indicate the location of existing structures, easements and services, trees and general site features, as well as north point, existing levels and improvements within the public road to the frontage of the site. If the site is a water front property, it must include the location of the Foreshore Building Line and Mean High Water Mark relative to the Certificate of Title/Deposited Plan registered as at 24 April 1980.
☐ The survey for a strata subdivision shall comply with the Strata Scheme (Freehold Development) Act, 1973
4. **Footpath crossing levels and alignment application** – an application for levels and alignments needs to be lodged with Council, prior to setting proposed levels within the site and prior to lodging a Development Application.

5. **Floor plan & FSR calculation** – is a fully dimensioned plan which identifies the major use of each of the internal structures within a building, ie balconies, bedrooms, living area, kitchen facilities, bathrooms, doors and windows etc. Where a floor plan is required, it must include the floor space ratio calculation through either hatching, highlight or colour.
6. **Elevations** – illustrates all profiles of the proposed development, and includes dimensions of the proposed development, location of windows, doors, roof pitch and eave overhang. It must also include details of surface finishes and construction materials. It should also indicate the existing and finished ground levels and all finished floor, ceiling and ridge levels to AHD.
7. **Sections** – illustrates a cross section through the proposed structure, indicating building materials and construction method from the footings right through to the roof.
8. **A4 Notification Plans** – is included in letters of notification of a proposed development to neighbours must include a complete floor, site and elevation plan reduced to an A4 page/s.
9. **Artist's impression and/or perspectives** – (including computer generated images)
10. **Landscape area calculations** – where required, the site plan must also indicate landscape area through hatching, highlight or colour.
11. **Landscape details** – plans or drawings that demonstrate the basic ideas and principles of the intended works. The plan should highlight all the proposed landscape area, and the proposed treatment, ie mass planting, paving, lawn etc. The plan should also explain the landscaping principles, purpose and rationale. The location and species of all existing trees on the site should be identified, and it must be indicated whether it is proposed to retain or remove each tree. (Where drainage details are also required, they must be integrated with the proposed landscape concept)
12. **Drainage Details** – plans or drawings which illustrate the concepts of a stormwater management system from the site to the council drainage system and include a detailed site survey. Where an on-site detention system is required, the type and location must be shown and must be integrated with the proposed landscape design.
13. **Erosion & Sedimentation Control Details** – plan or drawing that shows the nature and location of all erosion and sedimentation control measures to be utilised on the site, may be included with the Construction Management Details.
14. **Shadow Diagram** – A diagram demonstrating the extent of over shadowing caused by the proposed development on adjoining properties as measured at 10am and 2pm on 21 June and 21 December. The diagram must indicate the progressive impacts on the adjoining property/s.

(Shadow diagrams are compulsory for any two storey or higher sections of a development.)
15. **Construction Management Details** – a concept plan that to includes the following:
 - Locations and types of sediment control fencing
 - All weather vehicle egress, including cattle grid or similar
 - Hardstand areas for loading and unloading materials including location of crane and concrete pumps
 - Location of material storage on site
 - Location of any site sheds
 - Location of underground services and over head wires
 - Location of hoardings and site fence
16. **Frontage Works** – a plan that illustrates the proposed location of a footpath crossing for driveway access, footpath paving, kerb and gutter, kerb ramps and road shoulder.
17. **Energy Rating Certificate** – Certification from an accredited assessor on the energy rating for the proposed building envelope, hot water system and any clothes drier to be installed.
18. **Adaptable Housing report** – Report on compliance with AS 4299 for 10% of all dwellings (or a minimum of one villa whichever is greater).
19. **Statement of Environmental Effects** – a description of how the application addresses and satisfies the objectives and standards of SSLEP 2000 and relevant Development Control Plans of Council & S.79(c) of the Act.

Applicants are advised to use the services of an architect to prepare plans. The Development Application should take into account identified site constraints and objectives of the Development Control Plan.

Applicants should be aware that compliance with the guidelines within this development control plan will not guarantee approval of development applications. The objectives of the plan must be met.

Note:

A development application will not be publicly exhibited until all information required as part of the application is submitted. Incomplete applications will not be publicly exhibited.

8. Site Analysis

All development requires perceptive and effective site planning. Good site analysis and design skills are therefore essential in achieving a pleasant living environment for occupants and minimising the impact on neighbours.

A site analysis establishes the development context by showing graphically the constraints and opportunities on the site in relation to natural elements and existing buildings in the immediate surroundings. It should influence the design and minimise negative impacts on the amenity of adjoining developments and to complement neighbourhood character.

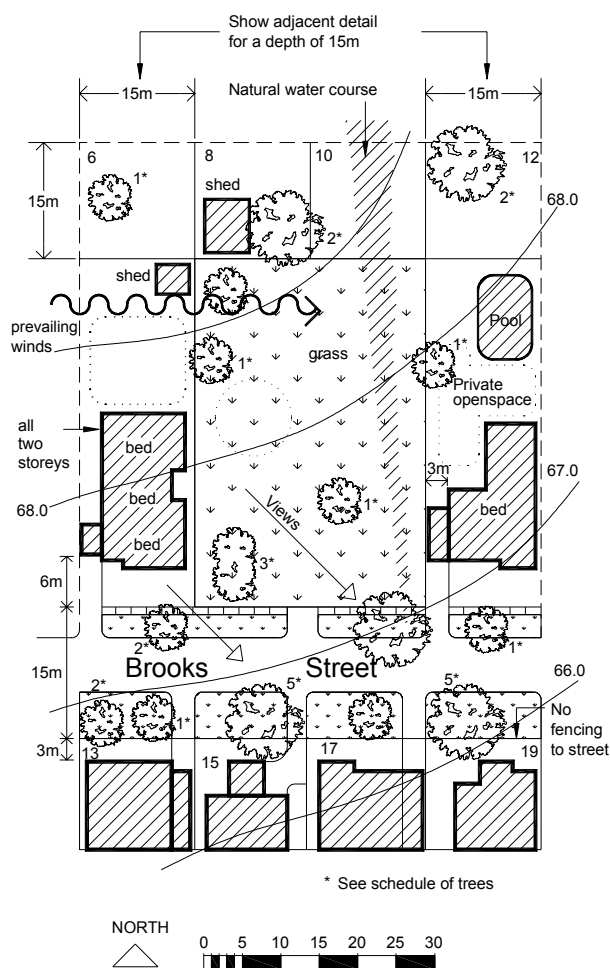
A site analysis is to be submitted with a development application and should indicate (where relevant) **in relation to the site**:

1. **Contours** – at 1m intervals and related to Australian Height Datum.
2. **Existing vegetation** – in particular major trees on the site and street trees, identified by size and botanical names or common names.
3. **Buildings** – location and uses of existing buildings.
4. **Views** to and from the site.
5. Location of **utility services** and stormwater drainage lines and street crossings.
6. **Orientation**, microclimate and noise sources.
7. Any **contaminated soils** and filled areas.
8. Fences, **boundaries** and easements.
9. Any **other significant site features** eg rock outcrops.

And in relation to the surrounding area

1. Location, use and height of **adjacent buildings** – locating window openings facing the site boundary, private open space and shadows cast on development site.
2. **Views and solar access** enjoyed by adjacent residents.
3. **Major trees** on adjacent properties.
4. The **built form and character** of adjacent and nearby development.
5. The **difference in levels** between the site and adjacent properties.

The site analysis can be hand drawn but must be to scale, and must be accompanied by a declaration that the information provided is correct and true in every detail. A written statement should also be prepared explaining how the development design has responded to the site analysis and should include an assessment of the bush fire hazard on the site and/or on the adjoining site.



Site analysis can improve design responses. This is an example of site analysis information for a small infill site

9. Public Notification

All development applications will be publicly notified in accordance with Council's Notification of Development Applications Development Control Plan.

10. Multi-Dwelling Development Controls

Background

Since 1993 the Sutherland Shire Local Environmental Plan has contained objectives to ensure that the character of a neighbourhood is not adversely affected by the “cumulative impact of successive development including villa and townhouse development”. Following significant community concern that this objective was not being achieved, Council decided to prepare a plan to implement this objective. A study in March 2000 showed that the neighbourhoods in the maps associated with this plan had between 0% and 26.8% of multi-dwellings. The average percentage in March 2000 of multi-dwellings in the 68 neighbourhoods was 5.6%.

The draft plan (the Development Control Plan for the Capacity, Location, Separation, Size and Further Height requirements in the Residential 2(a) zones) was exhibited in March 2000 with a 10% limit to capacity in each neighbourhood. This was supported by 22% of the written submissions and 53% of respondents to a written survey. A random telephone survey in September, 2000 showed considerable concern about “overdevelopment” but more particularly in those areas that were currently over 10%. This survey also indicated a willingness of the community to have restrictions on their property if development is controlled.

Development applications for between 1993 and 2000 for multi-dwelling development in culs-de-sac and on narrow roads received significantly more community objection than similar applications elsewhere. The reasons stated for these objections related to congestion and overloading of the roads’ capacity due to additional pedestrians, traffic, on-street parking and other service providers. In addition to these issues in culs-de-sac the change to the single dwelling house scale, character and amenity were issues of concern.

The draft multi-dwelling development DCP was exhibited in March 2000 which proposed no further multi-dwelling development in a cul-de-sac or road narrower than 8 metres kerb to kerb. This was supported by 22% of written submissions and 65% of respondents to a written survey. A study of road widths in August 2000 showed that 42% of Shire roads were less than 8 metres. In adopting this plan, Council reduced the width to 6 metres (covering less than 12% of roads).

Over time, the implementation of the capacity controls of this plan will distribute villas and townhouses more evenly across the Shire than has been the case to date. However, community response to that plan in its draft form and to development applications between 1993 and 2000 indicates that controls need to be applied that will ensure villa and townhouses do not diminish the predominantly single dwelling house character of individual streets. This plan includes a “separation distance” between villa and townhouse developments to ensure they are not grouped together on the same side of the street. The “separation distance” will provide the same number of single dwelling houses or dual occupancies on each side of the proposed development as there are dwellings in the villa and townhouse proposal. As this control could theoretically allow significantly more villas and townhouses (up to 50%) in a street it needs to be considered in conjunction with the neighbourhood capacity controls.

In the community response to the draft of this plan, 81% of telephone survey respondents agreed with the separation distance.

The controls were adopted by Council and came into effect on 13 November 2000. Those controls have been incorporated into this plan.

Objectives:

1. That the predominantly single dwelling house character of designated neighbourhoods in the Shire are preserved by limiting the capacity of each neighbourhood for villa and townhouse development;
2. Minimised congestion or overloading caused by villa and townhouse development on residential public roads by pedestrians, traffic, parking and other service providers;
3. Minimised change to the single dwelling house scale, character and amenity of culs-de-sac;
4. Streetscapes characterised by predominantly 1 and 2 storey residential buildings on single allotments within a landscaped setting on each side of the road.

Controls:

10.1 Capacity of Neighbourhoods

1. Villa and townhouse development in each designated neighbourhood must not increase the number of multi-dwellings to more than 10% of the total multi-dwellings of that neighbourhood.
2. Refer to the maps associated with this plan for the designated neighbourhood boundaries. It should be noted that villa house, townhouse developments, as well as existing or approved subdivided dual occupancy developments in both the 'a' and 'e' Residential zones have been included in these percentages, in accordance with the definition for multi-dwelling development in this plan.

10.2 Location of Villa House and Townhouse Developments

1. Villas and townhouses must not be located with access to a designated cul-de-sac or existing or proposed road where through traffic is or will be prevented.
2. Villas and townhouses must not be located with access to narrow width roads. For the purpose of this plan, narrow width roads are defined as public roads with a road carriageway or proposed carriageway width, from kerb to kerb, equal to or less than 6 metres.
3. On corner sites where one of the roads is a designated cul-de-sac, a road or proposed road with no through traffic or a narrow width road, access to villas and townhouses must be from the other road except where the other road is an arterial road.

4. Designated culs-de-sac and roads or proposed roads with no through traffic are generally as shown on the maps associated with this plan. Designated culs-de-sac and roads or proposed roads with no through traffic are defined as public roads with a single point or proposed single point of access/egress to less than 100 dwellings.
5. Villas and townhouses are not permitted on internal allotments.

10.3 Separation between Villa house and Townhouse Development Sites

1. The number of single dwelling houses or dual occupancy developments on each side of a villa and townhouse development must be at least equal to the number of dwellings in the villa and townhouse development. The number of single dwelling houses or dual occupancy developments on each side of villa and townhouse development is defined as the "separation distance" (see diagram below for example).
2. Where the number of single dwelling houses or dual occupancy developments above crosses a street, the street is counted as one single dwelling.
3. Where the calculation of the number of single dwelling houses or dual occupancy developments above crosses a non-residential use or zone, the frontage of that zone can be divided by 15 where adjoining a 2(a1) zone or by 18 where adjoining a 2(a2) zone to provide an equivalent number of single dwelling house or dual occupancy developments for the purpose of this clause.
4. Where a townhouse/villa development is proposed on a corner block the separation calculation is along the primary frontage only.



11. Minimum Allotment Sizes and Subdivision

Objectives:

1. The efficient use of residential land, having regard to the existing allotment sizes across each zone, the expectations of the community and the environmental capacity of the various zones;
2. Complement the floor space ratio requirements that will ensure an appropriate number of dwellings per site having regard to the characteristics of the zone;
3. Sufficient allotment widths and depth to enable individual variations in design for development; and
4. Sites that have adequate widths and depth for the arrangement of sufficient side boundary setbacks, efficient driveways, sufficient landscaped areas and satisfactory building form that takes into account the uses made of adjoining properties.

Controls:

11.1 Minimum Allotment Sizes

The minimum allotment sizes contained in SSLEP 2000 are as follows:

Zone	Minimum Allotment Size
2(a1)	1200m ²
2(a2)	1200m ²

11.2 Minimum Allotment Dimensions

The minimum width for sites of townhouse and villa house developments is 25m.

11.3 Internal Allotments

Townhouses and villa houses in 2(a1) and 2(a2) Residential zones are not permitted on internal allotments.

Note:

SSLEP 2000 defines an **Internal allotment** as *an allotment within a residential zone where there is no practical lawful vehicular access to any existing or proposed building on the allotment, or where the only practical lawful vehicular access to any existing or proposed building on the allotment is by way of an access corridor (a hatchet shaped allotment) or a right-of-carriageway over another allotment.*

12. Siting & Scale

Objectives:

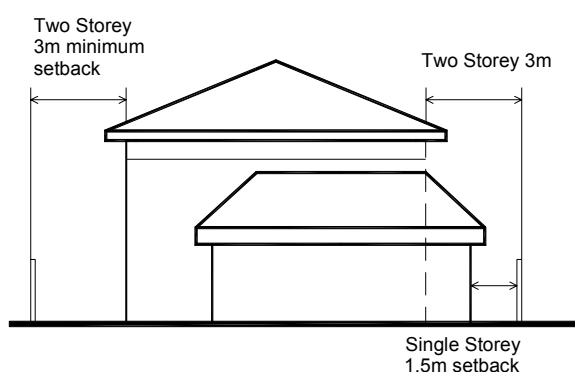
1. Development that is compatible with the scale, height and siting of the existing residential environment.
2. The impact of medium density housing minimised in areas where there are substantially dwelling houses.
3. Sufficient separation between buildings to protect privacy and sunlight access to neighbours.
4. Adequate space for landscaping, privacy, solar access, private open space and an attractive and consistent streetscape by requiring buildings to be set back from the street and adjacent properties.
5. Significant existing vegetation, both indigenous and exotic, retained and enhanced where new development is proposed.
6. The impact of development on the environment minimised and significant site features preserved.
7. Villa and townhouse development with a two storey component that does not adversely impact on overshadowing or overlooking of adjacent residential rear yards or the views of adjacent properties and the mix of single and two storey housing in the immediate streetscape.

Controls:

12.1 Setbacks

Minimum setbacks:

Front	7.5m
Rear	1.5m for single storey 3m for two storey
Side	1.5m for single storey 3m for two storey



Minimum side setbacks for one and two storey buildings

Greater setbacks will be required for bush fire protection purposes in areas adjoining bushland. (Refer to Bush Fire DCP.)

Variation may be considered:

- where existing setbacks are less
- on corner blocks
- for courtyard fences.

For developments on corner sites the secondary frontage must have a minimum setback of 3.5m.

Where a Foreshore Building Line applies development must comply with the required setback.

Tree Cover

The site analysis will identify any significant existing trees on the site. Development must be designed around the existing significant trees. Generally a 3m setback from structures is required for trees to be retained. A bond or bank guarantee will be taken on significant trees to be retained, to be refunded after final inspection if trees are kept in good condition.

If a tree has been removed or damaged, Council will not refund the money and two similar trees will be planted by the Council.

Any money not refunded will be used for canopy tree planting on public land in the same locality.

12.2 Height

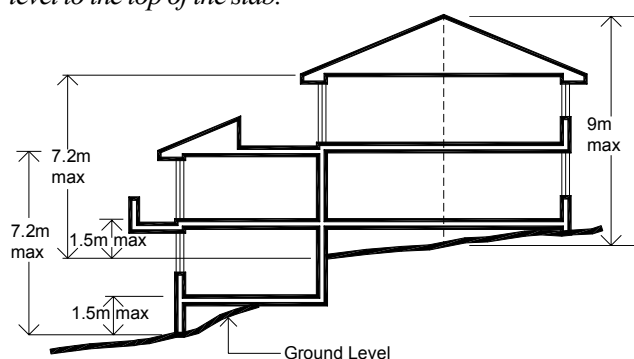
Developments must comply with the height limits that apply in residential zones in Clause 34 of SSLEP 2000; as follows:

A building must not exceed a height of

- 7.2m to any point on the uppermost ceiling; and*
- 9m to the highest point of the roof.*

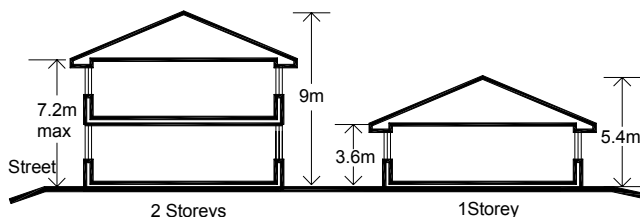
Villa houses must be 1 storey only and must not exceed 5.4m to the highest point of the roof.

Basement carparking must not exceed 1.5m above ground level to the top of the slab.



Two storey development is only permitted at the front of an allotment. Two (2) storey development may extend to a maximum of 50% of the depth of the site if there are no adverse impacts on adjoining land in terms of privacy, solar access to recreation areas or facilities, or primary views.

Single storey development at the rear of a site is limited to a maximum height of 3.6m to any point on the uppermost ceiling, and 5.4m to the highest point of the roof, measured from ground level.



Number of Storeys

Development is limited to a maximum of 2 storeys.

Storey means

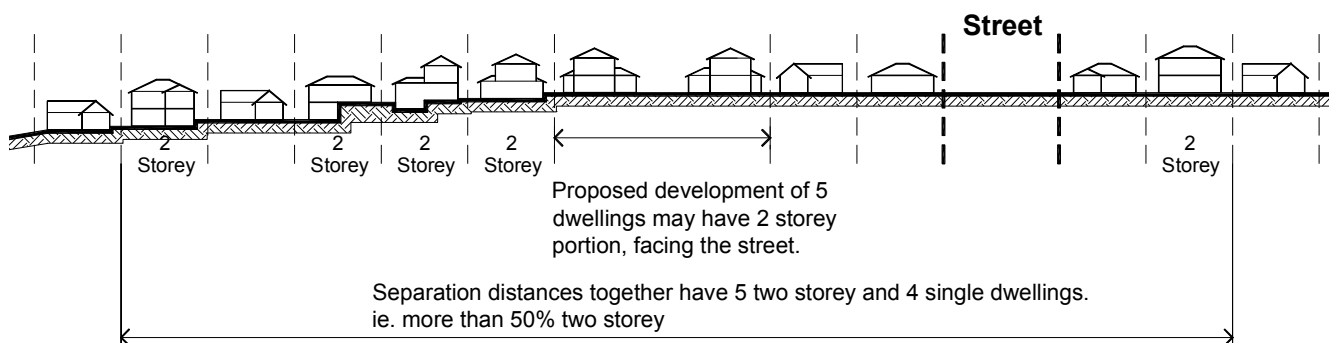
- the space between two floors, or*
- the space between any floor and its ceiling or roof above, or*
- foundation areas, garages, workshops, storerooms and the like, where the height between ground level and the top of the floor above is 1.5 metres or more.*

A storey which exceeds 4.5 metres is considered as two storeys.

If the percentage of two storey dwellings in the “separation distance” in clause 10 of this plan does not exceed 50%, only single storey villa development will be permitted.

The townhouse portion of any development must not –

- Have an undue adverse impact on the privacy of adjoining residents by overlooking;
- Have an undue adverse impact on adjoining residents by increasing the overshadowing or solar access of adjoining residential properties.



12.3 Floor Space Ratio

Floor space ratio means the ratio of the gross floor area of all buildings on a site to the area of the site. The site is taken to be only that part of the site zoned to permit the development for which the buildings are or are proposed to be used.

Gross floor area means the sum of the areas of each floor of the buildings on a site where the area of each floor is taken to be the area within the outer face of the external enclosing walls, excluding any of that area occupied by:

- lift towers and motor rooms within a basement or above the roof level, and
- car parking needed to meet requirements of the Council, up to 20 square metres per required parking space, and any specific internal vehicular or pedestrian access to it within the basement, or parking level, and
- plant rooms, storage rooms, garbage storage areas, switch rooms or the like and any specific internal pedestrian access to them within a basement.

Maximum floor space ratios are as follows:.

Zone	Maximum FSR
2(a1)	0.45:1
2(a2)	0.4:1

12.4 Environmental Impact

Development must minimise any risks associated with its location.

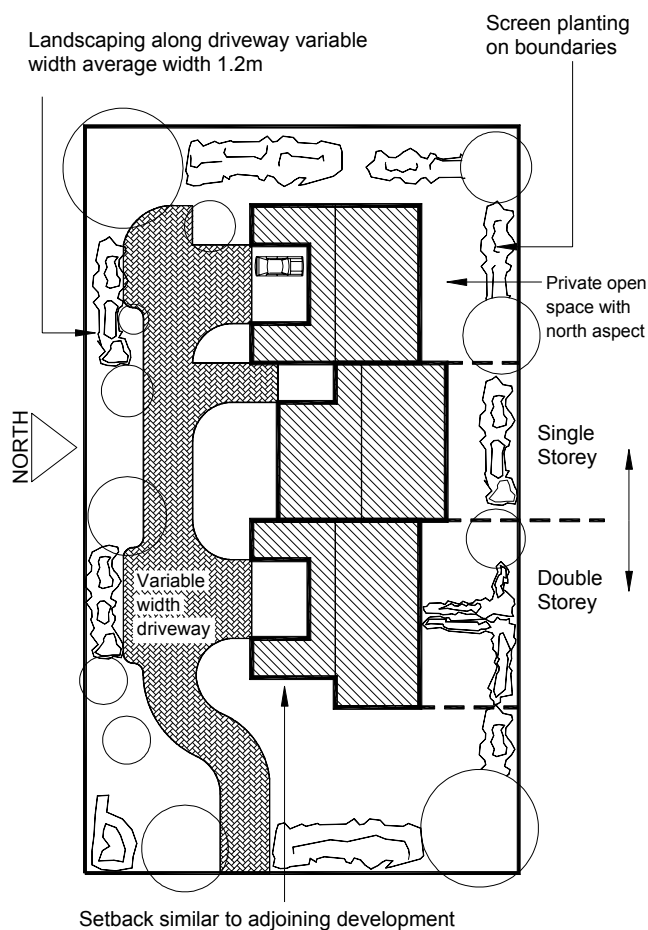
Design your development with a minimum of cut and fill.

Preserve existing trees.

Construct silt traps and other control structures to prevent soil erosion during and after construction.

Provide additional setbacks and fire control measures as set out in the Department of Urban Affairs and Planning Circular No. 10, if your site is near bushland.

Council will not approve a development unless adequate water and sewerage are available.



13. Landscaping and Private Open Space

Objectives:

1. Existing mature trees and bushland vegetation retained within, and adjacent to, development sites.
2. Landscape treatment which integrates the development into the streetscape.
3. Landscape design to include large trees for visual amenity.
4. Landscaping that provides screening and filtering to ensure privacy and reduce overlooking.
5. Vegetative linkages to habitat areas preserved, reinstated or provided, for wildlife movement.
6. Private open space for dwellings is clearly defined, useable and meets the requirements of privacy, access, outdoor activity and planting.

SSLEP 2000 Standards:

13.1 Landscaped Area

Development must provide a minimum unbuilt upon area as landscaped area.

Landscaped area means any part of the site of a building or a proposed building that contributes to achieving the objectives of the landscaped area development standards of this plan. The site is taken to be only that part of the site zoned to permit the development for which the building is or is proposed to be used.

Landscaped area includes any areas used for gardens, lawns, shrubs or trees, but does not include any part of the site occupied by buildings, driveways, service accessways, parking areas, communal drying yards, garbage storage areas, swimming pools, balconies or decks.

The objectives of the landscape area requirements are:

- a) To ensure opportunities for tree retention and tree planting to preserve and enhance the tree canopy of Sutherland Shire; and
- b) To ensure that unbuilt upon areas balance the built form; and
- c) To contain urban runoff flows by minimising the impervious areas on residential development sites.

The requirement is expressed as a percentage of the site area. The table below indicates the minimum landscaped area required.

(FSPA means Foreshore Scenic Protection Area. Refer to Clause 19 of SSLEP 2000)

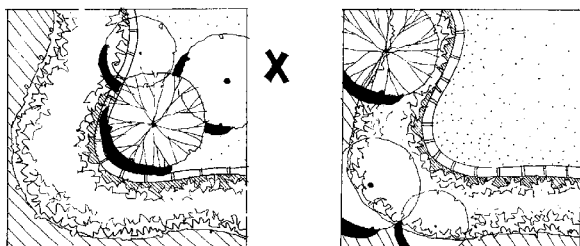
Zone	Outside FSPA	Within FSPA
2(a1)	45%	50%
2(a2)	50%	55%

If development is carried out on an allotment for the purpose of villa houses only, the minimum landscaped area required is reduced by 5% where all other relevant development standards in (SSLEP 2000) are complied with on the allotment.

Controls:

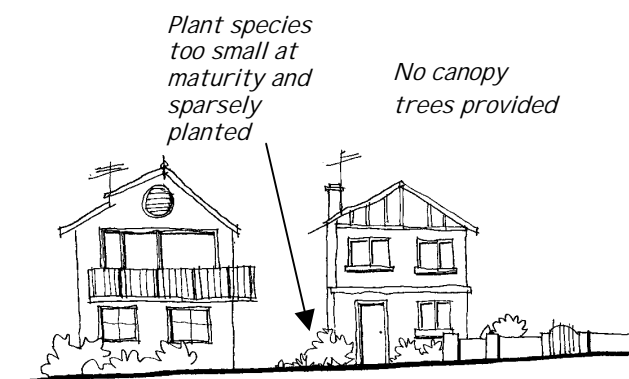
Note: Special landscaping requirements apply to the bush fire setback area. Refer to Landscape DCP for details.

- Existing trees, bushland and other natural features are to be retained and incorporated into the development proposal.
- Landscape planting should be principally comprised of native species, however, Council will consider the use of deciduous trees in courtyard areas.



Tree planting in lawn areas often result in failure. Tree planting should be undertaken within garden beds. Tree establishment and long term success is increased.

- The planting scheme must display a full range of general planting forms, eg large trees, medium trees, shrubs and ground covers.
- Landscaping publicly visible areas is to comprise not more than 30% turfing and not less than 70% mass planting.
- Landscaping is to be provided within the front setback to assist in achieving the streetscape objectives particularly with regard to issues of scale and character. See figure below.



Landscape does not relate to building scale or offer microclimate protection.

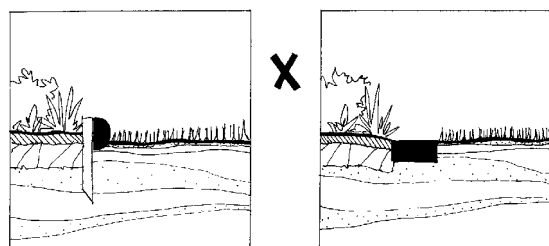


Landscape relates to building scale and assists integration into street.

- Driveways are to be curved or splayed where possible, to avoid a "gun barrel" effect.
- Landscaping in the vicinity of driveway(s) entrance should not obstruct visibility for the safe ingress and egress of vehicles and pedestrians.
- Tree and shrub planting along side and rear boundaries should assist in providing effective screening to adjoining properties. The minimum height of screening to be provided is 1.8 metres at maturity.
- All grassed areas adjacent to garden beds are to be bounded by a mowing strip, preferably concrete or brick. Refer to figure below.

Elevated timber edging is difficult to maintain and quickly deteriorates

Brick and concrete edging is long lasting



Edges are to be provided to prevent lawn encroaching into the garden areas. The mowing edges are to be flush within the adjoining lawn.

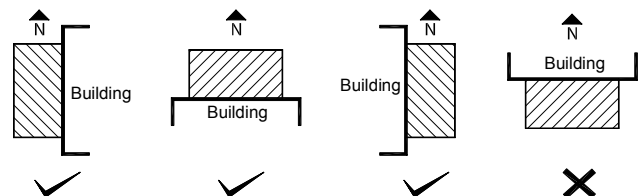
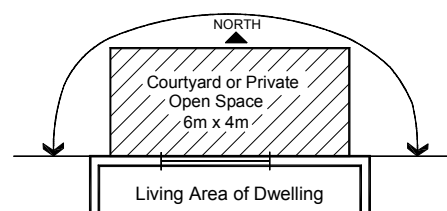
- j. In developments that provide communal open space, all landscape areas are to be provided with a water efficient irrigation system.
- k. Specimen trees (ie trees which are to be used for key elements within the landscape) shall be of a minimum 75 litre stock size.
- l. Surface stormwater storage detention basins are able to be landscaped provided that the area is densely planted and mulched. The organic mulch is to be stabilised with biodegradable netting material or alternatively gravels may be used. Landscaped detention basins are to be designed in conjunction with the drainage engineer and landscape architect.
- m. An external energy efficient lighting system is recommended for pedestrian access and driveways located within communal open space.
- n. On level sites adjacent to major roadways, the provision of low earth mounds will enhance the development considerably at ground level and provide visual and noise buffering (Mounding must consider any impacts on storm water flow.)
- o. Street trees are required along street frontages within the footpath area in accordance with Council's Urban Tree Policy (1992), and any applicable Development Control Plan.

In addition to the above controls you should refer to Landscape Development Control Plan.

13.2 Private Open Space

Courtyards or Private Open Space is required for all dwellings, as follows:-

- a) A minimum area of 6 metres by 4 metres must be provided for each dwelling.
- b) Direct access from the living area must be provided from each dwelling to the courtyard or private open space area.
- c) The minimum area of the courtyard or private open space must be oriented to the north as shown in the diagram below. Where the street frontage of a development is to the north, south-facing courtyards may be permitted where this is consistent with the surrounding streetscape. In this case an alternative open space area, either common or private open space, must also be provided which is oriented to the north..



- d) Where courtyards are provided forward of the building line;
 - Fencing must be setback from the street by a distance equal to twice the maximum height of the fence and be consistent with the surrounding streetscape; and
 - The setback should be fully planted with native shrubs, trees and groundcovers.
 - Drying areas must be located elsewhere on the site.
- e) Courtyards should be designed to provide reasonable privacy for occupants from overlooking by other dwellings.
- f) Any paving used in courtyards should be chosen to comply with the principles and design guidelines in Appendix 1 Paving and Driveways.

14. Streetscape and Building Design

Streetscape is the way in which the buildings, landscape and road combine to give individual streets their identity. In order to retain this identity, new development needs to consider the character and scale of existing buildings in the street and maintain the character, scale and setbacks as far as possible.

The size of villa and townhouse development also has an impact on the “predominantly single dwelling house character of a neighbourhood” both visually, socially and from other impacts including traffic, on-street parking and the provision of other services. Community concern to villa and townhouse development in the 'a' zones usually increases in accordance with the number of dwellings proposed.

This plan limits the number of dwellings in villa and townhouse developments. Seven dwellings typically requires the development of 2 or 3 normal residential allotments. A development with 4 or more allotments can have a significantly increased impact on the predominantly single dwelling house character of a street.

The landscape and types of plantings in the street must also be considered. Much of the character of the existing suburbs in Sutherland Shire comes from the mature trees in the landscape. It is critical that any significant mature trees that contribute to the residential areas are kept to maintain the tree canopy.

Objectives:

1. Development that, when viewed from the street, is compatible with the character and scale of any existing buildings to be retained on the site, and residential development in the immediate vicinity.
2. Villa and townhouse developments where the number of dwellings in each development does not have a significant impact on the streetscape and character of the neighbourhood.
3. Any adverse impacts on adjoining properties and the street are minimised by limiting the number of dwellings in a villa and townhouse development.

Controls:

14.1 Size Controls

The maximum size of all villa and townhouse development must be 7 dwellings except on single allotments which existed at 13 November 2000 and which comply with the minimum area and width development standards in SSLEP2000.

14.2 Roofing

The roof of a new development should be similar to the angle of pitch, materials and colour of roofs in the adjoining area. This is to maintain the appearance and character of the street. This is not saying they should all look the same.

In order to provide for the potential use of solar energy collectors the development should incorporate pitched roofs facing north

14.3 Colour and Materials

The materials and/or colours of any new housing development in existing residential areas should reflect the general character of the area in which it is located. This is to maintain the existing character of Sutherland's residential areas.

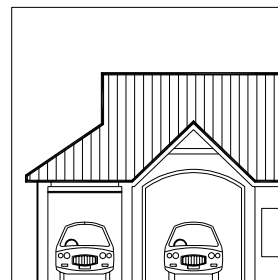
14.4 Presentation to the Street

New development should present windows in the street elevation, and similar proportions of the building to block width as presented by existing development in the street.

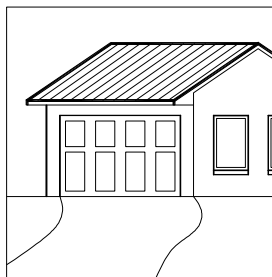
If two storey development is proposed in a street of single storey development, it should be designed to incorporate a single storey element on the street frontage by stepping the second storey. This will enable new development to relate more sympathetically to a single storey character.

If garages are proposed in the front elevation they should be set back beyond the front façade of the building, or be suitably screened or designed so as not to visually dominate the street façade.

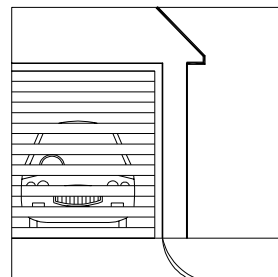
Treat as two single garages to reduce bulk



Detailing to door



Slatted door



Garage detailing to soften visual impact and integrate into streetscape

14.5 Fencing

New development should propose fencing of similar style and height as is existing in the streetscape. High courtyard fencing, if not common in the street, will not be permitted.

14.6 Corner Sites

Blank walls should not be presented to either frontage. The building should be designed to relate architecturally to the corner position, to mark the corner. Long side boundaries should be articulated by punctuation with bay windows, verandahs, balconies or wall offsets.

15. Carparking and Vehicular Access

Objectives:

1. Adequate, convenient and safe parking for residents and visitors which does not dominate the streetscape or cause congestion in nearby streets.
2. Avoidance of “gun-barrel” design and a minimum of hard paved areas.

Controls:

15.1 Number of Spaces Required

1 space for 1 and 2 bedroom units
2 spaces for 3 bedroom units
1 visitor space for up to 5 units; plus 1 space for every additional 5 units or part thereof.

Studies or other like nominated rooms will be considered as bedrooms.

15.2 Location and Dimensions of Parking Spaces and Driveways

New development must comply with AS2890.1
Carparking

No spaces are to be provided forward of the building line.

A setback is required between driveways and side boundaries. This must average 1.2m along the boundary length and contain screen planting.

Parking spaces must be a minimum of 2.6m x 5.5m, and 3m wide for garages, or where the space is adjacent to a building or obstruction. Parking spaces for disabled people must be a minimum of 3.8m wide to allow for wheelchair access.

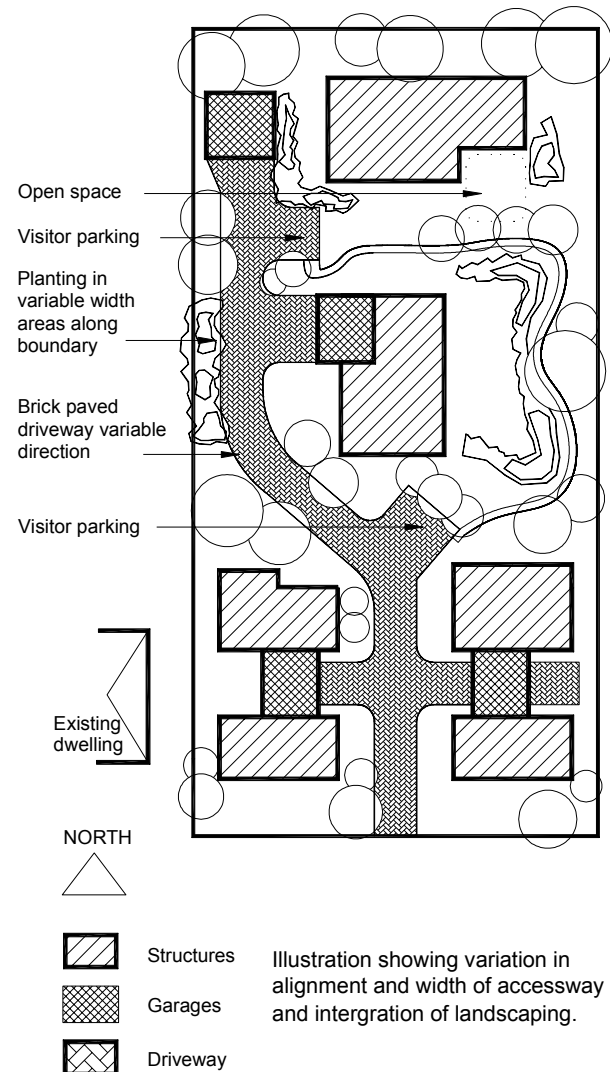
Driveways should not exceed 3m in width, except where provision is made for turning into car spaces or for necessary passing bays along driveways.

Where vehicular access is provided to the rear of a site or over an existing right-of-carriageway, vehicles must be capable of leaving and entering the site in a forward direction.

Parking spaces may be uncovered or provided as tandem spaces as long as access to the other dwellings is unobstructed.

Long, straight driveways are to be avoided and the use of decorative paving is encouraged.

Vehicles may not reverse from the site. Turning areas must be provided to enable a maximum 3-point turn so that vehicles may exit the site in a forward direction.



Driveway materials should be chosen to comply with the principles and guidelines in Appendix 1 Paving and Driveways.

Any open parking areas (uncovered) must comply with the principles and design guidelines in Appendix 1 Paving and Driveways.

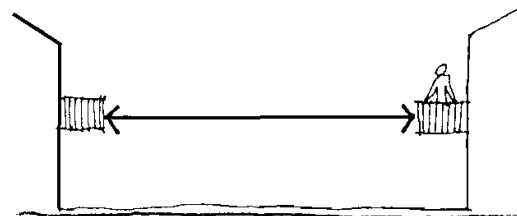
15.3 Basement Carparking

- ◆ Basements must not extend beyond the building setback adjacent to any boundaries.
- ◆ The basement structure must not form part of any terrace, courtyard or deck adjacent to side or rear boundaries.
- ◆ The basement ceiling must not be more than 1.0 metre above ground level.
- ◆ The basement must not contribute to any overlooking of neighbours' private open space areas (by increasing the floor level of dwellings)
- ◆ The basement must be naturally ventilated and naturally lit during daylight hours.
- ◆ The basement must be drained via a gravity drainage system.
- ◆ In townhouse and villa house developments with a basement the landscaped area requirement of SSLEP 2000 will not include any area above the basement.
- ◆ Basements must be designed to community safety standards including:
 - Clear sight lines to all areas
 - No recesses in walls or narrow corridors
 - Light coloured finishes to walls and ceilings
 - Night lighting must use energy efficient fittings with detectors and time switching
 - Night lighting is to be provided to a satisfactory level in all areas including garages and driveways.

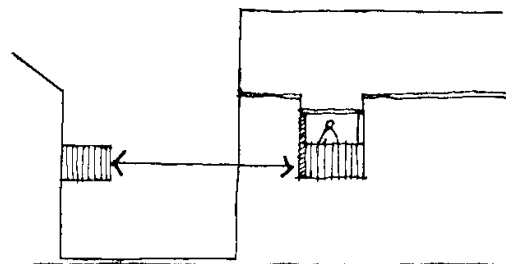
16. Privacy and Noise

Objectives:

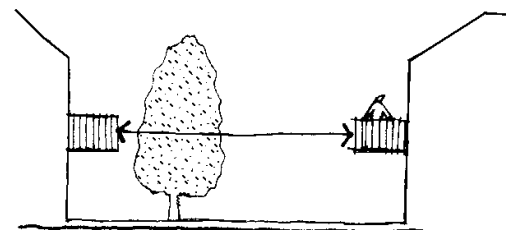
1. Dwellings located and designed to provide a reasonable level of privacy and minimise overlooking of neighbours' windows and gardens.
2. Dwellings designed so that noise from outside sources, when measured within habitable rooms and in private open space, is kept to acceptable levels.
3. Noise levels within dwellings and in communal and private outdoor areas contained, as far as possible, so as to minimise unreasonable transmission to adjoining dwellings.



Unscreened balcony separation



Careful location and screening of balconies can increase privacy and reduce their separation



Existing vegetation may offer screening so separation can be reduced

- * Screening can reduce the need for separation and improve the level of privacy.

Controls:

16.1 Privacy

Windows must be designed to maximise the privacy of adjoining and on-site residents for indoor and outdoor living spaces. Windows should not be placed directly opposite existing windows. One solution is to stagger window positions to avoid overlooking.

Overlooking from two storey development requires particular consideration of the first floor room layout, with windows oriented to private outdoor areas or the street. Provide high level windows to the second level where overlooking may occur. Screen planting can also be used to minimise overlooking.

The internal arrangement of rooms should ensure an adequate level of privacy for each dwelling in relation to adjoining dwellings.

If these guidelines still result in a loss of privacy, use single storey buildings to the rear of the site.

16.2 Noise

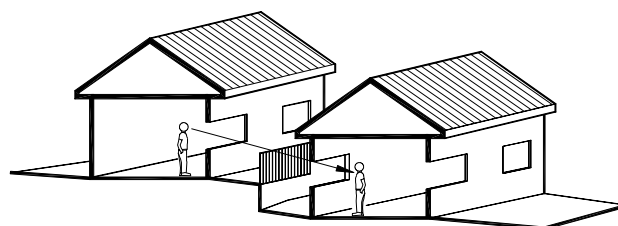
Noise can be a problem in residential areas. It can be from cars, parties or other houses generally. Measures to safeguard visual privacy will generally contribute to noise control as well.

The location of any serious noise sources in the locality should be considered.

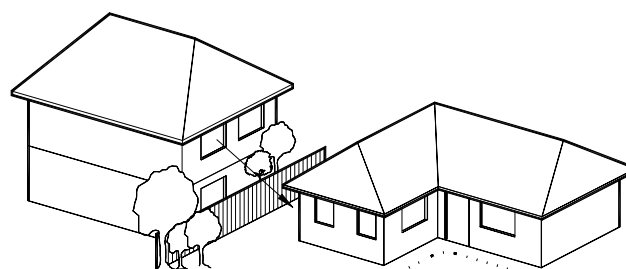
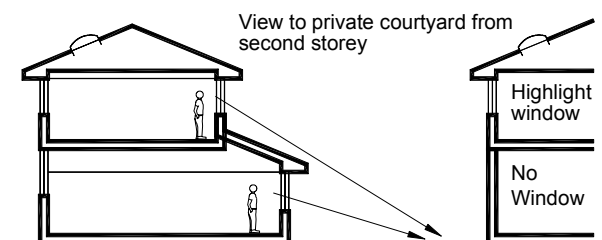
Ensure that noisy areas adjoin noisy areas, and quiet areas adjoin quiet areas.

Walls and buildings are the only really effective noise barriers and should be designed for this purpose.

The use of fin walls, projecting from the exterior of the building, reduces noise, increases privacy, and protects individual windows from noise.



Avoid locating windows directly opposite. Stagger windows or provide screening.

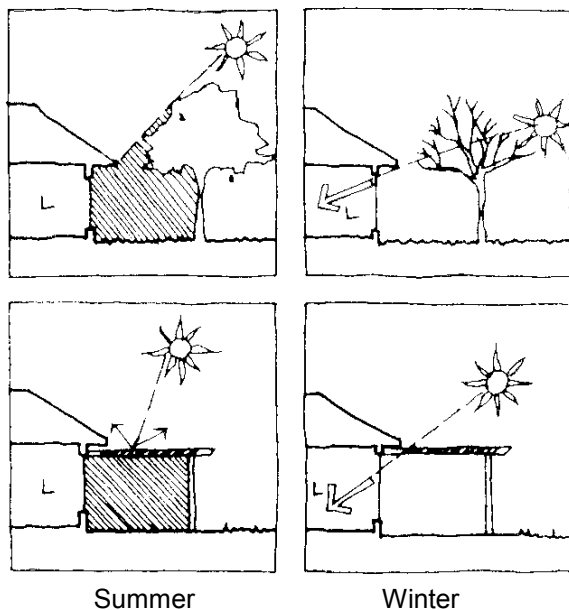
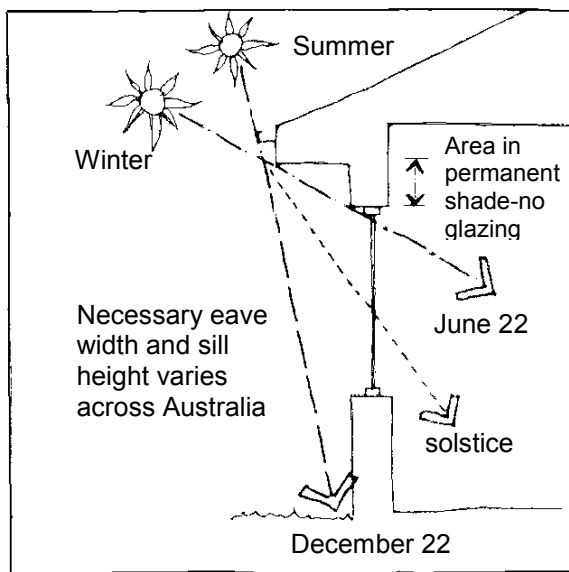


Building layout screens open space from overlooking by neighbours

17. Sunlight and Overshadowing

Objectives:

1. Overshadowing of neighbouring or internal dwellings minimised, particularly solar collectors.
2. Control of summer sun and admission of winter sun to dwellings wherever practicable.
3. Reasonable access to sunlight for living spaces within buildings and open space around buildings.

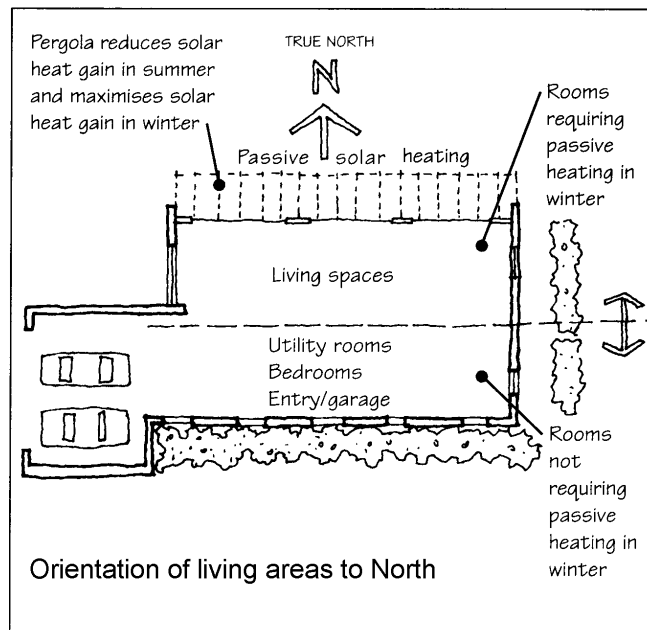


* Controlling summer sun & admitting winter sun.

Controls:

17.1 New Dwellings

Living areas should be oriented to the north or north-east.



Utilise deciduous trees, pergolas and wide eaves to control summer sun and admit winter sun.

Each new dwelling must have an outdoor area which is an extension of the living area of the dwelling. At least 60% of each outdoor area is to receive direct sunlight at ground level for the four hours between 10am and 2pm during mid winter.

Provide for the potential use of solar energy collectors by incorporating pitched roofs facing north.

17.2 Neighbouring Properties

Avoid overshadowing of neighbouring properties, particularly north facing windows and garden areas adjacent to houses.

New development must not eliminate more than one third of the existing sunlight, to windows of living areas and usable private open space, of an adjoining property measured at 10am and 2pm on 21 June.

No overshadowing of solar collectors will be permitted.

18. Energy Efficiency and Environmentally Sound Building Materials

Energy efficient dwellings are designed and constructed using appropriate materials and appliances to maximise the use of sustainable energy sources (such as sunshine) and use energy more efficiently.

They are “smart” because they simultaneously help preserve scarce resources, reduce the level of greenhouse gas emissions and provide significant savings.

Applicants must demonstrate the energy efficiency of the proposal by submitting an energy rating from an accredited assessor with the application.

NatHERS is currently the only rating tool accepted for use other rating tools may be accepted in the future, once they have passed accreditation protocol.

In NSW the House Energy Rating Management Body (HMB) is the accreditation body for Home Energy Assessors. Assessors provide a summary report which reflects the annual heating and cooling load for a dwelling. The results of the report are expressed as a “star rating” of 0-5 stars (with ‘0’ being least to 5 stars being most efficient).

Objectives:

1. An improved quality and energy efficiency of dwellings.
2. Dwellings that:
 - ◆ Use less energy
 - ◆ Are comfortable to live in
 - ◆ Are economical to run
 - ◆ Contribute positively to an overall reduction in greenhouse gas emissions.
3. To encourage the use of building materials that are energy efficient, non-harmful and environmentally sustainable.

Controls:

A. Minimum compliance controls for new dwellings:

1. A certificate from an accredited assessor showing a minimum 3.5 star energy rating for building envelope, using an approved HER tool (e.g. NatHERS). Ratings are to be provided for each dwelling.
2. A hot water system with a minimum score of 3.5 using SEDA greenhouse score for hot water heaters. Refer to table below.

Water Heater Type		Score
Solar-Gas Boost	Storage	5
Gas	Instantaneous	4
Gas-Storage	High Efficiency	4
Electric-Storage	Heat Pump	4
Gas-Storage	Low Efficiency	4
Solar- Electric Boost*	Continuous	4
Solar-Electric Boost*	OP2	4
Electric	Instantaneous	2
Electric	Continuous	1
Electric-Storage	Storage (OP1, OP2)	1

* greater than 50% solar contribution.

The use of solar water heater is strongly recommended. Refer to Appendix 2 for principles and design guidelines for the installation of a solar water heating system.

3. AAA rated showers, wash basins, kitchen sinks and toilet cisterns must be installed.
4. Clothes dryers, where they are being installed, with a minimum score of 3.5. (Refer to greenhouse score table below.)
5. Building materials should include the use of recycled materials, plantation timber and non-polluting substances. Appendix 3 provides a guide in selecting sustainable materials. Refer to lists for recommended plantation and regrowth timbers and timbers not appropriate for use in Sutherland Shire.

Council only accepts HMB accredited energy ratings (which must be submitted as part of a Development Application.).

B. Exemption from Minimum Controls for New Dwellings

Only under exceptional circumstances will Council consider varying the minimum controls
The circumstances are:

- a) **Steeply sloping sites** (especially on the foreshore) which may preclude slab floor type construction
- b) **Unusual construction** – where the prescribed assessment techniques do not address, or reliably assess, the performance of the construction being adopted and there are prima facie grounds for believing the prescribed techniques significantly underestimate the construction's performance.
- c) **Conflicting guidelines** – existing lease and development conditions, other development control plans or any other policy or guidelines that Council determines will have priority over this plan eg heritage requirements, which preclude the attainment of the minimum rating requirements.

The applicant must satisfactorily demonstrate the reason for non-compliance and provide a statement from an accredited assessor that the alternative requirements listed below have been complied with.

Minimum controls for alterations and additions and new or existing dwellings where building envelope requirements cannot be met.

1. Insulation installed in ceiling, walls and floors, as follows:
 - **Roof/ceiling:** insulation installed with a minimum R3.0 rating (roof/ceiling combined)
 - **External walls:** insulation installed with a minimum R1.5 rating (cavity brick construction is exempt from this requirement)
 - **Floors:** insulation installed with a minimum R2.0 rating. NB. Buildings with slab on ground construction are exempt from floor insulation requirement.
2. A hot water system with a minimum score of 3.5 using SEDA greenhouse score for hot water heaters. Refer to table above. The use of solar water heater is strongly recommended. Refer to Appendix 2 for principles and design guidelines for the installation of a solar water heating system.

3. AAA rated showers, wash basins, kitchen sinks and toilet cistern sets must be installed.
4. Clothes dryers, where they are being installed, with a minimum score of 3.5. (Refer to Greenhouse score table below.)

Clothes Dryer Greenhouse Table	
Energy Rating Label	Greenhouse Score
5.0	5.5
4.5	5.0
4.0	4.5
3.5	4.0
3.0	3.5
2.5	3.0
2.0	2.5
1.5	2.0
1.0	1.5

Clothes Dryers 4.0kg and over. These conversions are for electric systems only. The Greenhouse Score for gas-powered dryers will generally pass the minimum requirements.

To determine the Greenhouse Score of a clothes drier, check the star rating on its Energy Rating Label (typically found on the front of the clothes drier), and match it with the Greenhouse Score in the Conversion table above. If it achieves a Greenhouse Score of 3.5 or greater, the clothes drier has passed.

19. Views

Objective:

The views of existing residents maintained where this is reasonable. Where possible, dwellings should be designed with living areas facing the view.

Controls:

Identify existing views and locate and design buildings to minimise the loss of views enjoyed from other buildings or public places, while still providing views from the development itself.

Step buildings down the site or use only single storey dwellings to minimise the loss of views. Avoid steep roofs.

20. Heritage

Objectives:

1. Retention and conservation of heritage items; and
2. Infill developments adjacent to heritage items which are sympathetic to the significance of the item in both scale and design.

Controls:

On sites that have a building, work, relic or place that is a heritage item or is on a site that adjoins a heritage item that is a building under SSLEP 2000, development must be designed:

- a) To retain the item;
- b) To complement the item by using compatible building styles, colours and materials.

For more detailed guidance regarding a site identified as a heritage item under SSLEP 2000 contact the Environmental Services Division.

21. Site Facilities

Objectives:

1. Essential amenities and facilities integrated within residential developments.
2. Simple and direct access to and through the development for residents, visitors, trades people and service vehicles.
3. On-site waste management facilities that encourage source separation, reuse and recycling by residents.
4. Collection services providers able to efficiently collect waste and recyclables with minimum disruption and impact on residents.

Controls:

21.1 Drying Areas

Drying areas should not be visible from a public place and should have a northerly aspect.

21.2 Waste and Recycling

An area is to be provided for the temporary storage of waste and recyclables. It must be able to accommodate the required number and size of bins/containers as per the Garbage Service Matrix in **Appendix 5 Waste Management Specification**.

A bin room/area for developments with 22 dwellings or less must be conveniently located on the site for ease of access by residents to deposit waste and for placing the bins at the collection point. The bin room/area for developments with 23 dwellings or more must be located as close as possible to the site street boundary and orientated and designed for ease of access by residents and Council's Waste Collection Service.

Waste and recycling collection is provided by separate services. Each bin and bin type must be accessible and manoeuvrable in and out of the bin room/area with minimum or no handling of other bin types.

All bin rooms/areas must have nibs to prevent bins from making contact with the walls, for the purposes of noise reduction.

There must be no lip or step between the bin room/area and collection point

Recycling and waste bins must be located together, but separated and clearly sign posted. Signage must encourage and explain Council requirements for the separation of recyclable material and waste.

Entry and exit widths, after doors and lintels, must be a minimum of 1m for 240 litre bins and 2 metres for 1500 litre containers.

The bin room/area is to be free of all obstructions so as not to restrict movement and servicing of the bins or containers.

The ground surface of the bin room/area which has 1500 litre containers and driveway is to be of a smooth finish to enable easy movement of the container and minimise noise impact on residents.

Design of the bin room/area must be aesthetically pleasing. Materials, design and landscaping must complement the building.

A standpipe must be provided in close proximity to the bin room/area.

21.3 Letterboxes

Letterboxes shall be provided in accordance with Australia Post's requirements.

Freestanding letterbox structures should be designed and constructed of materials that relate to the main building.

21.4 TV Antennae

A master antenna shall be provided for any development of more than three dwellings.

22. Adaptable Housing

The provision of adaptable housing and access for people with disabilities is important in the Shire as the population in the over 55 years group is above the Sydney average and increasing as a proportion of the total population.

Adaptable housing is housing that is specifically designed to be flexible and easily modified at a later stage for a person with a disability.

The Australian Adaptable Housing Standard (AS 4299) provides guidelines on adaptable housing which can be applied to the planning and design of medium density housing.

Objectives:

1. Improved housing choice so that more people can live independently.
2. Economic and efficient use of building materials.
3. Housing that will, in its adaptable features meet the access and mobility needs of any occupant.

Controls:

Ten percent (10%) of all dwellings on a site, or a least one villa house, which ever is greater, must be designed in accordance with the Australian Adaptable Housing Standard (AS 4299 – 1995).

Adaptable housing dwellings must comply with the schedule of features as shown in Appendix A of AS 4299 – 1995. A report on this must be submitted with the development application.

An accessible path of travel in accordance with AS1428.1 must be provided between the street frontage and the dwelling entrance.

Minimum clear door openings of all doors must comply with or exceed the minimum as detailed in the Australian Standard AS 1428.1.

Car parking and garages allocated to dwellings built to the Australian Adaptable Housing Standard (AS 4299) must comply with the dimensions specified in that standard.

23. Frontage Works and Damage to Council Property

Objective:

A satisfactory finish to the roadway and footpath that blends with the natural surrounds

Controls:

23.1 Frontage Works

Provide tree planting and turfing in the footpath area.

Provide kerb and gutter along the total road frontage of the site, including road shoulder construction.

Provide a heavy-duty vehicular gutter crossing 5m in width.

Provide replacement or installation of a 1.2m footpath of suitable finish, if it is provided generally along the street, where Council considers it is necessary.

23.2 Damage to Council Property

Before any demolition or construction work is carried out on the site, Council requires security for the payment of the cost of making good any damage caused to any Council property as a consequence of the implementation of the consent.

24. Section 94 Contributions

Section 94 is a section of the Environmental Planning and Assessment Act that enables Council to collect monies, require dedication of land or provision of facilities (material public benefit) when approving development if it can be shown that the development will, or is likely to, increase the demand for services and facilities which Council provides.

Objective:

Development that contributes towards the provision of services and facilities (eg: open space, community facilities, infrastructure works) in the area because the proposed development increases the demand for these facilities/services.

Controls:

The cash contribution rate applicable to a development is outlined in the relevant Contribution Plan and is subject to indexation on 1 July every year.

Further information on the Contributions Plans applicable to a development and the associated rates can be obtained by contacting the Section 94 Planner in the Environmental Planning Unit.

25. Site Drainage

Objectives:

1. Proper drainage of the site to protect the adjoining sites from increased run off from development.
2. Potential reduction in site drainage by reuse of rainwater.

Controls:

Drain all roof and surface waters by pipeline to Council's nearest piped stormwater system.

Discharge the stormwater into the same catchment area in which the land being developed is situated.

Allotment drainage must discharge to the roadway gutter or an approved stormwater system. Depending on site conditions, Council may require:

- a) An easement over adjoining land to be obtained;
- b) The creation of an easement to permit drainage of adjoining land across the site;
- c) On site detention of stormwater.

Generally buildings will not be permitted to be constructed over easements. The filling of land in order to gain discharge of roof and surface water by gravity to the street drainage is generally prohibited. Drainage design should consider the size and impact of drainage pits, particularly for inner courtyards and private open space in new development.

Council encourages the provision of rainwater tanks to reduce discharge to the stormwater system.

A rainwater tank is to be installed for irrigation of landscaped areas. The principles and design guidelines for the installation of rainwater tanks are outlined in Appendix 4.

Note:

Site stormwater discharge should be limited to pre-development rates by the use of on-site drainage detention.

26. Origin

Edition 1: The Development Control Plan was adopted by Council on 16 May 1994. Authority: Environmental Health Committee Minute. 156 The plan came into force on 19 May 1994

Edition 2: Amended to comply with the Sutherland Shire Local Environmental Plan: September 1995.

Edition 3:

Action	Date
Council Endorse Plan	5th May 1997 (EHC 278-97)
Public Notice (draft)	27th May 1997
Exhibition –Start	27th May 1997
Exhibition Finish	30th June 1997
Council Decision	3rd November 1997 (EHC 136-98)
Public Notice (final)	13th November 1997
In Effect	18th November 1997

- a) Amended to upgrade standard of presentation.
- b) Minor alterations which make the document consistent with the Sutherland Shire Local Environmental Plan 1993 as amended and other Development Control Plans

Edition 4:

Action	Date
Council Endorse Plan	20 November 2000 (EHC 122-01)
Public Notice (draft)	28 November 2000
Exhibition –Start	28 November 2000
Exhibition Finish	31 January, 2001
Council Decision	19 March 2001
Public Notice (final)	27 March 2001
In Effect	27 March 2001

Edition 5:

Action	Date
Council Endorse Plan	14 May 2001 (EHC 311-01)
Public Notice (draft)	19 June 2001
Exhibition –Start	19 June 2001
Exhibition Finish	17 July 2001
Council Decision	10 December, 2001 (EHC138-02)
Public Notice (final)	20 December, 2001
In Effect	20 December, 2001

- a) Inclusion of supplementary information for:
 - Paving and Driveways
 - Solar Water Heating Systems
 - Sustainable Building Materials
 - Rainwater Tanks.

APPENDIX 1

PAVING AND DRIVEWAYS

Principles

These principles are consistent with stormwater management objectives and water sensitive urban design.

1. Reduce the volume and peak discharge of rainfall run-off to the stormwater system, thereby minimising the scale of the stormwater drainage infrastructure.
2. Minimise downstream flooding and the impact on the existing drainage system.
3. Improve water quality by reducing the volume of run off leaving the site, and improving water balance through recharge of groundwater.
4. Structural measures to prevent litter and flood debris entering the drainage system and subsequently causing a blockage.
5. Prevent excessive erosion of waterways, slopes and banks.
6. Minimise contaminant transport from stormwater to surface or ground waters.

Guidelines

In order to achieve these principles paving and driveways need to meet these guidelines:

1. Where the geology and topography are appropriate, ie permeable soil and limited slope; porous paving may be used.
2. Other types of paving must meet the principles above by means such as:
 - Directing run-off to landscape areas before entering the stormwater drainage system.
 - Flow detention to facilitate sedimentation of coarse and medium sized particles.
 - Utilising purpose-built water quality control devices that are appropriate and adequate for the site; such as gross pollutant traps, oil/grit separators installed and maintained in accordance with the manufacturer's recommendations.
3. Where porous paving is used the following guidelines on construction and maintenance should be met:
 - Slope of the pavement should not generally exceed 5 percent.
 - Regular maintenance is required to remove any potential clogging.
 - To prevent premature clogging, the porous paving should not be put in position until the surrounding areas have been stabilised.
 - Overland flow could be pre-treated by grass filter strips or swales.
 - Consult with suitably trained person who is familiar with the methods of construction and maintenance associated with porous paving.

APPENDIX 2

SOLAR WATER HEATING SYSTEMS

Principles

Council's solar water heater policy is based upon achieving:

- a reduction of carbon dioxide (CO₂) emissions into the atmosphere
- reduced energy consumption, and
- a reduced reliance upon fossil fuels.

A solar hot water system can offer many advantages over conventional electric and gas water heaters such as:

- savings in greenhouse gas emissions (up to 60-75%)
- savings in hot water heating costs (up to 50% compared to an off peak hot water system)
- a reliable system, that can last longer than conventional systems
- an asset that can improve the value of a building.

Types of Solar Water Heater

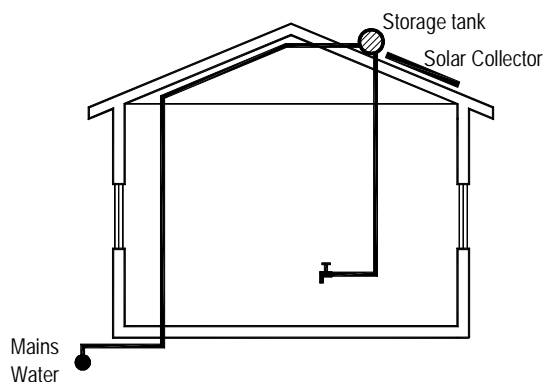
A solar hot water system comprises one or more solar collectors which are connected to a hot water storage tank. The storage tank is fitted with a 'booster', (gas or electric) to maintain the desired water temperature during extended cloudy periods.

The solar collectors are typically mounted on the roof to absorb the energy from sunlight. The resulting heat warms the water circulating through the collector, and the heated water is passed to the storage tank for use as required.

The types of solar water heaters are:

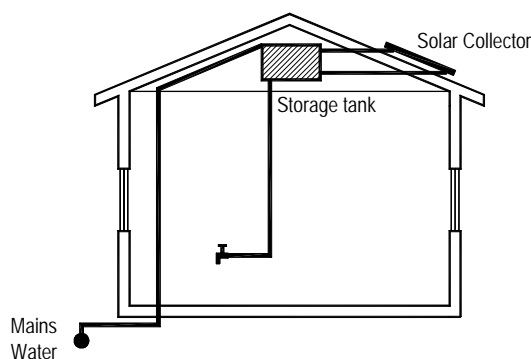
- **Close Coupled Thermosiphon System**

The collectors and storage tank are in one unit with the storage tank at a higher level than the collector plate.



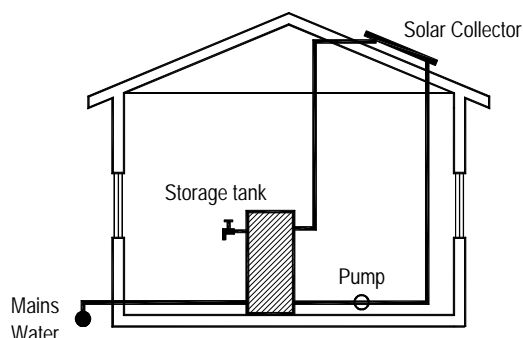
- **Remote Thermosiphon System**

The storage tank is located away from the collector, usually in the roof space.



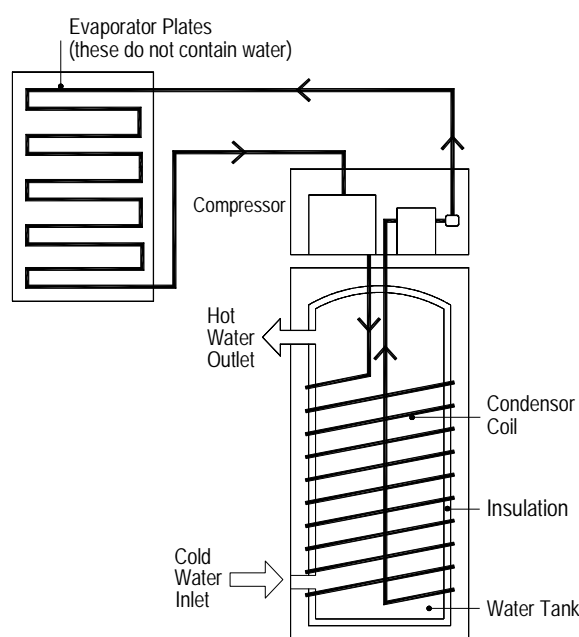
- **Forced Circulation System**

Water is circulated between the collector plate and the storage tank by means of a pump. The storage tank is usually at ground level.



- **Heat Pump**

This is basically a system in which a refrigerator works in reverse. Evaporator plates extract heat from the air during the day and night. The system is electrically powered but uses only 30% of the electricity used by a conventional hot water heater.



Design Guidelines

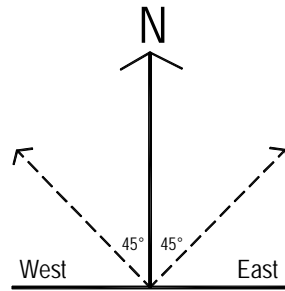
Location and Orientation

Solar water heaters should be located on a northerly facing roof, or other north facing location to maximise solar access.

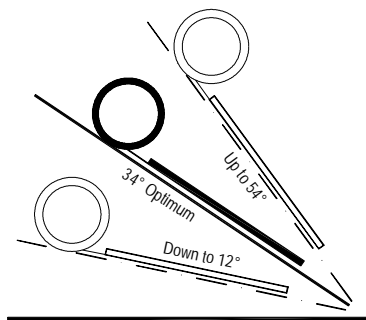
The specific requirements for a solar water heating system in regard to its location and orientation include:

- The orientation of solar panels should be within 45° either side of true North.
- Solar collectors should be angled at 34° (optimum) to horizontal, but variations between 12° and 54° are acceptable.
- Solar collectors should not be located so as to be shaded for most of the day from buildings or trees (existing and proposed new tree planting) where tree is considered to be significant or desirable.
- Solar panels should be located as close as possible to the kitchen and bathrooms they are serving subject to other locational requirements.

(Refer to Australian Standards for Solar Water Heaters)



Choose a North Facing Roof or Other North Facing Location for Solar Hot Water Heaters



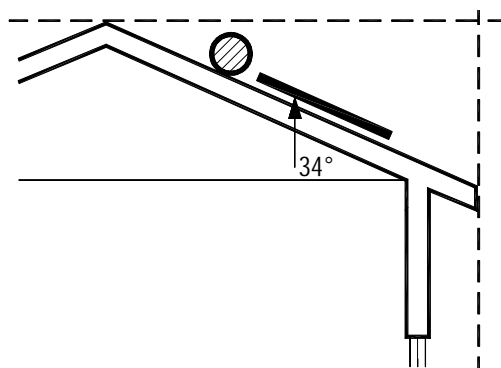
Solar Panel Angles to the Horizontal

Visual Impact and Aesthetics

Solar water heaters are to be located so as not to be visually obtrusive and are to be designed as part of the building.

The following controls apply to the installation of a solar water heating system to minimise the visual impact:

- When located on a roof it must be in the same plane as the roof slope and as close as possible to the roof material.
- It must be positioned below the ridgeline of the building.
- The colour of all metallic parts of the collector should compliment the colour of roofing materials.
- It should be located to avoid overlooking from the habitable room windows of adjoining properties.
- Tanks must not be located on the roof if visible from street or other public areas including waterways.



Position solar water heater below the ridgeline of the roof

Australian Standards

All solar hot water heaters installed shall comply with relevant Australian Standards for solar electric plumbing and structural requirements as follows:

- AS 2712 – 1993 ‘Solar water heaters; Design and construction’
- AS/NZS ISO 9001 1994 ‘Quality Assurance standard’
- AS 3500.4.1 – 1997 ‘National Plumbing and Drainage; Part 4, Hot water supply systems – Performance requirements’
- AS/NZS 3662 – 1996 ‘Water supply; Water efficient mains pressure shower spray heads’

Information Requirements

It is required to show the size and location of the solar water heater on Development Application submission.

APPENDIX 3

SUSTAINABLE BUILDING MATERIALS

Principles

Building materials should be selected on the basis that they

- increase the energy efficiency of the building; and
- minimise damage to the environment in their extraction, manufacture, use and disposal.

Building material selection should be subject to systematic consideration of “whole of life” environmental impacts. The “precautionary principle” should be adopted, by avoiding the use of hazardous or suspected materials or only using them with adequate safety devices and precautions. Impacts that should be considered are:

- impact on natural ecosystems from which the material was extracted/grown
- amount of energy required in production/transportation
- environmental impacts generated by construction activities
- amount of toxin/waste generated in production
- potential of the material to be recycled
- amount of recycled material used in production
- life span and durability of product
- effectiveness of product
- any threat to human health from deterioration of the product
- nature of waste generated by disposal of the product.

The use of low impact, environmentally sustainable building materials can help:

- avoid or reduce dependence on non-renewable resources
- increase resource efficiency
- minimise impacts on biodiversity
- to recover, reuse and recycle materials.

Design Guidelines

As a guide in selecting energy efficient materials which contain low embodied energy, the following should be taken into consideration:

- use materials manufactured from abundant or renewable resources
- utilise recycled and recyclable materials, where practical, in walls, roofs and floors
- use durable materials which require minimal maintenance
- use benign materials, ie. non-polluting and non-toxic in their production, use and disposal
- use materials which employ environmentally acceptable production methods.
- Use materials that will not adversely affect the viability of the soil for plant life, in areas to be landscaped eg. avoid use of recycled concrete products as they increase alkalinity.

Standards

Specific controls applied for using timbers in construction include:

- Use plantation, regrowth or recycled timbers in framework.
- Avoid use of rainforest timbers and timbers from Australian high conservation forests, in other timber works wherever possible.

(Refer to lists for recommended plantation and regrowth timbers and timbers not appropriate for use in Sutherland Shire.)

Information Requirements

Separate specification is to be provided detailing the quantity, species and origin of all timbers to be used in the construction (when applying for a Construction Certificate).

Timbers Recommended for Building Use

Recommended Plantation Timbers

Sutherland Shire Council recommends the use of the following plantation timbers in Australia. These are mainly pine species, often referred to as softwoods including:

- ✓ **Caribbean Pine** (*Pinus caribaea*) grown in Queensland & NSW
- ✓ **Hoop Pine** (*Araucaria cunninghamii*) grown in Queensland & NSW
- ✓ **Oregon** (*Pseudotsuga menziesii*) grown in New Zealand
- ✓ **Radiata Pine** (*Pinus radiata*) grown in Australia & New Zealand
- ✓ **Slash Pine** (*Pinus elliotii*) grown in Queensland, NSW & New Zealand

NB: Some of these timbers are grown in other countries but for energy efficiency it is preferable to source them locally.

Recommended Australian Regrowth Timbers

Sutherland Shire Council recommends the use of regrowth native timbers, often referred to as ‘hardwoods’ including:

- ✓ **Blackbutt** (*Eucalyptus pilularis*)
- ✓ **Spotted Gum** (*Eucalyptus maculata*)
- ✓ **Cypress Pine** (*Callistris sp*)
- ✓ **Sydney Blue Gum** (*Eucalyptus saligna*)
- ✓ **Flooded Gum** (*Eucalyptus grandis*)
- ✓ **Manna Gum** (*Eucalyptus viminalis*)
- ✓ **Jarrah** (*Eucalyptus marginata*)
- ✓ **Silvertop Stringybark** (*Eucalyptus laevopiniea*)
- ✓ **Red Ironbark** (*Eucalyptus sideroxylon*)

Recycled Timbers

Sutherland Shire Council recommends the use of recycled timbers.

Uses For Recommended Timbers

Sutherland Shire Council recommends the use of the following sustainable timbers as alternatives to rainforest and old growth forests.

Framing and General Construction

- ✓ Radiata Pine (F5 & F7 Internal) (F11-F17 Structural)
- ✓ Laminated Veneer Lumber (LVL)
- ✓ Plantation Grown Oregon
- ✓ Cypress Pine
- ✓ Australian regrowth timbers eg. Blackbutt
- ✓ Composite timber products eg. glue laminated beams
- ✓ Recycled timber of suitable species

Concrete Formwork

A large percentage of formply used in Australia is made from tropical timber. Use only formply made from plantation pine – Radiata, Slash and Hoop Pine. Reuse formply whenever possible and do not specify a higher grade than what is required.

Inground Uses

- ✓ Recycled Australian timbers of suitable species
- ✓ Australian regrowth timbers (Jarrah, Red Ironbark, Spotted Gum, Cypress Pine)
- ✓ CCA treated Radiata Pine (pressure impregnated)

Cladding

- ✓ Treated plantation pine
- ✓ Australian regrowth timber (Jarrah, Red Ironbark, Spotted Gum, Cypress Pine)
- ✓ Durable recycled timber
- ✓ Treated exterior grade plywood

Window and Door Frames

- ✓ Treated plantation pines
- ✓ Cypress Pine
- ✓ Poplar
- ✓ Recycled timber of suitable species
- ✓ Australian regrowth timbers

Flooring

- ✓ Plantation Pines
- ✓ Cypress Pine
- ✓ Particle board
- ✓ Australian regrowth timbers

Fencing, Exposed Decking and Stairs

- ✓ Durable recycled timber
- ✓ Australian regrowth timber (Jarrah, Red Ironbark, Spotted Gum, Cypress Pine)

Furniture, Joinery, Shelving & Benchtops

- ✓ Plantation Pines (Radiata, Hoop)
- ✓ Poplar
- ✓ Plantation Oregon
- ✓ Camphor Laurel
- ✓ Particleboard
- ✓ Recycled Timber
- ✓ Medium Density Fibreboard
- ✓ Australian regrowth timbers (Blackbutt, Jarrah, Spotted Gum, Sydney Blue Gum, Rose Gum, Silvertop, Stringybark, Turpentine)
- ✓ Jacaranda, Silky Oak

Panelling and Lining

- ✓ Hoop Pine
- ✓ Spotted Gum
- ✓ Hardboard (Masonite)
- ✓ Pine veneer plywood

Internal Stairs

- ✓ Recycled timber
- ✓ Plantation Pines (not for treads)
- ✓ Australian regrowth timber

Doors and Frames

- ✓ Plantation Oregon
- ✓ Hoop or clear Radiata Pine
- ✓ Recycled doors or timber

Decorative Veneer

- ✓ Plantation Pines
- ✓ Camphor Laurel
- ✓ Australian regrowth timber

- *Hoop Pine* is a rainforest timber grown in plantations – check its source.
- *Oregon* or Douglas fir is often cut from old growth forests in North America. The majority of Oregon in Australia is from New Zealand plantations.

Timbers Not Recommended for Building Use

Australian Native Rainforest Timbers to be Avoided

Sutherland Shire Council does not recommend the use of Australian Native Rainforest timbers which are not grown on plantations.

The use of the following Australian Native Rainforest Timbers is not recommended:

Alder	Carabeen	Maple
Bean, Black	Cedar	Mararie
Beach, Myrtle	Celery – Top Pine	Oak
Beech, White	Cheesewood, White	Pigeonberry Ash
Booyong	Coachwood	Queensland Maple
Brushbox	Cudgerie	Rosewood
Butternut, Rose	Huon Pine	Sassafras
Bunya Pine	Kaurie Pine	Silky Oak Teak, Crows Ash
Candlenut	King William Pine	

Note: This list is a guide only, and is not intended to be comprehensive.

Imported Rainforest Timbers to be Avoided

Most rainforest timber imported into Australia comes from Indonesia, Malaysia, Burma, Papua New Guinea and the Philippines. All timber cut in these countries is cut from virgin rainforests. There are no plantations yet old enough to provide timber logs.

The use of the following imported rainforest timbers is not recommended.

Timber merchants often group all rainforest timbers using two names – **Maple or Meranti**. More specifically these timbers are:

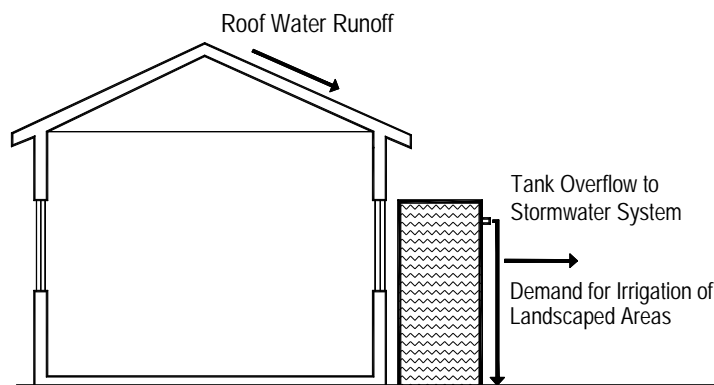
Agathis	GaharuBuaja	Mahogany	New Guinea Walnut
Alan	Gmelina	Mangasinoro	Nyatoah
Almon	Ipil	Marfim	QBA Saluk
Amboyna Wood	Iroko	Mayapis	Pacific Maple
Apitong	Jelutong	Mavota	Padauk
Balau	Kalantas	Melawis	Palaquim
Balsa	Kapur	Mengkulang	Pink Satinwood
Bangtikan	Keladin	Meranti	Ramin Red Lauan
Batu	Kempas	Merawan	Rosewood
Baygo	Keruing	Merbau	Selangan Kacha
Betis	Ketiau	Mersawa	Seraya
Borneo Camperwood	Koto	Motoa	Tanquile
Calantas	Lauan	Narra	Teak
Camphorwood	Lanutan	New Guinea Beech	Vesi

APPENDIX 4

RAINWATER TANKS

Principles

1. To improve environmental sustainability by collecting and re-using stormwater.
2. To support responsible management of stormwater.
3. To minimise water consumption from mains water supply.



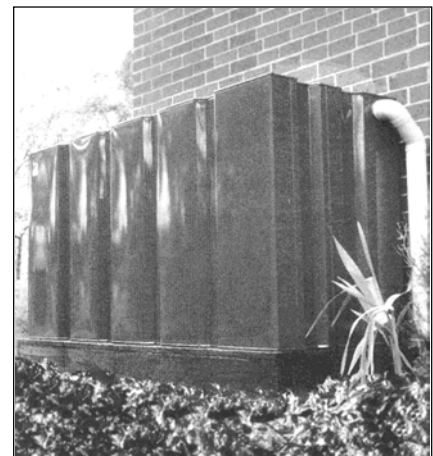
Rainwater Collection System

The selection of a rainwater tank should be based on the following:

- appropriate size, shape and capacity
- materials
- colour and appearance
- a suitable location for the tank on the property
- impacts on properties adjacent to the tank, in regard to visual aesthetics and noise.



2x4000 litre Slimline Tanks



**3000 litre Modular Tank
2260L X 1150W X 1140H**

Design Guidelines

The design and installation of a domestic rainwater collection system needs to consider the following:

Sizing

- Rainwater tanks providing storage capacity at the minimum rate of 2.4 kL per dwelling.
- Individual rainwater tanks shall not exceed 20 kL capacity.

Installation

- The tank and support structure must be placed on a suitable foundation in accordance with the manufacturer's or engineer's details.
- The tank may also be incorporated into the eaves of the building or fixed to the wall.
- Tank Installation and all plumbing works must be carried out by a person licensed with the NSW Department of Fair Trading.
- All rainwater storage shall be above ground construction.

Plumbing Connections

- Water collected in rainwater tanks should be kept entirely separate from the existing mains water supply system and allow no direct cross connection with water mains plumbing.
- All drainage connections are to be in accordance with the Drainage and Plumbing Code AS 3500.
- All rainwater storage shall be directly connected to a permanent irrigation system. Town water shall only be introduced to the rainwater tank not to the irrigation system directly.
- Stormwater flows from all roofed areas shall be directed to rainwater storage in a controlled manner.

Taps

- Tank taps are to be marked "Rainwater – not for human consumption".

Overflow

- Intense or prolonged rainfall will exceed the capacity of the tank so it is essential to have an overflow system connected to the stormwater drainage system via the on-site detention.
- Overflow must not be directed into the sewer and must be covered with an insect-proof mesh.

Visual Appearance

- The rainwater tank, its associated drainage, plumbing and supporting structure should be designed and located in such a manner that it maintains the visual amenity of the immediate surrounds.
 - Tanks are to be located in the rear yard of a property and at least 900mm from any side boundaries.
 - A maximum height of 2.4m from ground level applies to tanks located at or above ground level.
 - Materials, colours and shapes of the tanks should be compatible with the proposed building, adjoining buildings and streetscape.

Health & Safety

- Tanks should be covered or fully enclosed and any lid shall be designed to prevent children from wilfully or accidentally entering, climbing or falling into the tank.
- Tanks should have suitable contaminant screens and contain a first flush system to prevent the entry of any animals or pollutants into the water.

Mosquito Proofing

- Tanks must be mosquito proof by installing a strainer with mosquito net in all inlet and outlet pipes.

Pump Installation

- Council doesn't encourage the installation of a system that requires pumping. Irrigation systems should be gravity fed.

Maintenance

- Gutter and roofs should be cleaned and maintained regularly.
- Clean inlet strainers whenever necessary, or use self cleaning strainers.
- Check for sludge every few years to remove accumulated mud, which comes from dust settling on the tank floor.
- Make sure the inlet strainers, mosquito proofing and lids are in good repair. Lids should be tight fitting.

Australian Standards

Rainwater tanks and their associated fittings & fixtures must comply with the relevant Australia Standards:

- AS/NZS 2179 – 1994 ‘Specifications for Rainwater Goods, Accessories & Fasteners’
- AS 2180 – 1986 ‘Metal Rainwater Goods – Selection and Installation’
- A certificate of Compliance showing that the tank meets these standards shall be submitted.

Application and Notification to Council

If the installation of rainwater tanks is not part of an application to erect dwellings to which this DCP applies you should refer to SSLEP 2000 Schedule 4 - Exempt Development, Water tanks to determine whether a development application is necessary.

In circumstances where a separate Development Application is not required, consideration must be given to adjoining properties, in regard to placement. It is required to show the tank, support structure and its location on the Development Application submission.

APPENDIX 5

WASTE MANAGEMENT SPECIFICATION

Sutherland Shire Council Waste Management Services offers the following collections;

- 240 Litre Bin Service Putrescible Waste (provided for town house and villa developments with 22 dwelling units or less); 1500 Litre Container Service Putrescible (provided for town house and villa developments with 23 dwelling units or more)
- Recycling Service, includes glass, aluminium and paper (provided for all residential developments)
- Garden Green Waste Service

The Garbage Service Matrix;

A matrix for waste and recycling bin sizes and numbers has been developed and calculated via waste audits. The matrix enumerates the number of and type of waste and recycling bins required based on the size and type of dwelling complex.

Bins Only Collection Service

FOR DEVELOPMENTS WITH 22 DWELLINGS OR LESS

All bin collection services for putrescible waste are collected from the property boundary by Council's Waste Collection Service. All recyclables, whether paper, glass, cans or garden green waste are also collected from the property boundary. It is the responsibility of residents to ensure the bins are placed at the collection point, usually between the property boundary and the road reserve, prior to collection.

Design of facility for temporary storage of waste and recyclables

Location

The bin room/area must be conveniently located on site for ease of access by residents both for the depositing of waste and recyclables and for the placing of bins, by residents, at the collection point.

Dimensions

The bin room/area must accommodate the appropriate number and size of bins/containers as per the Garbage Service Matrix.

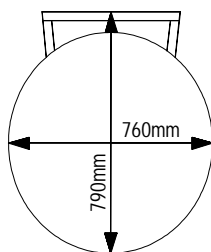
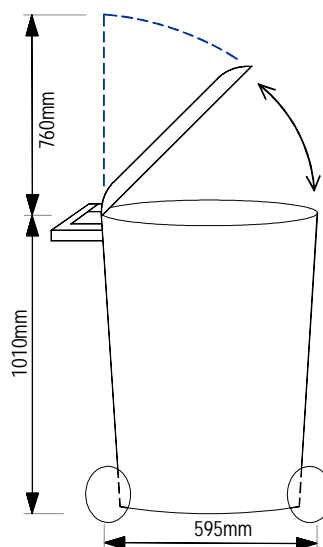


Figure 2 above illustrates the dimensions of the Garden Waste and Bin used by Sutherland Shire Council



Design

Each bin and bin type must be accessible and manoeuvrable in and out of the bin room/area with minimum or no handling of other bin types.

Waste and recycling collection is provided by separate services. Each bin and bin type must be accessible and manoeuvrable in and out of the bin room/area with minimum or no handling of other bin types, for the convenience of residents

All bin rooms/areas must have nibs to prevent bins from making contact with the walls, for the purposes of noise reduction.

There must be no lip or step between the bin room/area and collection point

Recycling and waste bins must be located together, but separated and clearly sign posted. Signage must encourage and explain Council requirements for the separation of recyclable material and waste.

Entry and exit widths, after doors and lintels, must be a minimum of 1m for 240 litre bins.

The bin room/area is to be free of all obstructions so as not to restrict movement and servicing of the bins or containers.

The ground surface of the bin room/area and driveway is to be of a smooth finish to enable easy movement of the container and minimise noise impact on residents.

Design of the bin room/area must be aesthetically pleasing. Materials, design and landscaping must complement the building.

A standpipe (tap) must be provided in close proximity to the bin room/area.

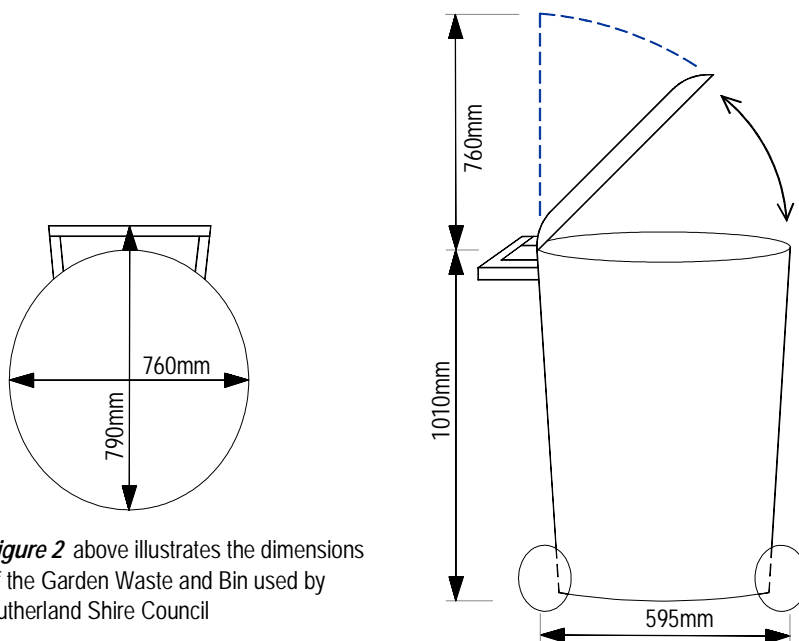


Figure 2 above illustrates the dimensions of the Garden Waste and Bin used by Sutherland Shire Council

Container (1500 L) Collection Service

FOR DEVELOPMENTS WITH 23 DWELLINGS OR MORE

Waste Collection staff manoeuvre the 1500 Litre container of putrescible waste from the bin room/area to the truck at the time of collection. The development, driveway, and bin room/area are required to be designed to maximise collection staff safety and minimise impact on residents.

Container Specifications

- Prior to occupation of the building, the applicant must provide a 1500L container.
- The container must, for health reasons, possess a fitted plastic lid
- In order to minimise noise and provide easy manoeuvrability, the container must be fitted with nylon wheels.
- The container must meet all other specifications as illustrated in Figure 3 below.

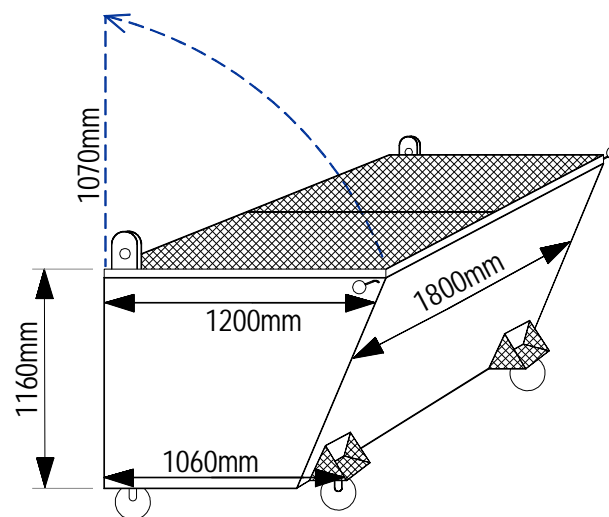


Figure 3 above illustrates the dimensions of the 1500L Containers used by Sutherland Shire Council

An area is to be provided for the temporary storage of waste and recyclables. It must be able to accommodate the required number and size of bins/containers as per the Garbage Service Matrix.

Council's Waste Collection Service collects all recyclables, whether paper, glass, cans or garden green waste from the property boundary. It is the responsibility of residents to ensure the recycling/garden waste bins are placed at the collection point, usually between the property boundary and the road reserve, prior to collection.

Design

A bin room/area must be conveniently located on the site for ease of access by residents to deposit waste and for placing the bins at the collection point.

Waste and recycling collection is provided by separate services. Each bin and bin type must be accessible and manoeuvrable in and out of the bin room/area with minimum or no handling of other bin types, for the convenience of residents

All bin rooms/areas must have nibs to prevent bins from making contact with the walls, for the purposes of noise reduction.

There must be no lip or step between the bin room/area and collection point.

Recycling and waste bins must be located together, but separated and clearly sign posted. Signage must encourage and explain Council requirements for the separation of recyclable material and waste.

Entry and exit widths, after doors and lintels, must be a minimum of 2 metres for 1500 litre containers.

The bin room/area is to be free of all obstructions so as not to restrict movement and servicing of the bins or containers.

The ground surface of the bin room/area which has 1500 litre containers and driveway is to be of a smooth finish to enable easy movement of the container and minimise noise impact on residents.

Design of the bin room/area must be aesthetically pleasing. Materials, design and landscaping must complement the building.

A standpipe (tap) must be provided in close proximity to the bin room/area.

Truck Dimensions: 1500L container collections

To enable 1500L container trucks to access the site for waste collection, the site and driveway must accommodate the following dimensions;

- 9.36 m Overall length of truck
- 12.5m Length required for container hook up and staff access
- 2.43 m Overall width
- 3.224 m Overall height, lifting clearance not required.
- 4.8 m Wheel Base
- 17.5 m Minimum Turning Circle Diameter
- 22.5 tonnes Loaded Weight
- 5% gradient maximum of driveway to allow container hook up

Truck Access

- It is most desirable that a truck enters and exits a site in a forward direction.
- It is usually acceptable for a truck to reverse into a site, and exit in a forward direction.
- Where this is not possible due to demonstrated site constraints, Council's Waste Collection Service must be consulted, and may approve some other manner of ingress and egress.
- It is never acceptable for a truck to reverse out of a site.
- At the collection point, a 100mm reinforced concrete pad is to be provided, capable for bearing the loaded truck weight.
- Where bedroom or living area windows, either from that or neighbouring developments, overlook the collection point, a fixed and embedded rubber pad is required to overlay the concrete in order to minimise noise impacts.

Garbage Service Matrix

Number of villas/ townhouses	No. 240L bins	No. of Containers	No. Collections Per week	Co- Mingled	Garden waste	Total number of bins
3	2	*	1	2	1	5
4	2	*	1	2	1	5
5	3	*	1	2	1	6
6	3	*	1	3	2	8
7	4	*	1	3	2	9
8	4	*	1	3	2	9
9	5	*	1	3	2	10
10	5	*	1	3	2	10
11	6	*	1	3	2	11
12	6	*	1	4	3	13
13	7	*	1	4	3	14
14	7	*	1	4	3	14
15	8	*	1	4	3	15
16	8	*	1	4	3	15
17	8	*	1	4	3	15
18	9	*	1	4	3	16
19	9	*	1	4	3	16
20	10	*	1	5	4	19
21	10	*	1	5	4	19
22	10	*	1	5	4	19
23	*	1	2	5	4	9
24	*	1	2	5	4	9
25	*	1	2	5	4	9
26	*	1	2	5	4	9
27	*	1	2	5	4	9

Number of villas/ townhouses	No. 240L bins	No. of Containers	No. Collections Per week	Co-mingled	Garden waste	Total number of bins
28	*	1	2	5	4	9
29	*	1	2	5	4	9
30	*	1	2	6	4	10
31	*	1	2	6	5	11
32	*	1	2	6	5	11
33	*	1	2	6	5	11
34	*	1	2	6	5	11
35	*	1	2	6	5	11
36	*	1	3	6	5	11
37	*	1	3	7	5	12
38	*	1	3	7	5	12
39	*	1	3	7	5	12
40	*	1	3	7	5	12
41	*	1	3	7	5	12
42	*	1	3	8	6	14
43	*	1	3	8	6	14
44	*	1	3	8	6	14
45	*	1	3	8	6	14
46	*	2	2	8	6	14
47	*	2	2	8	6	14
48	*	2	2	8	6	14
49	*	2	2	8	6	14
50	*	2	2	8	6	14