

CAR PARKING

Development Control Plan

KU-RING-GAI COUNCIL



Development Control Plan No.43

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1. INTRODUCTION

1.1 Policy context

A Development Control Plan (commonly called a DCP) is a document which provides details of the various standards, policies and guidelines adopted by Council for developments in the Council area. It also assists developers in designing proposals and preparing their applications to Council.

This DCP relates to car parking. Council will take into account the provisions of this DCP as a relevant consideration in assessing the impacts of proposed developments under the requirements of Section 79(c) of the *Environmental Planning and Assessment Act*. In assessing proposed developments, Council will look towards the prescriptive guidelines that are set out in this DCP being met, but will consider a proposal on its merits, in a performance based assessment, where the key question will be whether the stated objectives of the DCP and of the individual design elements are achieved.

The DCP has been prepared in accordance with Section 72 of the *Environmental Planning and Assessment Act (1979)*.

1.2 Aims of the DCP

The aims of this DCP are to:

- ensure that adequate parking is provided for developments in Ku-ring-gai, firstly to minimise the overflow of parking onto surrounding streets, and secondly to ensure that a high standard of parking and access to commercial developments is provided, to support their viability;
- provide objectives and guidelines for the design of parking and service areas, to ensure that these areas are safe, efficient and consistent with the desirable characteristics and environmental standards expected in the Ku-ring-gai area;
- provide ecologically sustainable car parking facilities ;
- to provide the community with a set of standards while recognising that opportunities need to be identified that will protect the environmental quality of the area and have regard for the major transport corridor that serves the Council area.

The Code also provides standards for assessing car parking requirements related to generation rates and appropriate technical standards that will:-

1. Not destroy the residential character of the Ku-ring-gai Council area.

2. Provide sufficient on site car parking for the various activities defined in the Code or alternatively make satisfactory arrangements for the provision off site or by Section 94 Contribution in accordance with Council's adopted policies.
3. Provide sufficient guidance to allow Council where appropriate to approve departures from the numerical standards of the Code where an applicant can demonstrate to Council's satisfaction that there will be no significant impact on the surrounding area.
4. Promote commercial car parking that is both functional and consistent with the landscape theme of Council's various land use centres.
5. Assist shopkeepers and owners in the revitalisation of the various commercial centres while maintaining appropriate car parking standards and provisions within the Centre.
6. Support the aims and objectives for the physical works associated with car parking adopted in DCP38 being:-
 - Enhance the significant and unique living environment available in Ku-ring-gai.
 - Encourage development which is in harmony with the surrounding area and which is sympathetic to the street and locality in which it is proposed.
 - Minimise the impact on adjoining properties and the natural environment generally and sustain this environment for future generations to enjoy.
 - Retain the natural, built and cultural significance of **heritage items** and **conservation areas** in Ku-ring-gai.
 - Facilitate good architectural design.
 - Be innovative and flexible in approach.
 - Be responsive to both community expectations and an applicant's right to have a level of certainty in the assessment process.
 - Focus on the desired urban design outcomes as expressed in this plan.
 - Achieve ecologically sustainable development.

1.3 How does the DCP relate to other planning instruments and policies?

This DCP complements the statutory requirements in Ku-ring-gai Planning Scheme Ordinance 1971 (as amended) by providing detailed provisions to be considered when designing and assessing the vehicular access and car parking in proposed developments. It should be read in conjunction with all other relevant DCPs and Council policies, details of which are available from Council on request.



The Good Design Manual (DCP38) provides useful information for the layout and design of access and parking areas. This DCP has been prepared in accordance with the *Environmental Planning and Assessment Act (1979)* and its Regulation. This DCP applies to all land within Ku-Ring-Gai.

The details of this Plan are based on:

- Roads & Traffic Authority of NSW “*Guide to Traffic Generating Developments*”, (December 1993)
- Australian Standard 2890.1-1993: *Parking facilities - Part 1: Off-street car parking*
- Australian Standard 2890.2-1989: *Off-street parking - Part 2: Commercial vehicle facilities*
- Research into the parking demands generated by certain types of land use in Ku-ring-gai, together with research into the travel characteristics of residents and workers in this area.
- Input from Council’s various technical and administrative departments.

1.4 How to use this DCP

Step 1

Read Chapters 2 and 3 to understand the process and to determine the level of car parking recommended.

Step 2

Read Chapter 4 to understand the issues to be considered in the design of the parking and vehicle areas, with particular regard to the location of the driveway(s).

Step 3

Prepare an initial design. Applicants are requested to seek professional assistance from qualified practitioners.

Step 4

If the recommended level of on-site parking cannot be provided, consider the implications of such an under-provision, with specific regard to the Council policies set out in Chapter 3. Liaise with Council officers as appropriate.

Step 5

Finalise design details and documentation for submission to Council.



2. DEVELOPMENT APPLICATION PROCESS

2.1 The process

The *Environmental Planning & Assessment Act 1979* and the *Local Government Act 1993* provide Councils with the authority to require applications to be lodged and determined prior to any development occurring. Development is defined in the Kuring-gai Planning Scheme Ordinance as:

“Development” in relation to any land includes the erection of any building, the subdivision of the land and the carrying out of any work, and any use of the land or building or work thereon for a purpose which is different from the purpose for which the land or building or work was last being used.

- See also definitions in the Environmental Planning and Assessment Act 1979.

In submitting a development application, details of the vehicular access, parking and servicing arrangements will need to be provided. For larger, more complex developments, a traffic impact study will also need to be prepared. The Roads & Traffic Authority’s *“Guide to Traffic Generating Developments”* (Section 2 and Table 9.1) provides some guidance in this regard. The issue should be discussed with Council staff to ascertain if such a study is required. The minimum details that should be submitted with the development application are set out in the following Section 2.2.

2.2 Submission checklist

Your application should include the following parking/loading and manoeuvring information:

1. Scaled plan (1:200) showing the driveway location, width and design, the layout of any internal roads on the site and details of any loading facilities. The parking spaces are to be clearly indicated, with individual spaces numerically marked.
2. Parking space and aisle dimensions are to be clearly indicated, together with the dimensions of any critical manoeuvring areas. Ramp and driveway gradients are to be indicated. Where critical, ceiling height clearances within parking and service vehicle areas should be indicated.
3. As appropriate, details of car park signposting and linemarking should be provided. Where parking spaces are to be reserved for visitors, staff or other users, the details should be clearly shown.
4. With more complex developments, a schedule of floor areas by type should be shown on the plans.



5. In critical manoeuvring areas, particularly in service vehicle areas, the swept paths of appropriate design vehicles should be overlaid on the plans, to indicate how the design would provide a satisfactory layout.
6. Full details of proposed landscaping treatments within the access and parking areas should be provided in plan form. A schedule of species to be planted should be provided. Examples of what landscape treatment might be provided eg. painting materials, lighting, signage etc.
7. Details of the applicant's car parking calculations would be of assistance. Where the parking is based on staff in the proposed development, the number should be indicated in the calculations.
8. As appropriate, a traffic / parking impact assessment report should be provided.
9. Consideration of stormwater runoff from the increase in impervious surface – quality control should be installed where the parking areas are large enough to warrant (over 25 cars) along with detention / velocity control.
10. Full details of existing site element at a scale of 1:200, including existing trees and vegetation showing canopy spread of trees and ground levels at the base of the trunk.
11. Car park plans should show RL's.



3. CAR PARKING PROVISION

3.1 Car parking rates

The **objective** is to provide adequate parking for customers, visitors, residents, employees and tradesmen to satisfy the parking demand generated by the proposed development. The achievement of this objective is important firstly so that parking does not spill over from the site onto the adjacent road network, with consequent potential for adverse impact, and secondly so that the accessibility of the of the development is satisfactory. These objectives can be achieved by the provision of on-site parking at the minimum rates set out in the schedule below.

Reference should be made to the Appendix for the definition of the land uses. In the calculation of the parking spaces, overall requirement figures are to be rounded up to the nearest integer.

LAND USE	PARKING	NOTE
Residential Dwelling-houses	2 spaces for single occupancy. For dual occupancy: requirements are minimum 1 space per dwelling under 125sqm. Dual Occupancy dwellings in excess of 125sqm – 2 spaces per dwelling. Refer to DCP15 for further details.	Parking location to follow the principles outlined in <i>The Good Design Manual (DCP38)</i> .
Medium density residential flat building	1 bedroom unit: 1 space. 2 bedroom unit: minimum multiple of 1.25 spaces per unit. 3 bedroom unit: minimum multiple 1.5 spaces per unit. Visitor parking: 1 space per 4 units.	Spaces must include a minimum of 1 covered space per unit within the confines of the building for exclusive resident use. Visitor parking to be clearly signposted, convenient to entry, not obscured and not used by residents. The access requirements for furniture vans and trucks should be considered. Allocation of spaces to be clearly indicated on strata plans.



<p>High density residential flat buildings defined as development over 4 residential levels in height and floor space ratio above 1:1</p>	<p>Resident parking: 1 bedroom unit: 1 space per unit 2 bedroom unit: 1 space per unit 3 bedroom unit: 1.5 spaces per unit Visitor parking: 1 space per 4 units The above are minimum requirements unless Council is satisfied on the merit basis there are particular circumstances that warrant reduction of the above rates. Note: Studies or the like will be considered as bedrooms for the purpose of this Code.</p>	<p>Spaces must include a minimum of 1 covered space per unit within the confines of the building for exclusive resident use. Visitor parking to be clearly signposted, convenient to entry, not obscured and not used by residents. The access requirements of furniture vans and trucks should be considered. Allocation of spaces to be clearly indicated on strata plan.</p>
<p>Residential buildings (boarding houses) and group homes</p>	<p>1 space per staff Parking rate to be assessed on merit of application</p>	<p>Assessment should take into account the nature of the dwelling and its proposed residents.</p>
<p>Housing for Aged and Disabled Persons</p>	<p>Provisions of SEPP5 apply; following parking provision is recommended: <u>Resident funded development</u> 2 spaces per 3 self contained units plus 1 visitor space for every 5 units. <u>Subsidised developments</u> 1 space per 10 self contained units plus 1 visitor space for every 10 units. <u>Hostels, nursing and convalescent homes</u> 1 space per 10 beds for visitors, plus 1.5 spaces per 2 employees, plus 1 space for ambulance</p>	<p>Disabled person parking to be provided as per SEPP5. For self contained units, additional visitor parking will not be required if at least half the spaces for residents are unassigned and accessible to visitors. Hostels of more than 60 residents shall provide a mini-bus service.</p>
<p>Casual Accommodation Motels, non-licensed hotels, guest houses and bed and breakfast houses</p>	<p>1 space per unit or bedroom. Plus 1 space per full time staff plus 1 space if resident manager. Plus if public restaurant or function room included, 1 space per 3 seats.</p>	<p>Discounts on the parking for restaurants and function rooms might be considered if suitable proof is provided that the peak parking demand would not be fully additive.</p>



Licensed Hotels	1 space per unit or bedroom. Plus 1.5 spaces per 2 full time staff plus 1 space if resident manager. Additional parking will be provided for bar, lounge, restaurant and other licensed areas.	A traffic assessment report must be prepared that assesses the parking that will be required, with the assessment based on the facilities to be provided and the parking demands of similar developments.
Caravan Park	1 space per van site	Plus adequate parking for visitors, boats and trailers.
Office and Commercial Offices and commercial premises	1 space per 33sqm gross floor area plus 1 space if resident manager or caretaker.	For development in excess of 200sqm gross floor area, 1 courier space to also be provided in a convenient location. Servicing facilities to be provided to the satisfaction of Council's Director Development Control.
Retail Shops	1 space per 17sqm gross floor area. For minor additions to existing shops or conversion of existing premises to shops, 1 space per 28sqm.	Both these requirements may be reduced for development within 400 metres radius of a railway station ticket office as follows:- 1 space per 28sqm may be considered for reduction to 1 space per 35sqm. 1 space per 17sqm may be reduced to 1 space per 26sqm. For developments of over 10,000sqm gross floor area a lower parking rate might be considered. Servicing facilities to be provided to the satisfaction of Council's Director Development Control.



Service Stations and Convenience Stores	6 spaces per work bay plus 1 space per 20sqm gross floor area of convenience store. Additional parking to be provided if refreshment rooms added.	Recommended rates assume work bays and/or convenience store. For basic service stations without these facilities, 1 space per staff member to be provided. Total parking might be reduced where it can be demonstrated that the times of peak demand for the facilities do not coincide. Spaces beside petrol bowers are not to be included in calculating the parking requirement.
Motor Showrooms	1.5 spaces per 200sqm of site area plus 6 spaces per work bay.	Area required on-site for articulated car transporters to manoeuvre and unload.
Car Tyre Retail Outlets	The <u>greater</u> of: 3 spaces per 100sqm gross floor area, or 3 spaces per work bay	
Drive-in Liquor Stores	1 space per two staff plus 6 spaces in the services area	The approach to the service area should be designed so that there is an adequate off-road holding area. The layout should allow servicing by an 11m rigid truck for deliveries.
Markets	2 spaces per stall	Higher parking provision would be desirable, at 2.5 spaces per stall, but needs to be considered in the context of the frequency of use and parking available in the area.
Bulky Goods Retail Stores	1 space per 28sqm gross floor area	Parking provision might be considered at a lower rate if supported by a traffic impact study.



Video Hire Stores	1 space per 17sqm gross floor area	Parking provision might be considered at a lower rate if supported by a traffic impact study. Evening peak traffic needs to be considered near the proposed store.
Plant Nurseries	1 space per 200sqm site area, within a minimum of 15 spaces	
Refreshment Rooms Drive-in Take-away Food Outlets: a) With no on-site seating or drive-through facilities. b) With on-site seating but no drive-through facilities. c) With on-site seating and drive-through facilities.	12 spaces per 100sqm gross floor area. The <u>greater</u> of: 1 space per 5 seats (internal + external) or 1 space per 2 seats (internal seating only) The <u>greater</u> of: 1 space per 2 seats (internal seating only) or 1 space per 3 seats (internal + external)	



<p>Restaurants, cafes, coffee shops, new development</p> <p>a) General.</p> <p>b) If gross floor area less than 100sqm.</p> <p>c) If proposed to operate outside of retail business hours.</p> <p>d) Coffee shops, cafes and restaurants as a change of use only of an existing building including extensions of the building.</p> <p>Clubs</p>	<p>1 space per 17sqm gross floor area. For minor additions to existing shops or conversion of existing premises to shops, 1 space per 28sqm.</p> <p>The parking provision in a) above is desirable but Council will consider a reduction if a parking study indicates that there is parking available in adjacent off-street or on-street parking areas at the time of trading of the proposed development.</p> <p>The parking provision in a) above is desirable but Council will consider a reduction if a parking study indicates that there is parking available in adjacent off-street or on-street parking areas at the time of trading of the proposed development. The minimum parking to be provided is 1 space per 17sqm (the shops rate).</p> <p>Retail rate applicable if on site car parking can be provided.</p> <p>If no on site car parking available for existing building or limited on site car parking available Council will consider existing use rights provisions.</p> <p>Because of the variation factors affecting club parking, each situation will be treated on its merits. A traffic assessment report must be prepared that assesses the parking that will be required, with the assessment based on the facilities to be provided and the parking demands of similar developments.</p>	<p>New development relates to a new building or complex that is designed or designed to be adapted for a coffee shop, café or restaurant.</p> <p>This category relates to changes of use or minor extensions of existing older buildings only.</p>
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<p>Recreational and Tourist Facilities Squash and Tennis Courts</p> <p>Bowling Alleys</p> <p>Licensed Outdoor Bowling Club</p> <p>Gymnasiums</p> <p>Swimming Pools</p>	<p>3 spaces per court plus 1 space per 2 staff</p> <p>3 spaces per alley plus 1 space per 2 staff</p> <p>30 spaces for the first green plus 15 spaces for each additional green</p> <p>1 space per 17sqm gross floor area</p> <p>Requirement will be assessed on merit</p>	<p>Additional parking might be necessary if regular spectator attractions are to be promoted.</p> <p>Additional parking might be necessary if regular spectator attractions are to be promoted.</p> <p>Additional parking might be necessary if regular spectator attractions are to be promoted.</p> <p>Additional parking might be necessary if regular spectator attractions are to be promoted.</p> <p>Additional parking might be necessary if regular spectator attractions are to be promoted. Independent traffic report required.</p>
Warehouses	Each application will be treated on its merits. A traffic assessment study should be submitted, also covering service vehicle requirements.	
Car Repair Stations, Panel Beaters, Spray Painters	12 spaces plus 1 space per 70sqm site area.	
<p>Health and Community Services Professional Consulting Rooms</p>	3 spaces per practitioner present at any one time plus 1 space per two staff plus 1 space if dwelling occupied by other than the practitioner or staff.	By definition, Professional Consulting Rooms are attached to residential properties, with up to three practitioners. For other situations, refer to Medical Centres.



Medical Centres	1 space per 25sqm gross floor area	Parking facilities for patients must be suitably signposted and provided in a convenient location.
Hospitals	1 space per 3 beds plus 1 space per 2 day-shift staff or practitioners plus 1 ambulance space 1 space per 1 full time night-shift employee	Rates apply to either public or private hospitals. The day-shift staff are the total on-site at any one time, including overlaps between shifts if such overlaps occur. Where Medical Centres are attached to hospitals, additional parking would be required at the rate for Medical Centres.
Child Care Centres	1 space per 4 children in care	Rate includes staff parking. Bulk of parking should be in a convenient location, allowing safe setdown / pick up and movement of children. Provision is also to be made for bus services.
Primary and Secondary Schools	1 space per equivalent full-time employee plus 1 space per 8 Year 12 students. Where an auditorium or similar rooms are proposed, additional parking might be required. Provision for set down / pick up of students and a set down / pick up management plan is required.	The number of equivalent full time employees should be the maximum number at the school at any one time. A parking impact assessment should be undertaken to quantify the total parking required. Provision is also to be made for bus services in all applications made by schools.
Tertiary Education	1 space per equivalent full time employee plus 1 space per 3 students.	The student parking might be reduced if a parking impact study can prove a lower rate. Provision is also to be made for bus services.



Churches, Places of Public Worship, Funeral Parlours	Each application will be treated on its merits, with a parking assessment report required. As a guide, the provision of 1 space per 6 seats is recommended. The need for additional parking for church halls should be assessed on merit. The parking study should take into account the supply of and demand for parking in the vicinity of the site at the time of the proposed use of the site.	
Cinemas, Public Halls, Theatres, Places of Assembly	Minimum parking provision to be 1 space per 10 seats, for day time parking. Recommended parking provision is 1 space per 6 seats, for Friday / Saturday evening.	The recommended level of parking might be reduced, at the discretion of Council, if it can be proven that there is adequate parking available in the vicinity of the site on Friday and Saturday evening.

Other Land Uses

The parking requirements of land uses not specified above are to be determined on merit, preferably with a traffic impact assessment submitted with the application.

3.2 Departures from car parking rates

This Plan sets objectives for the design and provision of parking and how to achieve those objectives. Council can be requested to vary the requirements of this Plan if it can be shown that the objectives are achieved. Any request for a variation must be supported by a detailed traffic assessment study. There are some types of land uses that by their very nature are difficult to codify the parking required. Developments of this type would need a traffic assessment study to accompany the Development Application. Land uses of this type are identified in Section 3.1.

In considering whether to vary a requirement of this Plan, Council will have regard to:

- encouraging less use of motor vehicles, especially those close to railway stations.
- the size and nature of the development and the parking demand generated
- availability and accessibility of other parking
- accessibility to public transport and the probable mode of transport of users



- existing and likely future traffic volumes on the surrounding road network and the nature of this network
- the environmental implications of providing the parking, with particular regard to vegetation and landscape impacts
- the impact of not providing the parking

Note that for developments incorporating different types of uses, a separate calculation will be made for each component. Parking needs will be calculated on peak demand times. However, where the peak demand for each land use component of the development is staggered, Council may permit a reduction in the total number of spaces otherwise required.

The factors listed above include public transport accessibility. In general, the parking rates set out in the Plan reflect average public transport accessibility in Ku-ring-gai. Census data for car availability in Ku-ring-gai has been taken into account in the rates for residential developments. For businesses in Ku-ring-gai, journey-to-work Census data for Ku-ring-gai workers has been taken into account. In general, an adjustment of the rates simply for close proximity to a railway station is not considered appropriate.

Where existing premises are being redeveloped or their use changed:

- If the proposal does not result in increased floorspace, and the use of the building is not changed, then additional parking provision shall generally not be required. However, car parking previously required to be provided by virtue of earlier consents or approvals will be required to be maintained and in certain instances upgraded to comply with the layout criteria specified in the Plan.
- If the proposal results in increased floorspace, then additional parking shall be required in accordance with the criteria specified in this Plan, for the floorspace increase.
- If the use of the building is changed, or floorspace increased, this shall be taken into account in assessing the parking requirements. Generally, where the proposal involves only a change of use, parking requirements will be assessed on the difference between that required for the proposed use and that for the previous approved use.
- Where the change of use is from commercial premises to shops, with no increase in the floor area, if parking cannot be provided in accordance with this Plan then Council's approval for the change in use will depend on the available parking in the area and the opportunities for contributions for off-site parking.

Concessions would also be considered for proposed developments involving the adaptive re-use of historic buildings, where either the provision of on-site parking would adversely impact on the curtilage of the site, or where the planning benefits of the proposal justify parking concessions.



Note: Council may accept a limited number of small car parking spaces depending on site constraints under exceptions circumstances and having regard for the overall car parking provision and layout.

3.3 Alternatives to on-site parking – Development Contributions

The objective is to provide all parking on-site. However there might be circumstances where this cannot be achieved, or where there are adverse implications of such on-site provision. Council may consider accepting a monetary contribution for the number of spaces not provided on the site. The decision to accept a contribution will be influenced by:

- the existence of a Council Contribution Plan
- the ability of Council to provide the spaces in the locality in either existing or proposed parking areas
- the demand for parking in the area
- any DCP for an individual commercial area
- the physical constraints of existing development, and
- the extent of the deficiency

Limitations on the acceptance by Council of contributions are:

- in general, contributions will not be accepted for more than one-third of required spaces
- redevelopment of sites in commercial areas of over 1,000 sqm (site area) will require all parking to be provided on-site
- contributions in lieu of the physical provision of parking spaces will not be accepted for any development in Pymble, in the area south-west of the Railway line

In accordance with Council's Section 94 Contributions Plan No.1, Section 94 Contributions Plan for Wahroonga Business Centre and Section 94 Contributions Plan for West Lindfield Business Centre adopted by Council on 29 June 1993 in respect of car parking, where a development requires additional car parking provision and this car parking cannot be provided on-site, Council levies the following contributions for the centres listed:



Centre	Cost per space (\$)
St Ives	4,524
Pymble - (Alma Street)	12,549
Roseville - (Larkin Lane)	8,498
Wahroonga	12,549
West Lindfield	7,422
Gordon	to be determined

These contributions are set at a level where they can be reasonably expected to cover the full cost of land acquisition, development and landscaping per parking space. These contributions are reviewed annually, taking increases in construction and acquisition costs into account. Contact should be made with Council to find out the current applicable rate.

Contributions shall be paid in full prior to the release of building approval or as required by the Section 94 Plan in place for the relevant centre, unless, upon special request, Council approves time payment plus interest. Contributions will be credited to Parking Trust Accounts, and will be used for the establishment of parking areas or the maintenance/embellishment of existing areas.

3.4 Other parking issues

Parking for disabled persons

Car parking for disabled persons is recommended to be in accordance with AS2890.1-1993. This recommends the following rates of provision of disabled person parking:

<u>Type of Facility</u>	<u>Rate of Provision</u>
Retail/commercial	1-2 %
Transport interchanges	1-3%
Civic/community centres	2-3%
Recreational facilities	2-3%
Education: schools	2-3%
Education: tertiary institutions	2%
Theatres, entertainment centres	3-4%
Hospitals	3-4%
Medical centres	3%

For parking areas with 50 or more spaces, the minimum provision is one space. These spaces should be located as close as possible to entrances, with signposting and general design in accordance with AS1428 and with Council's *Development Control Plan No.31 - Access*.



Visitor parking

Visitor spaces shall be clearly marked and conveniently located to encourage their use by their intended users. Spaces should be freely accessible, preferably in front of security grills or in front of the building. If visitor parking is located behind security grills, an intercom system will be necessary for users to gain entry. Tenants and residents should be discouraged from using visitor spaces and all such spaces must be free of charge.

Bicycles

It is recommended that bicycle parking facilities be provided in developments where people are likely to cycle, such as in car parks catering for students and commuters. In these circumstances the provision of bicycle parking and motorbike parking at the rate of 2% for each, of the total parking supply, is recommended.



4. DESIGN ELEMENTS

4.1 Parking area design

The **objective** is to design parking areas that allow safe and efficient traffic circulation, allow drivers to enter and leave the site in a forwards direction, provide for the security of users and provide an attractive landscaped environment that integrates with surrounding development.

To achieve this objective, recommended dimensions are set out below, covering:

- parking space dimensions
- parking aisle dimensions
- ramp and circulating road dimensions and gradients

Further design elements are covered in the following Sections.

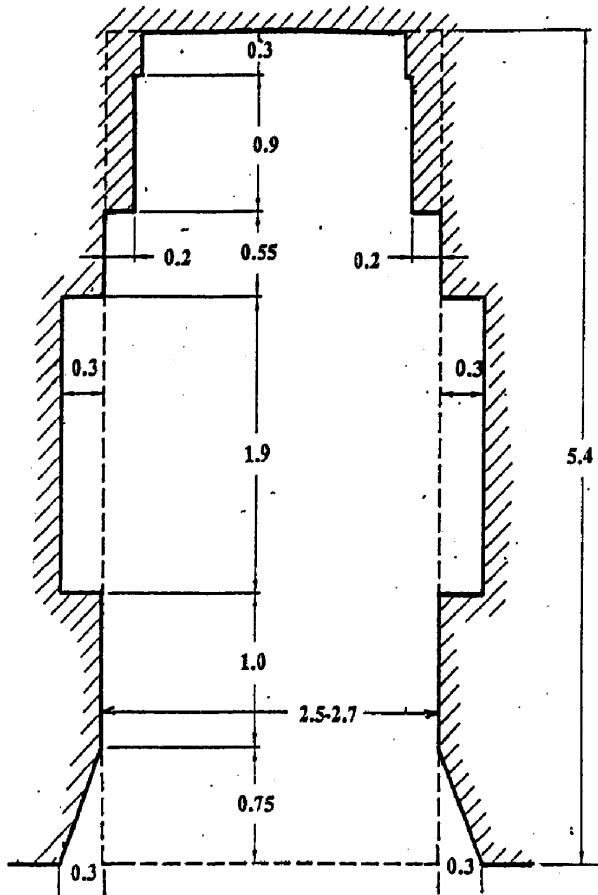
Parking space dimensions

Recommended parking space dimensions vary with the type of use as set out in Table 4.1.

Table 4.1 Selection of Parking Space Dimensions

Dimensions	Type of Use
5.4 m x 2.5m	tenant, employee and commuter parking (generally all day parking)
5.4 m x 2.5m	long-term town centre parking, sports facilities hotels, motels entertainment centres (generally medium term parking, 4-5 hours)
5.4 m x 2.7m	short-term town centre parking, shopping centres, hospitals and medical centres (generally short-term parking, 3-4 hours)
5.4 m x 3.2m	parking for people with disabilities (can be reduced to clear width of 2.7m if additional 0.5 m overlap with adjoining walkway or cleared area available - see figure below)

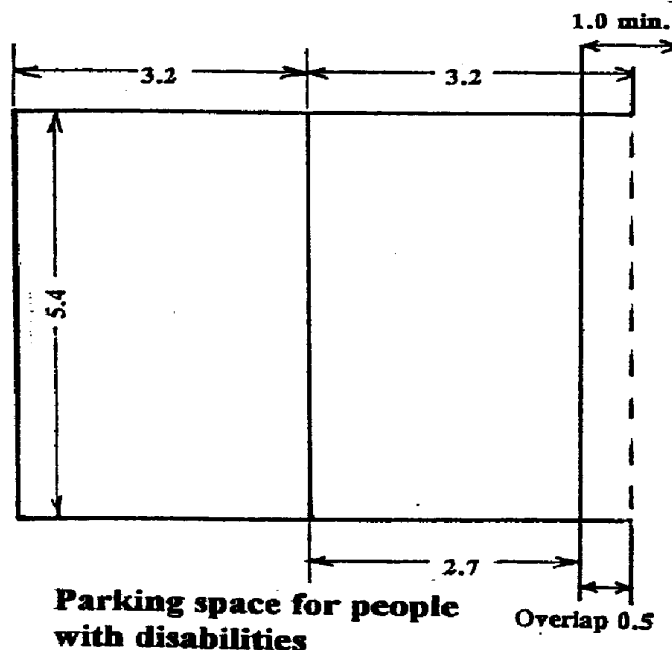




If the side boundary of a space is a wall or fence, or if there are obstructions such as columns located so as to restrict door opening, 300 mm should be added to the width of the space, for each side obstructed, as indicated on the figure. The figure also shows the widths recommended for enclosed garages. The additional clearances would not be required for open carports provided that door openings are not restricted. Where chain wire fences are used to separate parking spaces, they should be regarded as a solid obstruction, and additional side clearances consequently required.

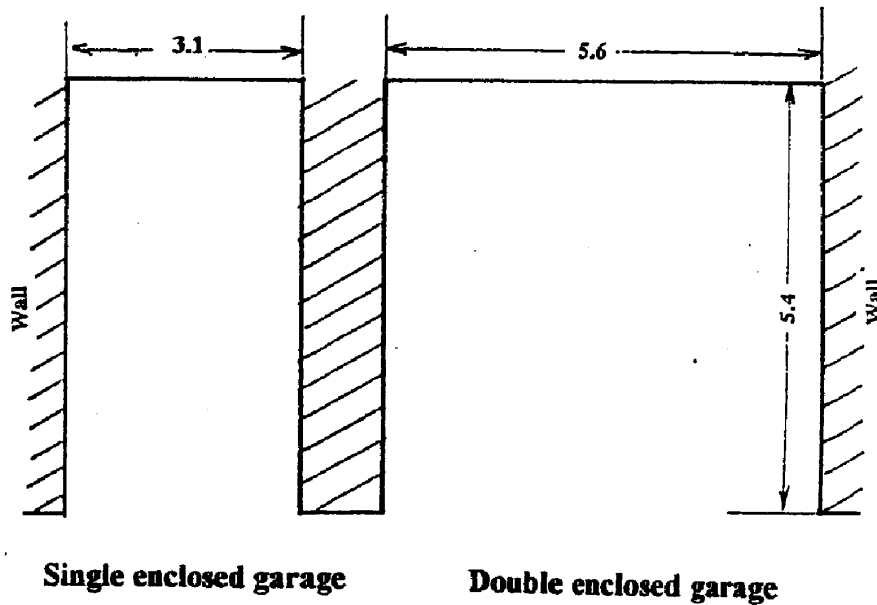
Columns should not be located where they would restrict manoeuvring into parking spaces. Reference should be made to the design envelope shown in the figure.

Design envelope around parked car



Parking space for people with disabilities



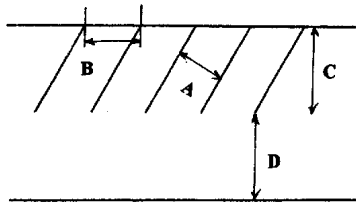


Motorcycle parking spaces (if provided) must meet Australian Standards

Parking aisle dimensions

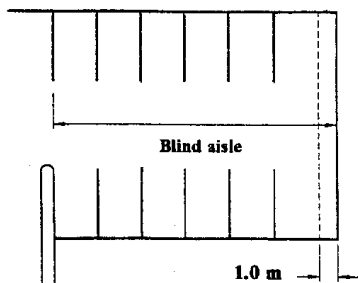
Parking aisle dimensions relate to the width of the parking spaces. They also vary with the angle of parking. The following Table 4.2 sets out the minimum dimensions to be used in the design of parking areas.

Table 4.2 Parking Area Dimensions



Parking Angle (degrees)	Dimension				Aisle Flow
	A	B	C	D	
90	2.5	2.5	5.4	6.2	two-way
	2.6	2.6	5.4	5.8	two-way
	2.7	2.7	5.4	5.4	one-way
60	2.5	2.9	5.7	4.9	one-way
	2.6	3.0	5.7	4.6	one-way
	2.7	3.1	5.7	4.3	one-way
45	2.5	3.5	5.2	3.9	one-way
	2.6	3.7	5.2	3.7	one-way
	2.7	3.8	5.2	3.5	one-way
30	2.5	5.0	4.4	3.1	one-way
	2.6	5.2	4.4	3.0	one-way
	2.7	5.4	4.4	2.9	one-way
0	2.5	5.4-6.6	2.5	3.0	one-way
	2.5	5.4-6.2	2.5	3.6	one-way

For the 0 degrees - parallel parking - situation, the minimum space length of 5.4 m applies for unobstructed end spaces while the maximum space lengths apply when both ends are obstructed, as in a mid-block situation.



Blind aisle extension

For blind aisles, the whole width of the end spaces and the aisle extension shall be increased by 1.0 m. In public car parks, the maximum length of a blind aisle shall be equal to the width of six 90 degree spaces, unless provision is made for cars to turn around at the end and drive out forwards.



Circulating roadways and ramps

Circulating roadways and ramps provide access between the car park and the entry/exit points and parking modules. In general, parking is not directly accessed off circulating roadways or ramps. The minimum widths of circulating roadways/ramps are:

- One-way roadway: straight 2.9 m
curved 3.6 m
- Two-way roadway: straight 5.5 m
curved 7.8 m

All of the above widths require additional clearances of 0.3 m on the outsides. This would typically take the form of 0.3 m kerbs on each side, each of a maximum height of 150 mm. Where a two-way roadway has a central median, it should be a minimum width of 0.6 m, with a maximum height of 150 mm. In this situation each roadway would have the width required for one-way roadways. The onus is on the car park designer to ensure that the dimensions of the internal roadways will provide unobstructed movement. Figure 1 indicates the swept path of the “99.8 percentile design car”. It should be used in the design of access roadways, ramps, circulating roadways and circulation aisles, using the outer lines, these providing for clearances around the basic swept path of the car.

The maximum gradients of ramps and roadways within parking structures and areas should be:

- Ramps shorter than 20 m: 1:5 (20%)
- Ramps 20 m or more: 1:6 (16.7%)
- Driveways across footpath and for first 6 m into site: 1:20 (5%)
- For curved ramps, the gradient should be measured on the inside edge.
- Where a ramp gradient greater than 12.5% is used, a transition at least 2.0 m long at half the change in ramp gradient should be provided at both ends. Care should be taken in the design of ramps to ensure that the required ground clearances are maintained at transition points.

Materials and signposting

All internal road and car parking areas shall be constructed of hardstanding all-weather materials, maintained to the satisfaction of Council at all times.

Parking areas should be well signposted to indicate the availability of off-street parking, with entry and exit points clearly visible from both the street and the site. Pavement arrows should clearly indicate the direction of circulation, and parking bays should be delineated. Parking spaces for specific uses such as disabled persons, employees or visitors, should be clearly signposted.

Where car parking is subject to frequent night time use by the public, signposting and linemarking shall utilise reflective background materials or paint to the Roads & Traffic Authority standards.

4.2 Driveways

The **objective** in the location and design of driveways is to provide a safe and efficient interface between the public road system and the site. Safety is a key concern for access off all road types, while the efficiency of traffic movement is a key concern on major roads.

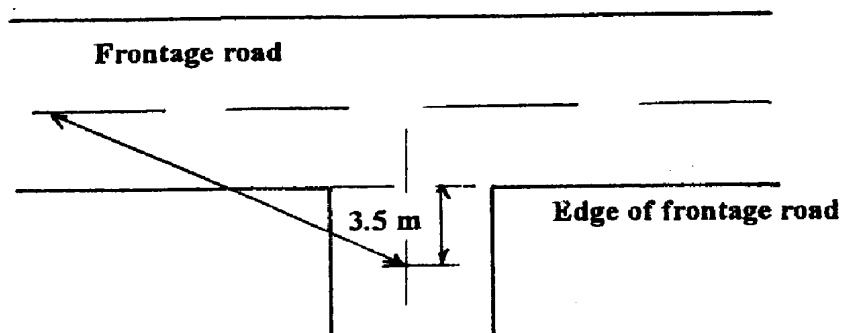
The applicants attention is drawn to Council's DCP 38 Good Design Manual. This document provides additional information and examples of Council's objectives.

To achieve this objective, driveway design should take the following factors into account:

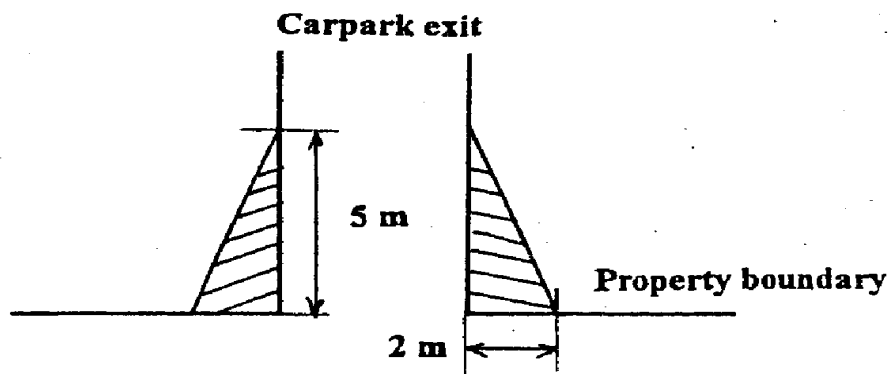
- Vehicles should enter and leave the site in a forwards direction, although this requirement might be waived for domestic driveways.
- Driveways should be located where they would cause least interference to vehicular and pedestrian movement on public roads. Where possible, avoid positioning driveways with high traffic volumes in the following locations:
 - on major (State or Regional) roads or other high volume roads
 - close to intersections and traffic signals; absolute minimum separation from an adjacent intersection is 6m from the curve tangent point of the intersection, or if opposite, 6m from the alignment of the opposite property boundary (see AS2890.1-1993 for further information)
 - opposite other developments generating a large amount of traffic, unless separated by a median
 - where there is a heavy and constant pedestrian movement along the footpath
 - where right turning traffic entering the site may obstruct through traffic
 - where traffic using the driveway interferes with or blocks the operation of bus stops, taxi ranks, loading zones or pedestrian crossings



- Driveways should be located to provide adequate sight distance to traffic using the frontage street, and to provide adequate sight distance to pedestrians on the adjacent footpath. In general, pedestrian sight distance triangles 5 m deep and 2m wide within the site on either side of the driveway should be provided clear of obstructions, as shown below. For sight distance to vehicles on the access street, for a design speed of 60 km/hr, the minimum sight distance to be available is 55m, while the desirable sight distance is 105 m, as measured to and from driver eye heights of 1.15 m, with the measuring point from the driveway being 3.5 m off the edge of the frontage road, as indicated below.



Sight distance at carpark exit



Minimum sight lines for pedestrian safety

The width and number of driveways required depends on the type of road on which the driveway would be located and the number of parking spaces served. As required by Council's *Specification for Road and Drainage Works*, the minimum width of a driveway kerb crossing is 3.7 m in residential areas and 5.0 m in commercial areas. In general, separate entry and exit driveways will be required for access to a major road when over approximately 50 parking spaces are served, or where the development generates a high turnover of traffic such as with drive-through facilities. Table 4.3 sets out the requirements for driveway types, while Table 4.4 provides the specifications for the driveway types.

Table 4.3 Selection of Access Driveway Category

Parking Turnover	Frontage Road	Access Driveway Category			
		Number of Parking Spaces Served			
	<25	25-100	101-300	301-600	>600
Low (>5hrs)	Arterial 1	2	3	4	5
	Local 1	1	2	3	4
Medium (4-5hr)	Arterial 2	2	3	4	5
	Local 1	2	3	4	4
High (<3-4hr)	Arterial 2	3	4	4	5
	Local 1	2	3	4	4

NB. Car parks larger than 250 spaces need to be considered by the Regional Traffic Committee.

Table 4.4 Recommended Access Driveway Widths (metres)

Category	Entry Width	Exit Width	Driveway Separation
1	3.7-6.0	(combined)	N/A
2	6.0-9.0	(combined)	N/A
3	6.0	4.0-6.0	1-3
4	6.0-8.0	6.0-8.0	1-3
5	Direct feed from a dedicated public roadway via an intersection controlled by STOP or GIVE WAY signs, traffic signals or a roundabout		

NB. Flexibility should be enforced where tree preservation is required.

Domestic driveways serving up to three dwellings, can have a minimum width of 3.7 m if the total length is less than 40 m. For driveways in excess of 40 m length, passing bays should be provided at least every 40 m, with the driveway widened to at least 5.0 m over a length of at least 10 m.

The maximum gradient on a driveway or ramp is to be 1:20 (5%) across the property line and for at least the first 6 m into the site. For general driveways/ramps other than domestic driveways, up to 20 m in length, the maximum gradient is to be 1:5 (20%), while for lengths in excess of 20 m, the maximum gradient is to be 1:6 (16.7%). Changes in grade in excess of 1:8 (12.5%) will require transition sections at least 2.0 m long, with these transition sections having half the change in gradient of the adjacent sections of the driveway.



For *domestic driveways*, serving up to three dwellings, the maximum gradient is 1:4 (25%), but the recommend maximum is 1:5 (20%). If a proposed domestic driveway would have a gradient in excess of 1:5, the following factors should be taken into account in the design:

- length of driveway (gradients in excess of 1:5 would be more acceptable if the length of the driveway is less than 20 m)
- safety considerations such as the type of driveway surface and the areas available at the driveway ends
- alternative access arrangements possible
- impact of the proposed driveway on the environment, and its visual impact

Engineering specifications for driveways are set out in Council's *Specification for Road and Drainage Works*. **Pavement, subsurface and surface drainage** shall be designed in accordance with these Specifications. The designer, whose qualifications are experience must be acceptable to Council, will be required to certify the design and subsequently the adequacy of the pavement construction, in writing.

Vehicular crossing levels shall be obtained from Council. The levels are to be shown in the plans submitted for approval.

4.3 Design for service vehicles

The **objective** in the design of service areas is to ensure that the development can be adequately serviced on-site, without the need for service vehicles to park on-street, and without conflict with other site traffic. This objective can be achieved if the following design principles are followed:

- service areas should be easily accessed and freely available for use at all times so that on-street servicing is discouraged
- service areas should be separate from associated car parking
- service areas should be able to be accessed off the street by vehicles entering and leaving the site in a forwards direction
- the size and number of service areas and loading docks should be suitable for the scale and intensity of the use which they serve
- internal circulation roadways should be adequate for the largest vehicles anticipated to use the site
- service vehicles turning into or out of a road or driveway should be able to complete their turning manoeuvres without crossing the centre line of the public road



As indicated above, the number of service areas and loading docks should reflect the scale and intensity of use proposed. This should be quantified through appropriate use-specific surveys, with the onus on the applicant to justify the facilities proposed. The size of vehicles likely to service the site should be determined.

In general, long haul transport of bulk goods and multiple destination chain store deliveries such as to supermarkets and major fast-food outlets tends to encourage maximum size vehicles such as articulated vehicles. Local deliveries and small business consignments tend to be delivered in vans, station wagons and small/medium trucks.

Australian Standard 2890.2-1989: Off-street parking Part 2: Commercial vehicle facilities specifies different design vehicles and their dimensions, covering Small Rigid Vehicles (SRVs), typically about 6.4 m long and with turning circles of about 14.2 m, Heavy Rigid Vehicle (HRV), 11 m long and with turning circles typically of about 22 m, and Articulated Vehicles (AV), with a total length of about 17 m - although larger rigs are now becoming more common - and with turning circles typically of about 21 m. Figures 3 and 4 set out the swept paths of Small Rigid Vehicles and Heavy Rigid Vehicles respectively.

For the **removal of trade waste**, the truck type typically used is the Nissan UD “Swinger” CW 41, with a length of 8.8 m, width of 2.4 m, and turning circle of 21.0 m. Figure 2 shows the swept path of such a vehicle. For the design of residential flat buildings, the position of waste storage bins and their access by garbage collection vehicles should take into account the type of collection truck proposed. Developers should seek advice from Council’s Development Control Department when designing garbage and trade waste facilities.

Table 4.5 sets out suggested dimensions of loading docks. The designer should ensure that the proposed design meets the needs of the proposed development.

Table 4.5 Loading Area Dimensions (m)

Design Vehicle	Platform Height	Bay Height	Bay Width	Bay Depth
utilities, panel vans	0.6-0.7	2.30	3.0	5.5
vans, small trucks	1.0-1.1	3.60	3.0-4.0	6.5
large trucks	1.2-1.4	3.6-5.0	3.5-4.5	11.0
semi-trailers	1.2-1.4	3.6-5.0	3.5-4.5	17.0

The design of the apron area in front of the loading dock(s) should take into account the type of vehicle to be used. Reference should be made to AS2890.2-1989 for apron dimensions. The templates for the Small Rigid Vehicle and the Heavy Rigid Vehicle presented on Figure 5 show manoeuvres to/from loading docks.

Gradients in service areas should be kept to a minimum. The maximum gradient in a manoeuvring area should be 1:12.5 (8%) on a driveway or ramp, 1:6 (16.7%) for forward only traffic and 1:12.5 (8%) if reverse manoeuvres are permitted on the ramp.

For **courier parking**, commercial developments with a gross floor area in excess of 200 sqm are to provide one suitably located and signposted courier parking space. Other developments that generate a demand for courier movements should also provide a courier parking space. The dimensions of such a space are to be 5.4 m x 2.7 m in an angle parking situation or 5.4 m x 2.5 m in a parallel parking situation.

Adequate provision is to be made for **taxis and coaches** in hotels and tourist facilities. A traffic impact assessment study should define the requirements for such vehicles. As a guide, tourist hotels should provide a coach lay-by at the hotel entrance with on-site parking for one or two coaches, although the latter requirement would depend on the size and nature of the development. Taxi lay-by facilities should be provided at all tourist hotels, again with the length and storage requirements to be determined in a traffic study.

For larger retail and commercial developments, the provision of a **bus bay** with associated shelter should be considered, if the site is accessed by bus services. Within a large retail development, the provision of a centrally located public transport information board, where bus and train timetables, route maps, maps of local facilities and similar information can be displayed is recommended, with the information to be updated by the centre manager.

4.4 Landscaping and Urban Design

The **objective** is to design developments that enhance and complement Ku-ring-gai's established landscape character. New development should preserve and improve upon the visual quality of the area, especially in regard to sites located in areas which are distinctive in terms of streetscape quality.

This objective can best be achieved through the maintenance and conservation of the existing vegetation on the site, wherever possible. The location of the parking area and its layout should consider the general location of existing vegetation and the specific location of mature trees. Techniques such as porous paving, retaining walls and appropriate drainage lines should be used to ensure that existing mature trees will not be adversely affected.

Tree planting should also enhance the use of the site through providing shade and reducing glare, through improving the visual amenity of large all-weather surfaces and through providing a buffer from neighbouring areas. Landscape treatments such as planting or contrast paving should be an integral part of the parking layout, and can be used to separate conflicting traffic movement, both vehicular and pedestrian.

Planting should be chosen to enhance the landscape character of the area. Tables 4.6 and 4.7 list recommended species for planting in shale derived soils and in sandstone derived soils respectively.

A landscape plan should be submitted as part of the Development Application, with this plan in accordance with Council's document *Preparing a Landscape Plan*. Consultation with Council's Landscape Architect-Development in the preparation of this plan is recommended.

This plan should clearly show the existing and proposed tree locations, and the locations of any trees to be removed. General considerations in the design of a landscape plan include:

- As a guide, a minimum of 5% of uncovered parking areas should be landscaped.
- Planting should be dispersed throughout the parking area and provided around perimeters.
- Plant species should be selected and located so as to provide screening and shade, without blocking signs or reducing driver visibility at key points, such as ingress and egress driveways and aisle crossover points. Berry or seeding trees should be avoided. In general, low maintenance plants and trees should be used.
- Plantings of shade trees within parking areas between rows of cars should be protected from vehicular movement such as through the use of kerbs and wheel stops. Areas set aside for landscaping shall not be used for car parking, loading or unloading.
- Noise mitigation measures such as fencing or mounding should be incorporated in landscape areas and illuminated areas or driveways should be screened to minimise loss of amenity to adjacent residential areas.
- Where landscaping is provided along the street alignment, a physical edge no higher than 0.75 m should be erected along the alignment.
- The landscape design should provide for adequate watering and drainage points.

Figure 6 provides details of typical landscaping treatments.

Table 4.6 Trees for Shale Derived Soils**Trees 20 m +**

Casuarina cunninghamiana (river oak)
Eucalyptus maculata (spotted gum)
Eucalyptus microcorys (tallowood)
Eucalyptus paniculata (grey ironbark)
Eucalyptus pilularis (blackbutt)
Eucalyptus saligna (Sydney blue gum)

Trees 5-10 m

Acacia decurrens (green wattle)
Acacia floribunda (gossamer wattle)
Acacia prominens (golden rain wattle)
Allocasuarina littoralis (black she oak)
Angophora bakeri (narrow leafed apple)
Backhousia myrtifolia (grey myrtle)
Glochidion ferdinandi (cheese tree)
Hymenosporum flavum (native frangipani)
Melaleuca linariifolia (snow-in-summer)
Melia azedarach (australasica) (white cedar)
Notelaea sp. (moick olive)
Oreocallis wickhamii (tree waratah)
Pittosporum rhombifolium (Queensland pittosporum)
Stenocarpus sinuatus (firewheel tree)
Tristaniopsis laurina (water gum)

Trees 15-20 m

Acacia elata (cedar wattle)
Angophora costata (Sydney red gum)
Angophora floribunda (rough barked apple)
Eucalyptus citriodora (lemon scented gum)
Eucalyptus punctata (grey gum)
Eucalyptus resinifera (red mahogany)
Eucalyptus sieberi (silvertop ash)
Flindersia australis (crow's ash)
Livistona australis (cabbage tree palm)
Lophostemon confertus (brushbox)
Toona ciliata (australis) (red cedar)

Trees 10-15 m

Acacia binervia (coastal myall)
Acmena smithii (lilly pilly)
Allocasuarina torulosa (forest oak)
Alphitonia excelsa (red ash)
Brachychiton acerifolius (flame tree)

Ceratopetalum apetalum (coachwood)
Eucalyptus elata (river peppermint)
Eucalyptus sideroxylon (red ironbark)
Macadamia tetraphylla (macadamia)
Melaleuca styphelioides (prickly paperbark)
Syncarpia glomulifera (turpentine)
Syzygium floribundum (weeping lillypilly)

Small Tree/Tall Shrubs up to 5 m

Banksia ericifolia (heath banksia)
Banksia marginata (silver banksia)
Callicoma serratifolia (black wattle)
Callistemon citrinus (lemon scented bottlebrush)
Hibiscus heterophyllus (native rosella)
Leptospermum petersonii (lemon-scented tea-tree)
Podocarpus elatus (brown pine)

Table 4.7 Trees for Sandstone Derived Soils**Trees 20 m +**

Casuarina cunninghamiana (river oak)
Eucalyptus pilularis (blackbutt)

Trees 15-20 m

Angophora costata (Sydney red gum)
Eucalyptus resinifera (red mahogany)
Eucalyptus sieberi (silvertop ash)
Livistona australis (cabbage tree palm)
Lophostemon confertus (brushbox)

Trees 10-15 m

Eucalyptus gummifera (red bloodwood)
Eucalyptus piperita (Sydney peppermint)
Eucalyptus racemosa (scribbly gum)
Macadamia tetraphylla (macadamia)
Syncarpia glomulifera (turpentine)

Trees 5-10 m

Acacia prominens (golden rain wattle)
Agonis flexuosa (willow myrtle)
Allocasuarina littoralis (black she oak)
Angophora bakeri (narrow leafed apple)
Backhousia citriodora (lemon scented bh)
Callicoma serratifolia (black wattle)



Callistemon viminalis (weeping bottlebrush)
Callitris rhomboidea (Port Jackson pine)
Elaeocarpus reticulatus (blueberry ash)
Eucalyptus eximia (yellow bloodwood)
Eucalyptus haemastoma (scribbly gum)
Eucalyptus punctata (grey gum)
Eucalyptus scoparia (willow gum)
Glochidion ferdinandi (cheese tree)
Leptospermum laevigatum (coastal tea-tree)
Melaleuca quinquenervia (broad-leaved paperbark)
Pittosporum rhombifolium (Queensland pittosporum)
Syzygium leuhmannii (small-leaved lillypilly)
Tristaniaopsis laurina (water gum)

Small Trees/Shrubs up to 5 m

Acacia linifolia (flax wattle)
Acacia longifolia (Sydney golden wattle)
Acacia howittii (sticky wattle)
Angophora hispida (dwarf apple)
Baeckea linifolia (weeping baeckea)
Baeckea virgata (tall baeckea)
Banksia ericifolia (heath banksia)
Banksia marginata (silver banksia)
Banksia serrata (old man banksia)
Callistemon citrinus (lemon scented Bottlebrush)
Callistemon salignus (willow bottlebrush)
Ceratopetalum gummiferum (NSW Christmas bush)
Doryanthes excelsa (Gynea lily)
Grevillea longifolia (spider flower)
Grevillea cultivars
Hakea salicifolia (willow leafed hakea)
Kunzea ambigua (kunzea)
Leptospermum attenuatum (tea-tree)
Leptospermum flavescens (yellow tea-tree)
Leptospermum petersonii (lemon scented tea-tree)
Persoonia levis (broad-leaf geebung)
Persoonia pinifolia (pine-leaf geebung)
Podocarpus elatus (brown pine)
Telopea speciosissima (waratah)
Xanthorrhoea sp. (grass tree)



4.5 Other design issues

Headroom

Within parking areas, the minimum height between the floor and an overhead obstruction should be a minimum of 2.2 m. Any increase in this height to be assessed in accordance with the merit of the application. Clearances should be measured to the lowest projection from the roof, typically being fire sprinklers or light fittings. At changes in grade within parking areas, care should be taken in the design to ensure that the required height clearance is maintained.

Mechanical parking systems

An application to provide for car parking by the use of mechanical devices will be considered on its merit, where an applicant can demonstrate to the satisfaction of Council that car parking cannot be provided in a conventional manner. Given the non-standard nature of mechanical parking systems, full details will need to be provided. Mechanical parking systems may be considered appropriate in certain circumstances, subject to the following:

- The applicant must be able to demonstrate that there is a real need for a mechanical parking system and that the provision of such a system will not adversely affect the use of the site or the immediate locality.
- No visitor parking is to be included in the system, unless a valet parking operation is employed.
- The applicant must be able to demonstrate that there would be adequate queuing space within the site on the approach to the system, without the queue extending onto the public road network. Details of the design of the system and its management will need to be submitted to Council. This should cover the cycle time of the system, the traffic volume that will use the system and hence the predicted queue length under peak hour operation.

Stack parking

Stack parking is parking where individual access to car spaces is stopped by other parked vehicles. The inclusion of stacked parking within parking areas is not favoured. However, in certain cases, the provision of a limited number of employee parking spaces may be provided in this way subject to the following guidelines:

- a. The applicant must be able to demonstrate that there is a real need for stacked parking and that the provision of stacked parking will not adversely affect the use of the site.
- b. No more than two cars are to be parked in a stacked arrangement, so that no more than one car has to move to allow the egress of another.



- c. no more than 10% of the parking required for a commercial development is to be stacked.
- d. Stacked parking is only to be used to provide parking for people employed on the premises and likely to park all day or a good part of the day.
- e. Proposals which include stacked parking where multiple occupancies are involved will be considered on their merits.
- f. Provision should be made on-site for the shifting of cars without the movement of vehicles onto public streets.

Shopping centre bays

Provision should be made in shopping centre car parks for shopper trolley bays, for B-tidy bins, and for miscellaneous collection bins such as those associated with recycled aluminium cans, recycled glass and second hand clothing.

Designing for pedestrians

The design of the parking area and the general access to the site should consider the needs of pedestrians, with the following design considerations:

- * Pedestrian entrances should be clearly visible, conveniently located, well-lit and should have minimal conflict with vehicular traffic. Conflict points should be made safe with the use of contrasting materials, footpath/road markings, designated crossing areas, bollards and similar devices.
- * Parking areas should be designated to minimise pedestrian/vehicular conflict, with pedestrian routes clearly identified to facilities such as lifts, stairs, exits and street access points. Pedestrian routes should be logical and coherent to users and motorists. These routes should have easy access features such as pram ramps and provide a continuous accessible path of travel between parking spaces for disabled persons and the pedestrian accesses to the development, and conform to AS1428 and to Council's *Development Control Plan No.31 - Access*. Pedestrian routes through the site leading to public transport services, such as bus stops should also be provided.
- * Public pedestrian access through large sites should be provided by way of pedestrian walkways, arcades and similar paths.
- * Where car parking areas are to be used at night, security lighting should be provided.



Materials used in Design

Porous pavements are encouraged in driveways and parking lots as it allows greater infiltration of stormwater. Porous pavement is included as built-upon area.

Systems which could be implemented in car parks:-

- a) Continuous deflective separators.
- b) Non-scouring oil and sediment separators.
- c) Sand filters.
- d) Small litter traps.
- e) Coarse trash racks.

Bicycle parking

Where bicycle parking is provided, it should allow for bicycles to be secured. Further information on the design of bicycle parking facilities can be found in *Australian Standard 2890.3-1993 - Bicycle Parking*. Bicycle parking is encouraged.

Land use consent conditions

Any or all of the following standard conditions of Land Use Consent may be imposed upon land used for car parking or service vehicles:

- 5.1 All customer, service and employer's vehicles are to be parked wholly within the site.
- 5.2 No separate fee to be imposed for the use of any car parking space.
- 5.4 The car parking spaces to be allocated to the occupants of the building in accordance with Council's direction at the time of the Land Use Consent to each individual occupier.
- 5.8 All car spaces to remain available and accessible for car parking by the occupants of the flats.
- 5.10 No separate fee to be imposed for the use of the loading or unloading area.
- 5.11 Access to the loading and unloading area not to be obstructed at any time during the hours 7.30am to 6.00pm, Monday to Friday, and 7.30am to 4.00pm, Saturday, and/or to 9.00pm where night shopping is applicable.



- 5.12 All vehicles which service the premises during the specified hours in Clause 5.11 by delivering or taking away goods, stores, waste or like articles, to park in the loading and unloading area whilst picking up or putting down such goods, stores, waste or like articles.
- 5.13 Where an area is within the external walls of the building, the area to be so positioned that access to any parking space shall not be obstructed.



APPENDIX

DEFINITIONS

Where applicable, uses specified in this DCP have the meaning ascribed to them in the Ku-ring-gai Planning Scheme Ordinance. Other land uses are defined below, based on the definitions set out in the Roads & Traffic Authority's *Guide to Traffic Generating Developments*, which are partly based on the *Model Provisions of the Environmental Planning and Assessment Act, 1980*.

Bulky goods retail store: a shop selling homewares, such as furniture, electrical appliances and lighting, or material for the home, such as carpet and building materials.

Cafes, coffee shops: premises used for the sale of beverages and light refreshments where table service is generally available. Classification of cafes and restaurants will be at the discretion of Council.

Child care centre: a building or premises owned, leased or subleased by private or public sectors to provide child minding services under the provision of Part VII of the *Child Welfare Act, 1939*. The centre may provide preschool care, long day care, before/after school care or a combination of both.

Club: a building used by persons associated, or by a body incorporated, for social, literary, political, sporting, athletic or other lawful purposes whether of the same or of a different kind and whether or not the whole or a part of such building is the premises of a club registered under the *Registered Clubs Act, 1976*.

Commercial premises: a building or place used as an office or for other business or commercial purposes, but does not include a building or place elsewhere specifically defined or a building or place used for the purpose elsewhere specifically defined.

Convenience store: a drive-in retail facility, usually developed by the modification of an existing service station, which combines petrol and other goods retailing, with hours of operation extending beyond normal retail hours.

Drive-in liquor store: premises licensed for retail under the *Liquor Act 1982*, where customers drive their motor vehicles to and from the point of sale.

Drive-in take-away food outlet: a refreshment room where the emphasis is on fast service, with or without provision for the consumption of food on the premises. Drive-in take-away food outlets can be developments where customers park their vehicles on-site and walk to the food outlet for service or where customers stay in their vehicles to give their orders and wait for their delivery.

Dwelling house: a building containing one, but no more than one dwelling.



Factory: a place or building used for the purpose of industry where industry means:

- * any manufacturing process within the meaning of the *Factories, Shops and Industries Act, 1962*
- * the breaking up or dismantling of goods or articles for trade, sale, gain or as ancillary to any business.

Gross floor area: the sum of the areas of each floor of a building where the area of each floor is taken to be the area within the outer face of the external enclosing walls as measured at a height of 1400 mm above each floor level excluding:

- * columns, fin walls, sun control devices and other elements, projections or works outside the general line of the outer face of the external wall
- * lift towers, cooling towers, machinery and plant rooms, and ancillary storage space and vertical air-conditioning ducts
- * car parking specifications which meet requirements of council and internal access thereto
- * space for the loading and unloading of goods

Gymnasium: a building, a room or a number of rooms used for organised, instructed, indoor exercise typically including aerobics, weight/circuit training and similar activities. Ancillary activities such as health care services, spa/sauna and a small clothing apparel sales area are commonly provided within gymnasiums. Specialised facilities such as squash and tennis courts are separate and auxiliary to the gymnasium usage.

High density residential flat building: a multi-level building containing 20 or more dwellings. These buildings are usually more than five levels, have secure basement level car parking and are located in close proximity to public transport services.

Hospital: a building or place used as a:

- * general hospital
- * sanitarium
- * health centre
- * nursing home
- * home for aged, infirm, incurable or convalescent persons

Hotel: any premises specified in a hotelier's licence granted under the *Liquor Act, 1982*

Housing for aged and disabled persons: residential accommodation which may take any building form, which is or is intended to be used permanently as housing for the accommodation of aged or disabled persons. The hostel may consist of residences or a grouping of 2 or more self-contained dwellings and include any of the following facilities:

- * accommodation for staff
- * chapels
- * medical consulting rooms
- * meeting rooms



- * recreation facilities
- * shops
- * therapy rooms
- * any other facilities for the use or benefit of aged or disabled persons

Major road: State (arterial) or Regional (sub-arterial) road predominantly carrying through traffic.

Market: a gathering of stalls in an open space, a covered area or a building in which goods are exposed for sale on a sub-regional or local basis at a frequency of generally between once a week to once a month

Medical centre(extended hours): a building with a subdivision of rooms being used for legally qualified general medical practitioners, dentists within the meaning of the *Dentists Act, 1934*, and registered health care professionals.

Medium residential flat building: a building containing at least 2 but less than 20 dwellings. This includes villas, town houses, flats, semi-detached houses, terraces or row houses and other medium density developments, but does not include aged or disabled persons' housing.

Minor road: a collector or local road where:

- * collector road means the road which connects the Regional (sub-arterial) roads to the local road system in developed areas.
- * local road means the subdivisional road within a particular developed area. Local roads are used solely as local access roads, but traffic volumes and types of vehicles will depend on the intensity and nature of the development.

Motel: a building or buildings (other than a hotel, boarding house or residential flat building) substantially used for the overnight accommodation of travellers (and their vehicles) whether or not the building or buildings are also used for providing of meals to those travellers or the general public.

Motor showroom: a building or place used for the display or sale of motor vehicles, caravans or boats, whether or not motor vehicle accessories, caravans accessories or boat accessories are sold or displayed therein or thereon.

Place of worship: a building or place used for the purpose of religious worship, whether or not the building or place is also used for counselling, social events, instruction or religious training by a congregation or religious group.

Porous pavement: a paved surface which encourages water to percolate through its surface and the sub-structure to the ground below.



Professional consulting rooms: a room or number of rooms forming either the whole or of part of, attached to or within the curtilage of a dwelling house and used by not more than three legally qualified medical practitioners or by not more than three dentists within the meaning of the *Dentists Act 1934*, or by not more than three health care professionals, who practise medicine, dentistry or health care respectively, and if more than one, practise in partnership, and who employ not more than three employees in connection with that practice.

Restaurant: premises where table service or meals and beverages are available and consumed on the premises, whether or not the premises are licensed for the serving and consumption of alcoholic beverages.

Service station: a building or place used for the fuelling of motor vehicles involving the sale by retail of petrol, oil and other petroleum products whether or not the building or place is also used for any one or more of the following purposes:

- * the sale by retail of spare parts and accessories for motor vehicles
- * washing and greasing of motor vehicles
- * repairing and servicing of motor vehicles

Shop: a building or place used for the purpose of selling, exposing or offering for sale by retail, goods, merchandise or materials, but does not include a building or place elsewhere specifically defined or a building or place used for a purpose elsewhere specifically defined.

Site area; the area of land to which an application for consent under the Act relates, excluding there from any land upon which the development to which the application relates is not permitted by or under the local environmental plan.

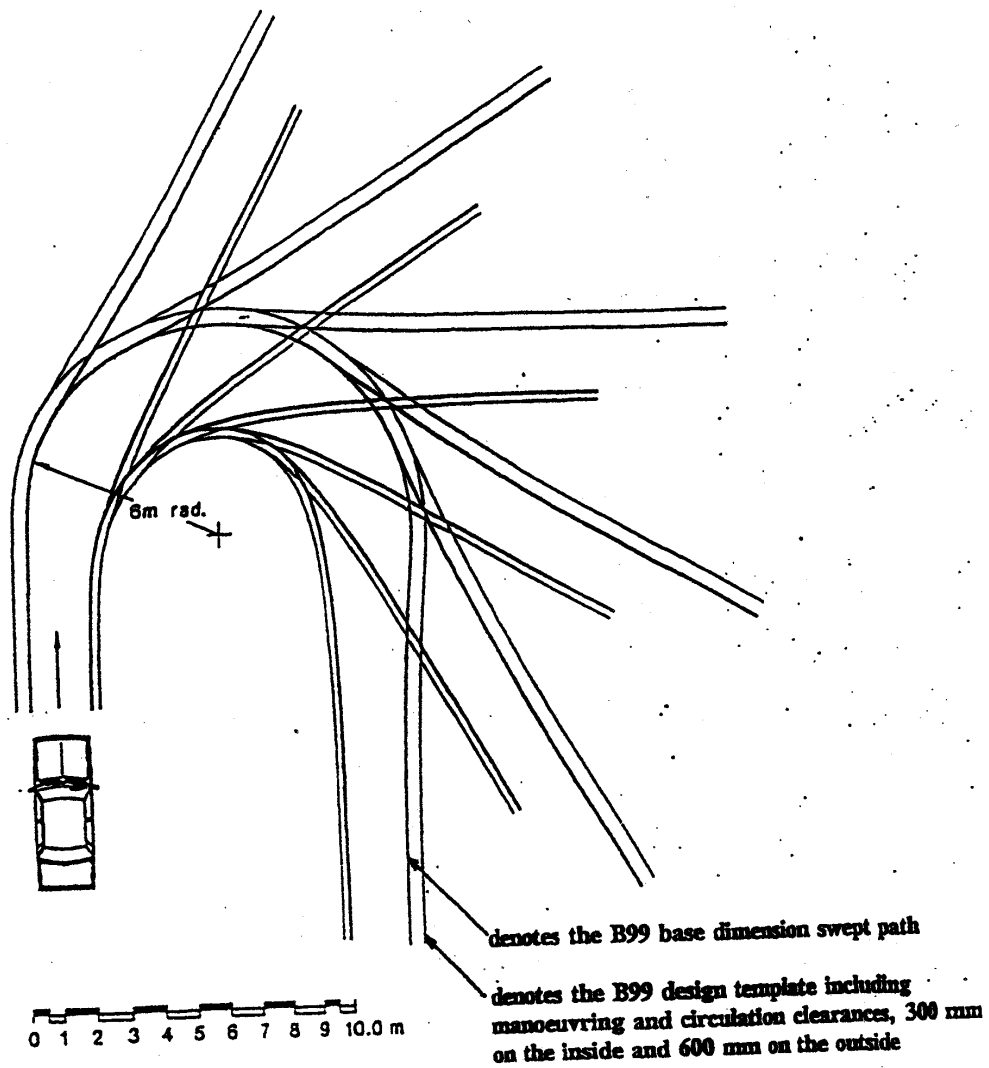
Staff: owners, directors, operators, employees, caretakers, managerial personnel or any person assisting in the operation of the use; provision for staff to be based on the number of staff on site at any one time during the peak operating period of the use.

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



Turning Templates

Figure 1



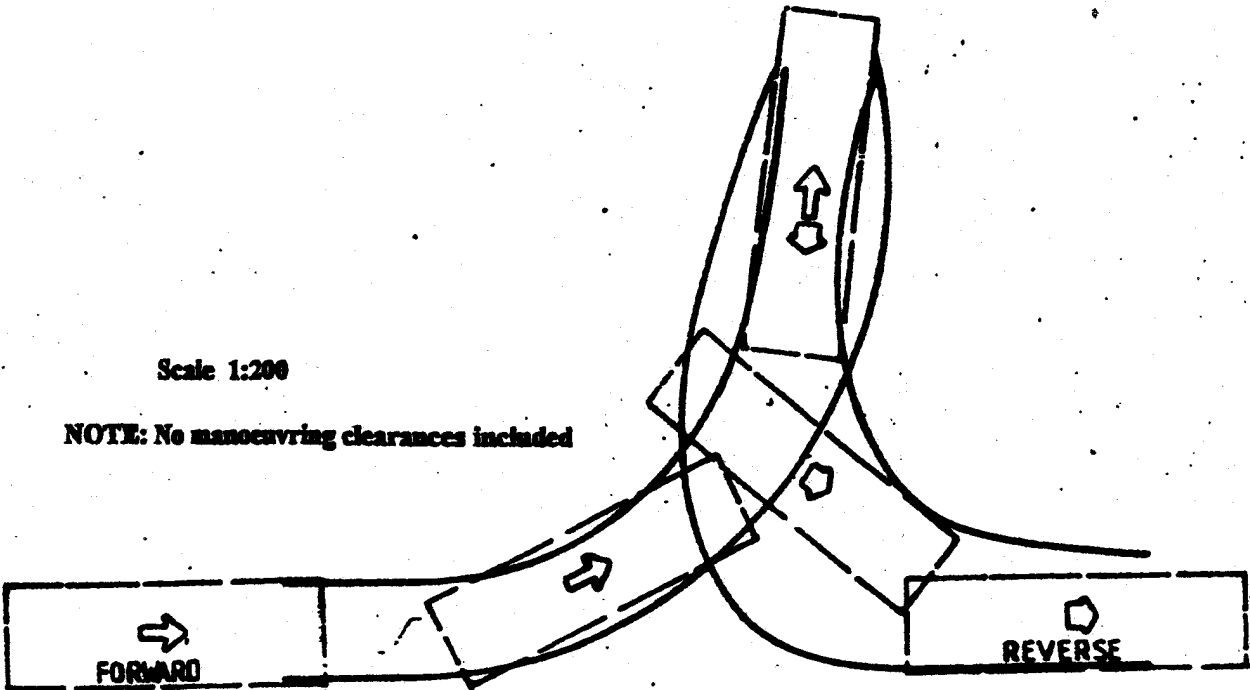
Scale 1:200
The B99 Design Car Templates



Figure 2

**NISSAN CW41 "SWINGER" UD (RAPID RAIL)
SPECIFICATION**

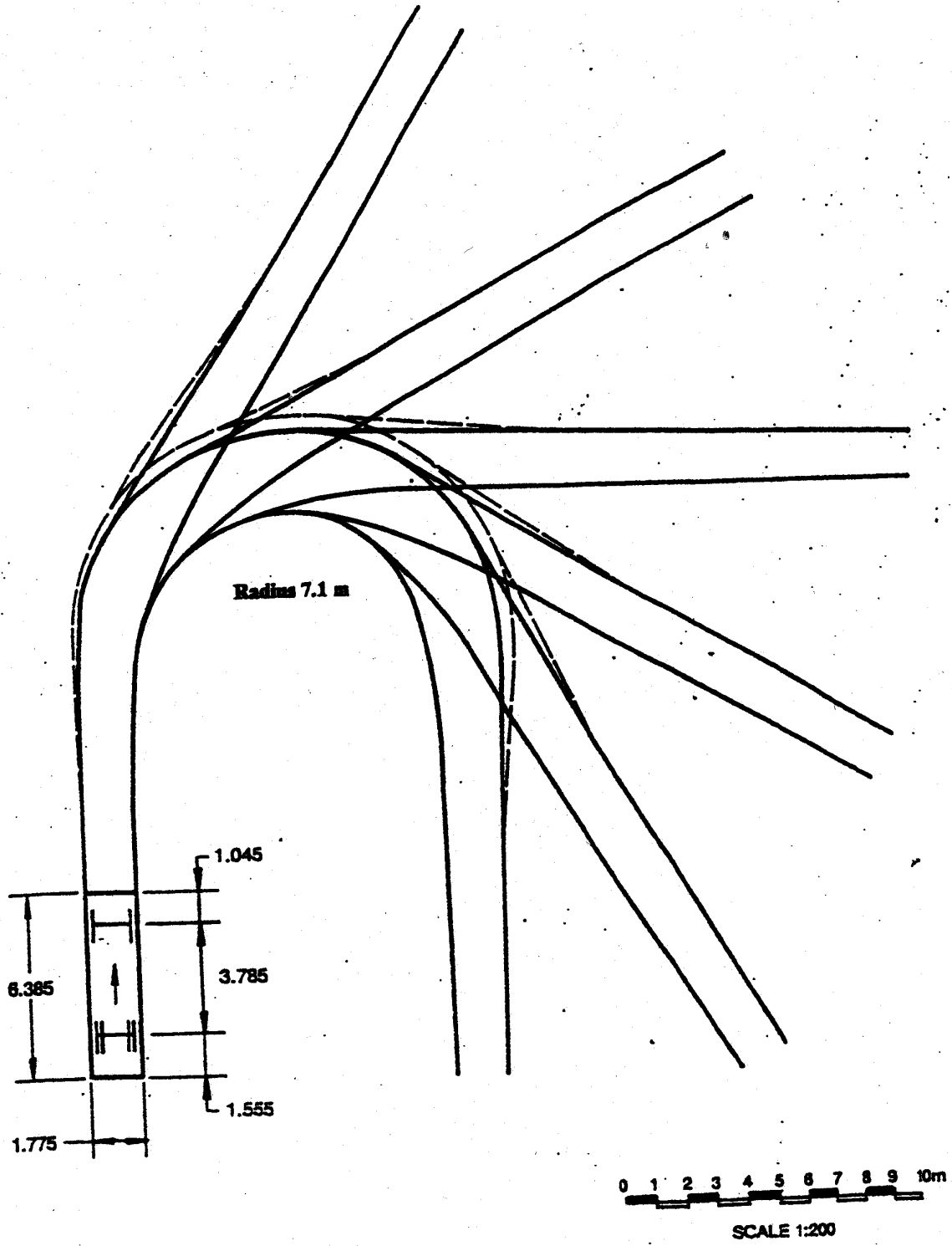
Length	8.8 m
Width	2.4 m
Turning circle	21.0 m
Height	3.46



Reversing Manoeuvre of Trade Waste Vehicle



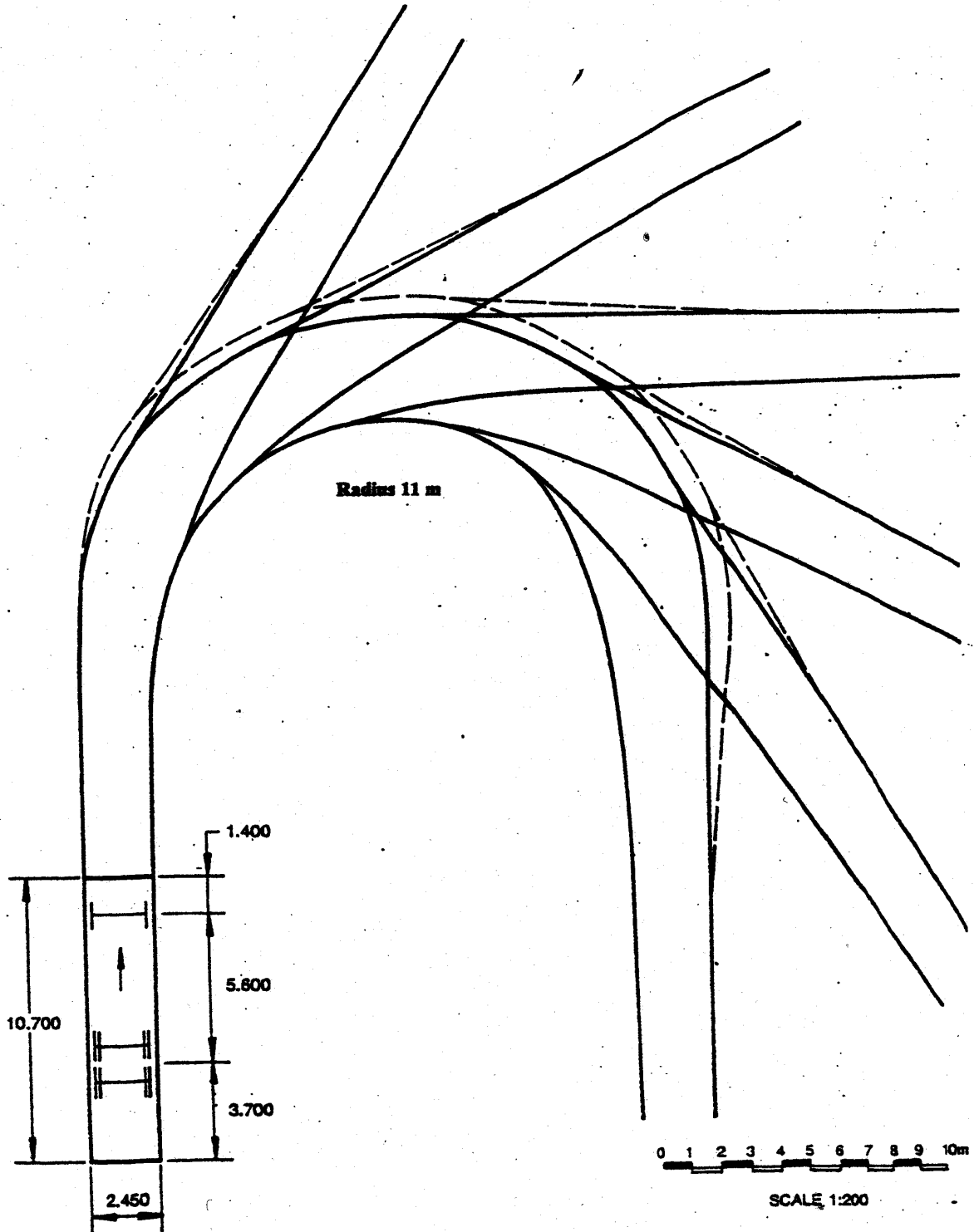
Figure 3



Tangential Curve Template – Small Rigid Vehicle



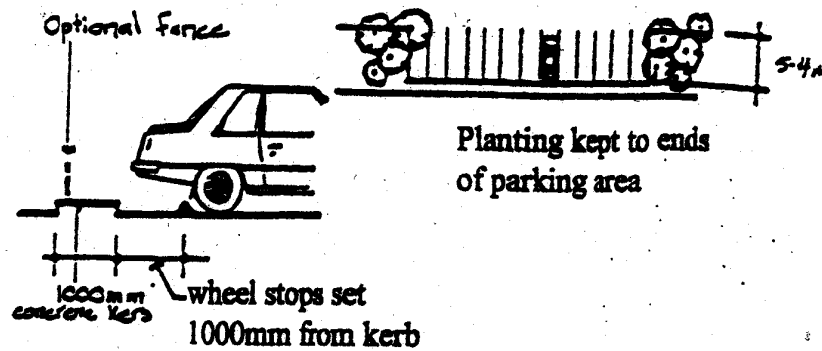
Figure 4



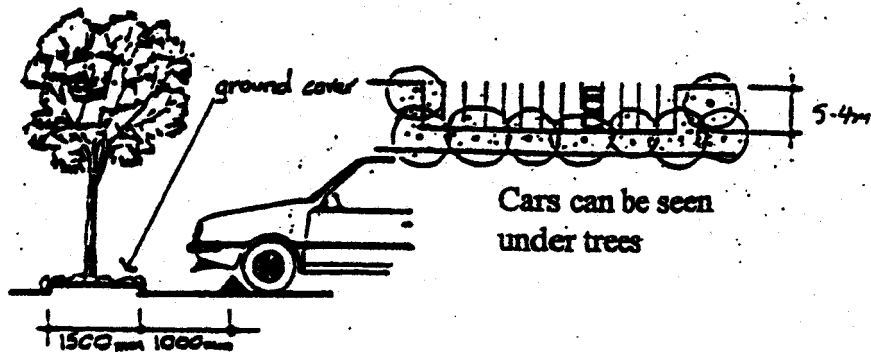
Tangential Curve Template – Heavy Rigid Vehicle



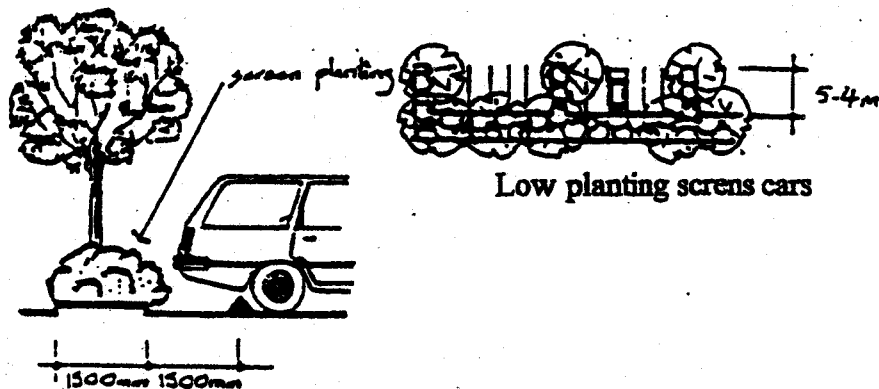
Recommended Perimeter Landscaping



Motor Showroom – cars to be visible from street but car access across footpath to be prevented.

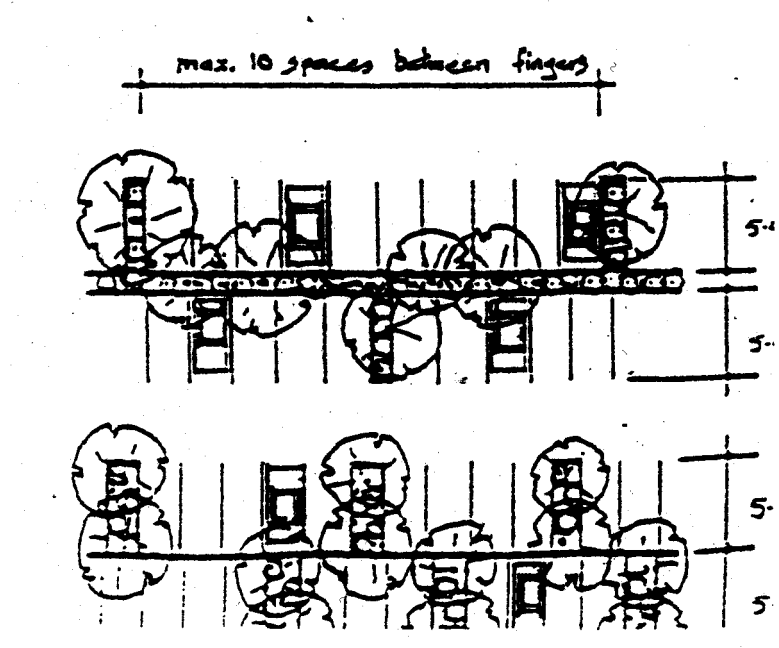


Customer Parking for shops or offices – car to be visible from street. Planting to create an overall softening.



Other Uses including Residential – Cars to be screened from street.

Recommended Internal Landscaping



Where planting can be provided between aisles:
Min bed width 1000mm.

Fingers can be reduced to 600mm if tree guards are used.

Where pedestrian paths are desirable:
Central bed width to be minimum 1200mm, suitably paved and planting provided where necessary.

Where no centre planting is possible:
Minimum bed width 200mm
Minimum 2 shade trees per bed
Stagger beds with maximum 5 spaces between beds.