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APPEALS

A DESIGN GUIDE FOR RESIDENTIAL AREAS
HIGHWAY STANDARDS

ESSEX COUNTY COUNCIL

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HIGHWAY STANDARDS

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FOREWORD

Since the introduction of the Essex Design Guide for Residential Areas a significant improvement in the quality of housing area design has occurred within the county.

To ensure designers are given every opportunity to produce further attractive and varied layouts a new range of adoptable road types has been approved by the Joint Highways and Planning Committee of the County Council.

This document sets out the new standards.

The investigative work for setting down the new standards has been carried out by a Working Party formed under the auspices of the Essex Chief Technical Officers Association.

The Working Party consisted of representatives from the County Highways and Planning Departments, the Borough Planning Departments of Colchester and Chelmsford and the Borough Highway Engineering Departments of Thurrock and Southend-on-Sea.

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CONTENTS

INTRODUCTION

The following design criteria and standards replace those set down in Section 2.32 on Access in the "Design Guide for Residential Areas."

IT WILL NOW THEREFORE BE THE POLICY THAT WITHIN NEW RESIDENTIAL AREAS, ALL MODES OF MOVEMENT SHALL BE MADE CONVENIENT, SAFE AND PLEASANT BY THE PROVISION OF:

(i) A ROUTE SYSTEM SEGREGATED FROM THROUGH TRAFFIC FLOWS

(ii) A CLEARLY DEFINED HIERARCHY OF ROUTES, WITH ROADS DIFFERING IN CHARACTER, SIZE, ALIGNMENT AND STANDARD ACCORDING TO THE DESIGNED SPEED AND VOLUME OF TRAFFIC THEY ARE INTENDED TO CARRY.

The subjects covered in the following sections are Pedestrian Movement; Cycleways; Vehicular Movement; Private Drives; Lighting; Parking, garage courts and servicing. These amplify and expand on the policy statement. In addition to this the Appendices contain related information on Adoption and Statutory Undertakers.

The planning objective of the new standards is to encourage authorities and builders to create better places for people to live. To enable this to occur a wider range of adoptable road types can now be employed. Their use will permit greater spatial variation to be achieved in housing layout, and a consequent improvement in the townscape and architectural character of future estates.

All the new road types have been designed to secure convenient and safe conditions. To achieve this objective some of the roads will now require special surface finishes and details to be provided as a prerequisite for adoption. Despite such "extras" the narrower width of such roads and the opportunity for higher density developments to be achieved should result in useful overall savings on highway construction costs.

It is now formally recognised that the general appearance of a road as fashioned by its geometry, surface character, details and spatial setting are essential factors in influencing the behavioural pattern of drivers and pedestrians.

To ensure safe conditions it is essential that, in shared surface streets, the pedestrian is made to feel the dominant user, while the character of the place immediately signals to the vehicle drivers, their subservient rights.

While the new standards provide a much wider range of road types than before, they are not exhaustive, and other proposals which satisfy the underlying principles will be encouraged and sympathetically considered on their respective merits for the purposes of adoption.

These standards relate only to the internal layout of housing estates. Matters regarding junctions with existing County roads will be dealt with by the Highway Authority on the merits of each case, and in accordance with the recognised design criteria.

There will obviously be a transitional period following the approval of these standards, where schemes in the pipline will be based on the existing standards set out in the 'Design Guide for Residential Areas'. The changeover to the new standards will most likely be gradual. It is felt that, with a fairly flexible approach by the highway authorities, the two sets of standards could co-exist during these early months.

1.0 Bus Routes

WITHIN NEW HOUSING AREAS, THE NEEDS OF BUS USERS SHOULD BE PROVIDED FOR IN THE DESIGN OF ROAD LAYOUTS WHICH PERMIT CONVENIENT AND EFFICIENT BUS ROUTES.

The aim should be to integrate the road layout and footpaths so that all dwellings are within 400m of a bus stop. Short bus-only links can be used if there are differing requirements for buses and other traffic.

1.1 Planning for Bus Routes in Development Layouts

Large areas of land are often developed as a succession of small sites. Each on its own may be too small to warrant a bus service, but consideration should be given at the planning stage to the linking of a route from one site to another, to provide a bus service for the neighbourhood as a whole.

Where the total development area would not warrant a bus service, footpath links should provide the shortest possible route to existing bus stops. These should be designed to discourage short term parking within the highway.

1.2 The Route and Land Use Distribution

The location of schools, shops and other areas of concentrated use should be planned so that they are accessible by a reasonably direct route for buses, using, as appropriate, all purpose roads, bus-only links and bus lanes. In residential areas, development should be planned so that the route passes as near as possible to the areas of higher density development.

1.3 Distance to bus stops

Estates should be designed so that the walking distance along the footpath system to the bus stops should not be more than 400m from the furthest houses and other trip-ends that they serve. This distance represents a walking time of 5 minutes at a walking speed of 3 miles per hour. If the higher density development is sited closest to the route, the greater number of people will live or work well within 5 minutes walking time. A good site for a terminus is at a local shopping or social centre where turning arrangements can be provided as well as facilities for passengers, crews and waiting buses.

1.4 Spacing and Siting of Bus Stops

Once a bus route has been planned within a residential layout, the appropriate number and positioning of stops must be considered together with a footpath system so as to establish the optimum siting for both. The spacing of bus stops will be governed by the need to find a balance between the foregoing requirements and the need to keep bus speeds at an acceptable level. This will mean that on average, bus stops will be spaced at 2 to 3 per kilometre (4 to 5 per mile). Footpaths should be focussed towards the bus stops, where an underpass or pedestrian crossing may be justified. For safety reasons, bus stops on opposite sides of single, two-lane carriageways should be staggered, preferably so that buses stop "tail-to-tail" and move off away from each other. It is desirable to stagger the stops by about 45m, but this may be reduced, particularly where laybys are provided. At local centres, stops should be sited so that buses will stop at the main pedestrian access to the centre. At the same time care should be taken to avoid siting bus stops where they would cause a nuisance or loss or privacy to residents.

1.5 Layby provision

The provision of bus laybys is particularly useful at layover points. On those parts of the route which are along local distributors or access roads laybys are an added expense and tend to increase journey times, so they are required only if there are overriding safety reasons.

1.6 Turning facilities

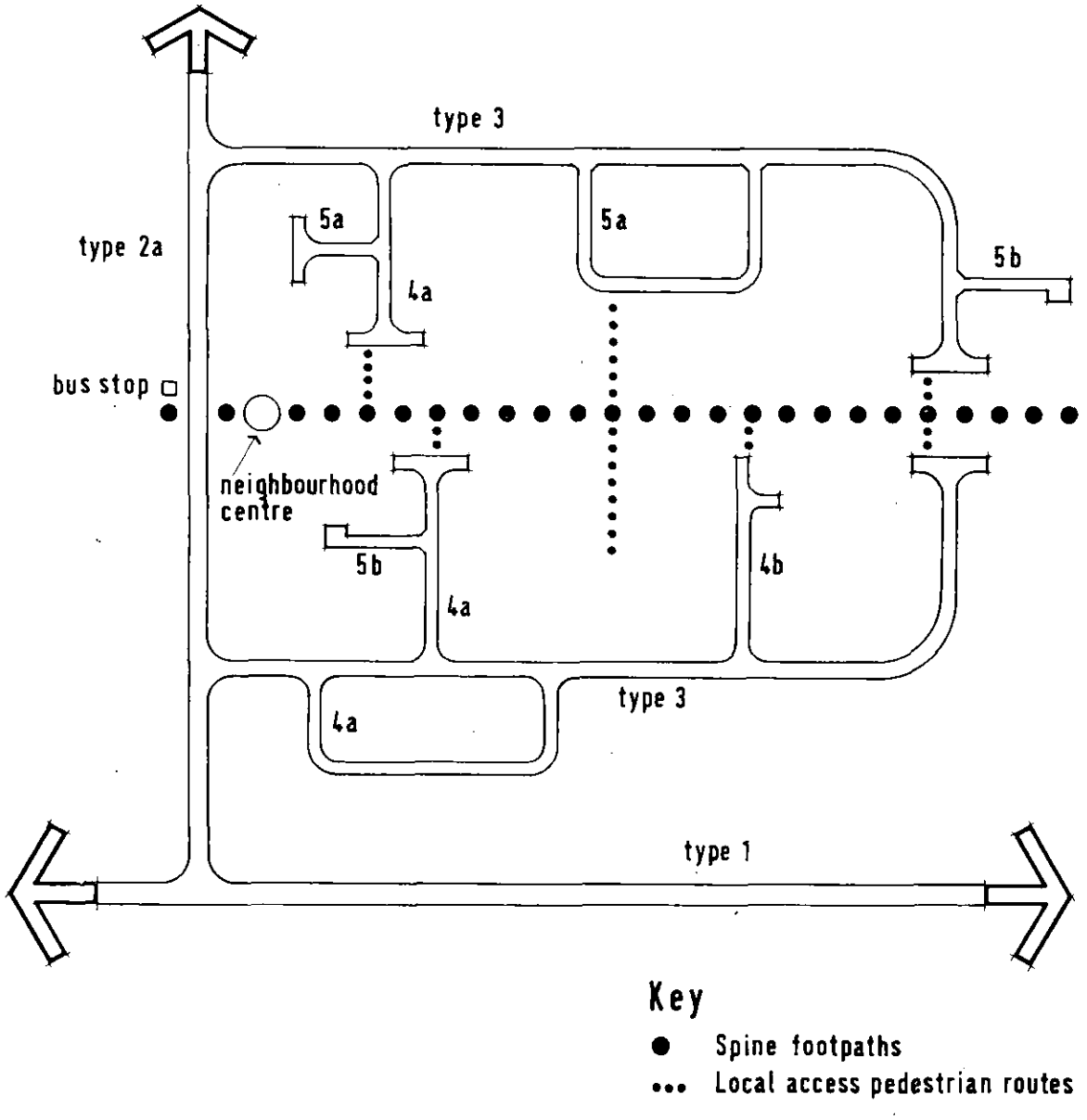
It is essential from both the operational and safety point of view that some facility is provided at route ends, and at important intermediate points, for turning buses without reversing. The best arrangement is an area for turning around, combined with bus standing and passenger waiting facilities. An alternative is to design layouts and junctions so that a convenient roundabout will serve this purpose in conjunction with a layby sited either before or after the roundabout to serve as a layover point. Roundabouts around which buses of various designs can make a 360° turn will need to provide for a 26m diameter outside swept area and a maximum inside diameter, to allow for the tracking of the rear axle, of 14m. It is important for turning facilities to be provided while a housing estate is growing, even though the route may only be partially established. A service can then be provided and extended in pace with development. Such turning facilities might take the form of a temporary adaptation to the development road system.

2.0 Pedestrian movement

WITHIN NEW HOUSING AREAS PEDESTRIAN MOVEMENT SHALL BE MADE CONVENIENT, SAFE AND PLEASANT, BY THE PROVISION OF CAREFULLY POSITIONED AND WELL DESIGNED 'SHARED SURFACE STREETS', 'LOCAL ACCESS PEDESTRIAN ROUTES' AND 'SPINE FOOTPATHS'.

The pedestrian network should provide:—

(i) a direct route to community facilities
(ii) access to adjacent neighbourhoods
(iii) convenient access to the dwelling



2.1 Shared surface streets

These short length culs-de-sac or minor loop roads are intended to cater for vehicles driven at very low speeds. The pedestrian is the dominant user. Shared surface streets should generally not form part of a through pedestrian route, but may serve as a means of local pedestrian access.

2.2 Local access pedestrian routes

The width of such footways, usually provided on each side of the carriageway, should normally be sufficient for two persons to pass. However, on the more lightly trafficked minor access roads where there is only localised pedestrian movement, it may be sufficient to provide a single footway.

On road type 3 and below it is possible in certain circumstances to have a 'courtesy section'. The footway can be narrowed down to a single pedestrian width of 1.000m. *These should not normally exceed 8.000m in length (minimum headroom 2.250m)* and be positioned so that pedestrians are not induced to step onto the carriageway.

Most 'local access' pedestrian routes will run beside carriageways. As such they will normally need to be delineated as being physically separate from the road. In low density developments of a more rural character, where localised pedestrian movement is less frequent, minor access roads can be served by a pedestrian margin of 1.800m width, provided they do not form part of a through pedestrian route.

Where the opportunity arises local access footpaths should be linked into a segregated spine route, for through pedestrian movement to local facilities.

2.3 Spine footpaths

These wider footpaths must aim to provide:

(i) the most convenient route for walking through the estate, or to local facilities in or near the residential area.

The widths of these more intensively used spine routes should be in the order of 2.000m, which is sufficient for groups of pedestrians to pass comfortably. When necessary, for example where emergency access for fire engines may be required, lamp columns and other street furniture should be recessed so as not to obstruct the footpath. Where sharp changes in level occur, such footpaths may be required to provide ramps – in addition to any steps – for prams and the disabled. These routes may also need to be clearly signed so that visitors can find their way about with ease.

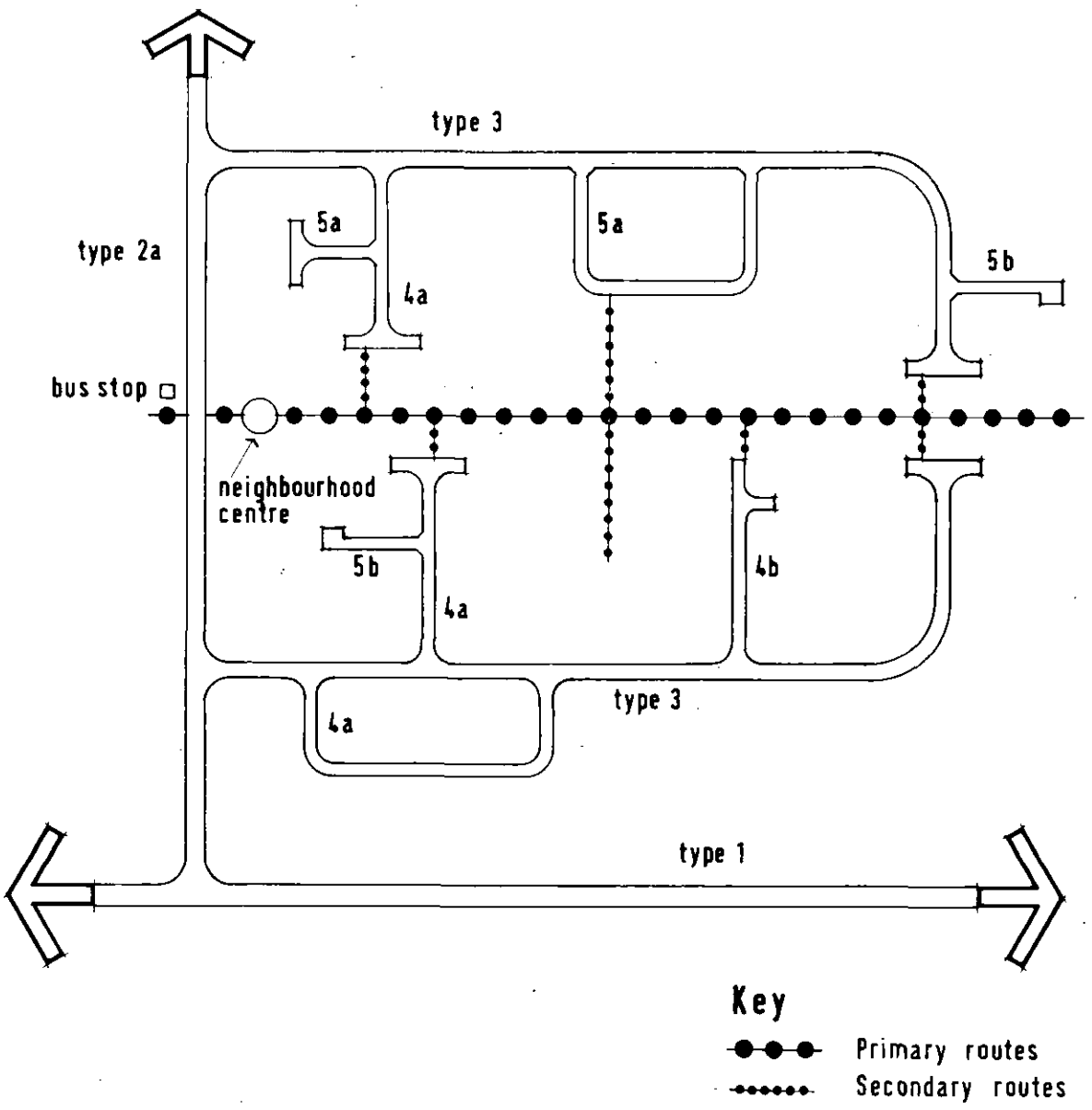
(ii) 'Spine routes' must be especially safe for the pedestrian and the best way of achieving this is by segregating them from the motor vehicle. Where the two have to cross, then the opportunity should be taken to stagger the footpath and arrest the pedestrian flow. At such points sight lines will be necessary. Strategically placed barriers will also help to halt the pedestrian before a road crossing.

(iii) In addition to the requirements of convenience and safety, a 'spine route' must be pleasant. That is to say, it should be both physically and visually comfortable, and its use thereby encouraged. It should provide, by the architectural treatment of its edges, a high degree of protection from wind and driving rain. High walling, shrubs, tree planting and buildings are the essential components to create a series of sheltered linear spaces. It should be clearly visible from dwellings alongside the route, so that it is at all times supervised, as a deterrent to criminal activity.

3.0 Cycleways

WITHIN NEW HOUSING AREAS, THE NEEDS AND SAFETY OF THE CYCLIST SHOULD BE PROVIDED FOR IN THE DESIGN OF THE ROADS, OR BY THE PROVISION OF CAREFULLY POSITIONED AND WELL DESIGNED PEDESTRIAN/CYCLEWAYS.

In the majority of cases, especially on smaller schemes the cyclist will be well catered for on the roads. However, in larger schemes and development areas, where pedestrian spine routes link the housing areas with shopping, community facilities, schools, places of employment etc. then cycleways should be incorporated in this provision.



3.1 Widths

The widths of pedestrian/cycleways are related to their function and frequency of use. In arriving at such standards, the space requirements of both pedestrians and cyclists should be considered;

(i) The occupied width of an average pedestrian approximates to 0.600m. The addition of a clearance for comfort on either side of approximately 0.200m gives an overall requirement of 1.000m. A reduction in the comfort clearance will allow two pedestrians to pass within a width of 1.500m. Where the footpath adjoins a cycleway or verge etc. the width can be reduced to an absolute minimum of 1.000m.

(ii) The width requirement for a cyclist is similar to that of a pedestrian, being 1.000m including a clearance for comfort. It is therefore considered that two cyclists can pass within an enclosed width of 2.000m although a greater width or adequate clearance to walls etc. is preferred for a Primary Route. In the case of a Secondary Route, a width of 1.500m is considered adequate for two cyclists to pass provided that there are adequate lateral clearances, i.e. verge or footpath immediately alongside, and the visibility is to the required standard.

3.2 Types of Route

(i) Primary/spine routes

These form the basis of an urban network and provide links from the centre of residential neighbourhoods to schools, employment areas, shopping centres, railway stations etc. In these cases a width of 2.000m for the footpath and 2.500m for the cycleway is required.

(ii) Secondary routes or links

(a) Provide access from groups of dwellings to the Primary Route.

(b) Link adjoining culs-de-sac to form a direct through route for pedestrians and cyclists.

In these cases a width of 1.500m for the footpath and 1.500m for the cycleway is required

N.B. It may be possible to relax each of the preferred standards by up to 0.500m if the Highway Authority is satisfied that circumstances necessitate and permit, e.g. flow is generally expected to be light and mainly tidal.

3.3 Visual considerations

A spine pedestrian/cycleway whilst being safe and convenient should be visually pleasant, and physically comfortable. It should provide, by the architectural and landscape treatment of its edges, a high degree of protection from wind and driving rain. The whole route should be considered as a series of varied and sheltered linear spaces, and, as such, should be enclosed by walls, buildings and tree planting. It should be clearly visible from dwellings alongside the route so that it is at all times supervised, as a deterrent to criminal activity.

3.4 Segregation

In cases where the cycleway and footpath adjoin, the users should be segregated by a difference in level or alternatively by a difference in surface colour, texture, surface markings and/or signs. Segregation of users by difference in level is not recommended if the width of the combined facilities is less than 3.000m between obstructions i.e. walls or fences, etc. Segregation by surface differentiation or markings is desirable on facilities less than 3.000m wide between obstructions to establish a courtesy convention.

3.5 Forward Visibility

Assuming an average cycle speed of 10 m.p.h. and a level track the safe forward visibility distance for both Primary and Secondary Routes is 15m measured along the centre line of the cycleway. The increase in visibility distance for each 1% of down gradient is 2.000m i.e. for a 5% gradient the visibility requirement is 25m.

Where it is not possible to provide the standard visibility, appropriate physical management measures and/or markings should be employed to avoid conflicts.

Where a footpath adjoins a cycleway the visibility distances given above will apply. In such a case and where segregation is by a difference in surface texture, colour or markings, appropriate physical management measures should be employed to avoid conflicts in areas where visibility is less than the standard figure (15m).

3.6 Junction Criteria

(i) At junctions between a pedestrian way and a cycleway, slight splays of 2.100m x 2.100m should be provided. At such junctions the cyclist should be encouraged to slow down or stop.

(ii) At junctions between cycleways then a visibility splay of x distance 2.100m by a maximum y distance 15m should be provided.

(iii) Where a cycleway meets an access road or local distributor with a footpath running alongside, the cyclist should be encouraged to slow down or come to a stop if necessary. A dropped kerb should be provided to the road. To discourage cyclists and pedestrians from taking unnecessary risks, the cycleway/pedestrian route should be staggered at this point.

(iv) Where a heavily trafficked cycleway/pedestrian route crosses a road with high vehicular flows, then consideration should be given to the provision of:—

(a) an underpass or overpass
(b) a signed or signalled crossing

3.7 Gradients

Gradients are important to cyclists, and excessive gradients mean that the bicycle cannot be used. Generally 4% is the maximum acceptable gradient. However, this may be exceeded for short lengths where site levels and road gradients are in excess of 4%.

3.8 Headroom

The minimum headroom to underpasses and other structures crossing the cycle/pedestrian route should be 2.400m, but this could be reduced to 2.250m over short lengths.

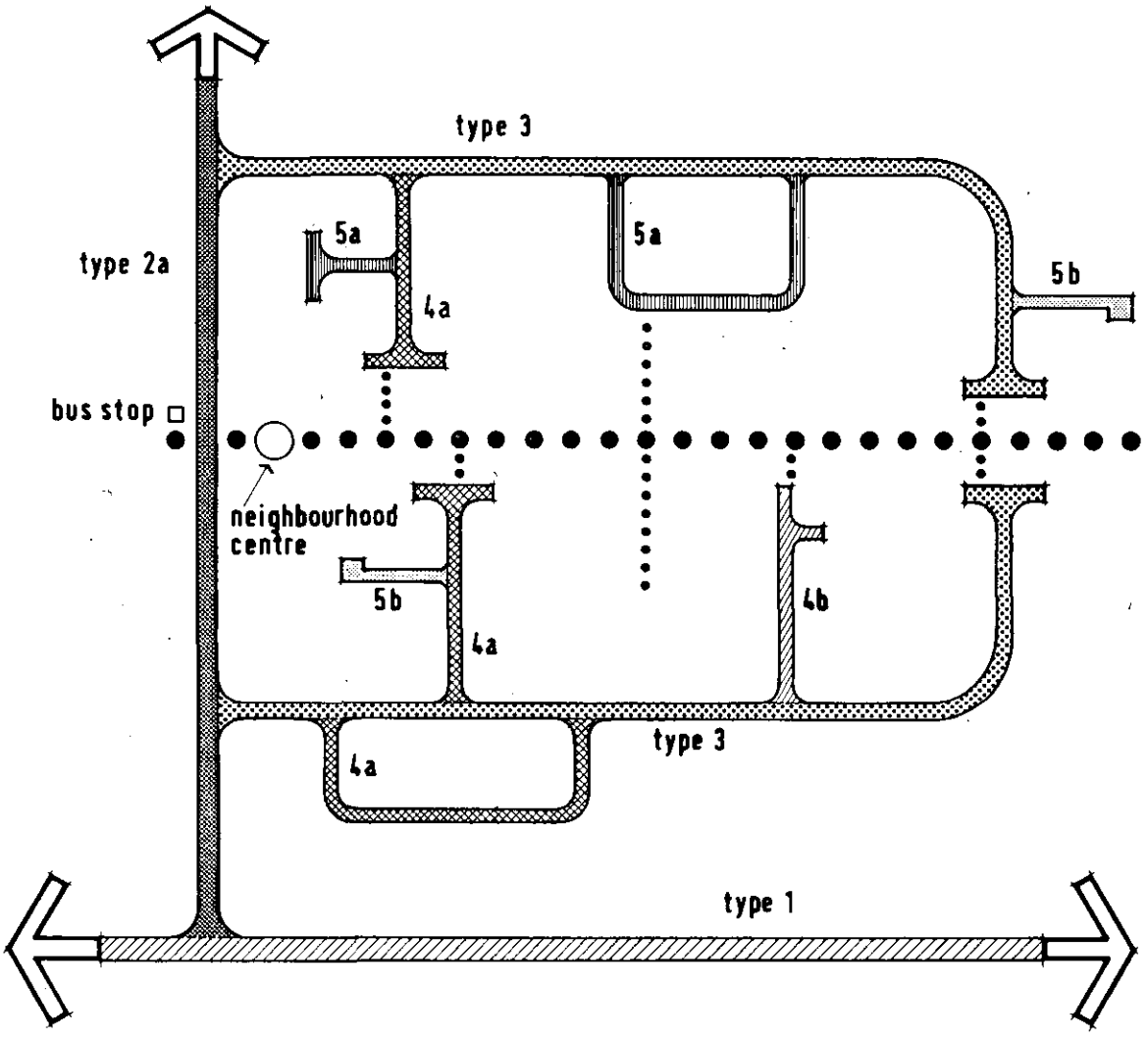
4.0 Vehicular movement

WITHIN NEW HOUSING AREAS, VEHICULAR MOVEMENT SHALL BE MADE CONVENIENT, SAFE AND PLEASANT BY THE PROVISION OF:—

(i) A ROAD SYSTEM SEGREGATED FROM THROUGH TRAFFIC FLOWS

(ii) A CLEARLY DEFINED HIERARCHY OF ROUTES, WITH ROADS DIFFERING IN SIZE, ALIGNMENT AND STANDARDS ACCORDING TO THE DESIGN SPEED AND VOLUME OF TRAFFIC THEY ARE INTENDED TO CARRY.

With these aims in mind a variety of vehicles will need to be catered for, such as:— the bus, large delivery and collection vehicles, the car, motor cycles, cycles. The needs and safety of the pedestrian must always be considered.



4.1 The proposed hierarchy of vehicle routes

4.1.1 All vehicular movement can be fitted into a hierarchy of routes which relate to:—

(i) the volume and speed of traffic

(ii) the frequency and ease with which the various types of vehicles may be expected to pass each other

(iii) the envisaged character of the development

4.1.2 A major factor in road safety is the reduction of vehicle speed. Low speeds are to be encouraged by the provision of:—

(i) narrower carriageways related to traffic flows

(ii) a road alignment, whereby a series of sharp bends with short lengths of straight road between are provided

(iii) short culs-de-sac to reduce the risk of driver frustration.

(iv) the provision of stop junctions

(v) the provision of rumble strips or ramps at the entrances to low speed/pedestrian dominated streets

(vi) a change in surface finish to indicate a minor road

(vii) the layout and juxtaposition of buildings around the road, and the detailing of the kerbs, hard and soft landscaping etc.

Each class of route in the proposed hierarchy thus reflects its different role by its physical design standards and by its visual appearance.

4.2 County Highway Standards

The proposed standards are set out in Table 1. The objective has been to devise standards which meet the above aims while at the same time allowing better environmental standards and townscape to be achieved in housing area design.

Further design criteria are set out in the following sections along with the specific planning and design standards for the adoptable road types.

4.3 Adoptable Road Types

On the following pages are set out the specific design criteria and standards for each adoptable road type.

Adoptable Road Types

ROAD TYPE	DESCRIPTION	MAX LENGTH OF CUL-DE-SAC	MAX NUMBER OF UNITS SERVED	MINIMUM CARRIAGEWAY WIDTH	COMMENTS
1	Local distributor			7.300 or 6.750m *with bus layby*	Verges min 1.200m required. Normally no frontage access. Bus route.
2a	Major access road			6.750m	Frontage access/egress in forward gear. Bus route.
2b	Transitional road	Usually short length		6.000m	*Frontage access. Egress in forward gear* near junction.
3	Intermediate access road		300	5.500m	No. + width footways related to pedestrian flow. No access restrictions. *Reasonably convenient parking. Possible* bus route.
4a	Minor access road		100	4.800m	Number + width of footways related to pedestrian flow. Convenient parking. Special surface finish.
4b	Minor access way	150m aligned to reduce speed	25	Combined pedestrian/ vehicular surface 4.800m (including pedestrian margin/verge)	Convenient parking within the curtilage of the dwellings. Special surface finish.
5a	Mews	100m aligned to reduce speed	25*	Combined pedestrian/ vehicular surface 4.800m 1.000m min pedestrian margin.	Special junction detail. Urban character. Special surface finish.
5b	Mews Court	36m	12*	Combined pedestrian/ vehicular surface	Special junction detail. Urban character. Special surface finish.

* Where garaging is located outside the mews the number of units may be increased appropriately.

TYPE 1 LOCAL DISTRIBUTOR

These through roads distribute traffic within environmental areas. They form the link between primary and district distributors and access roads, and could carry a local bus route.

Frontage access may be permitted in the form of private drives, serving up to 5 dwellings, but egress onto the road must be in forward gear only. The street frontage should be satisfactorily enclosed with buildings, walls and trees.

A carriageway width of 7.300m, or 6.750m with, a design speed of 50 KPH, bus laybys may be required. **A verge,** at least 1.200m wide must be provided between the footway and the back of the kerb. This width can be varied to incorporate tree planting. **Footways** should be 2.000m wide, and be provided on each side of the carriageway.

This road type may only take access from an existing county road or another Type 1 road.

A junction requires a minimum kerb radius to be a compound curve 31.500m/10.500m. The minimum length of minor road from the T-junction required to be straight is 30m. Sight lines of x distance 9.000m by y distance 90m are required. This could be reduced where traffic speeds are low.

The standard design of a junction with an existing county road will be to the requirements of the highway authority. The maximum gradient should generally be in the order of 5%.

Long straight roads encourage high speeds and are visually monotonous. Bends of a normal **centre line radius** of 200m and a minimum of 90m, with a minimum straight of 36m between bends are **to be encouraged.**

TYPE 2a MAJOR ACCESS ROAD

These through roads give direct access to buildings and land within environmental areas, and may carry a local bus route.

Frontage access is permitted, but egress onto the road must be in forward gear only.

A carriageway width of 6.750m is required, with footways of 2.000m. In schemes of an arcadian character, a verge between the kerb and the footway of at least 3.000m wide is needed to provide a sufficient area for tree planting, shrubs and ground cover.

The road may take access from a Type 1 or Type 2a road, or an existing county road.

A junction requires the minimum kerb radius to be a compound curve 31.500m/10.500m. The minimum length of minor road from a T-junction required to be straight is 22m. Sight lines of x distance 6.000m by y distance of 90m are required where the major road at the T-junction is a Type 1. Elsewhere a y distance of 60m is required. Reduced y distances are possible where traffic speeds are low.

The standard design of a junction with an existing county road will be to the requirements of the highway authority.

The normal **centre line bend radius** is 70m and the minimum 30m, with a minimum length of straight road between bends of 18m. The design speed is 30 KPH. Where the road alignment allows or encourages higher speeds, then appropriate forward and junction visibility must be provided.

The maximum gradient should generally be in the order of 6%.

TYPE 2b TRANSITIONAL ROAD

These are link roads between local distributors, and minor access roads, to provide a change over zone between the distributor system and the environmental areas. They will nearly always be provided in short lengths and do not provide for through routes.

Frontage access is permitted. Egress in reverse gear is allowed, except near heavily trafficked junctions, where it should be in forward gear.

A carriageway width of 6.000m is required, with footways of 1.800m minimum. In schemes of an arcadian character a verge of at least 3.000m width, between kerb and footway, is needed to provide a sufficient area for tree planting, shrubs and ground cover.

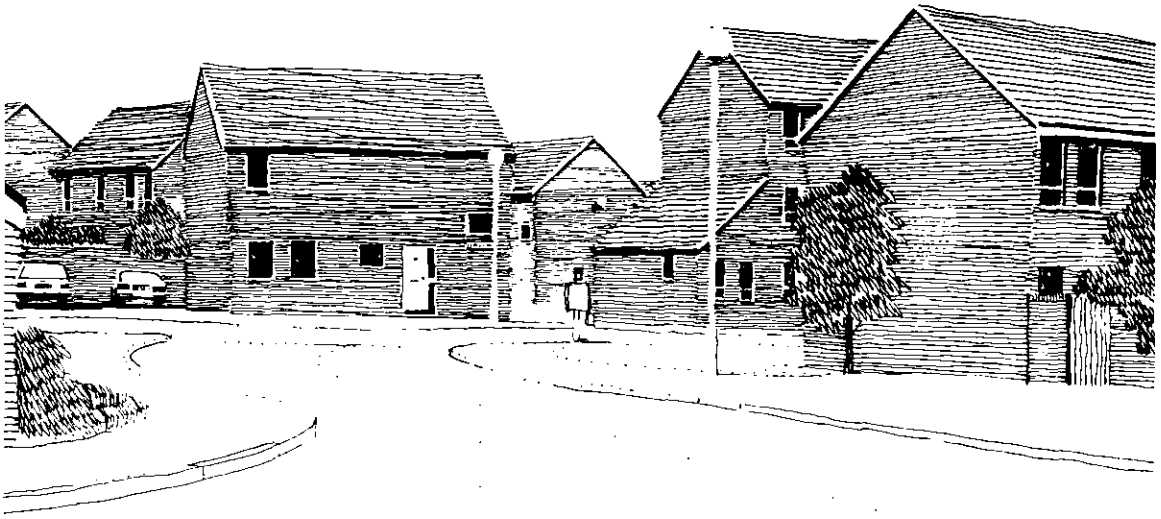
The road may take access from Type 1, Type 2a and Type 2b roads, or existing county roads.

A junction requires a minimum kerb radius of 10.500m. The minimum length of minor road at the T-junction required to be straight is 22m. Sight lines of x distance 4.500m by y distance 90m are required where the major road at the T-junction is a Type 1. Elsewhere a y distance of 60m is required. Reduced y distances are possible where road speeds are low.

The standard design of a junction with an existing county road will be to the requirements of the Highway Authority.

The normal **centre line bend radius** is 70m and the minimum is 30m, with a minimum length of straight road between bends of 18m. The design speed is 30 KPH.

The maximum gradient should generally be in the order of 6%.



TYPE 3 INTERMEDIATE ACCESS ROAD

These are loop roads and culs-de-sac giving direct access to dwellings. Culs-de-sac may serve as access to not more than 300 dwellings. The maximum number served by a loop road may not exceed 600.

There are **no special access restrictions** from buildings.

A carriageway width of 5.500m is required, with footways of 1.800m minimum. Generally a footway on each side of the carriageway is required, however, on small schemes of up to 25 dwellings with little pedestrian traffic, one footway may be sufficient. In schemes of arcadian character, a verge between kerb and footway of at least 3.000m wide is needed to provide a sufficient area for tree planting.

The road may take access from road Types 1, 2a, 2b and 3, or existing county roads.

A junction requires a minimum kerb radius of 7.500m unless the major road is a Type 1, then 10.500m radius is required. The minimum length of minor road from the T-junction required to be straight, is 15m. Sight lines of x distance 4.500m by y distance 90m are required at a junction with a Type 1 road. Elsewhere a y distance of 60m is required. Reduced y distances are possible where traffic speeds are low.

The standard design of a junction with an existing county road will be to the requirements of the Highway Authority.

Long straight roads are not acceptable. The minimum centre line bend radius is 20m, with a minimum length of straight road between bends of 18m.

Where the road is a cul-de-sac a turning bay is required.

The design speed is 20 KPH. Where road alignment allows or encourages higher speeds, then the appropriate forward and junction visibility must be provided.

The maximum gradient should generally be in the order of 7%.

TYPE 4a MINOR ACCESS ROAD

These are small culs-de-sac or minor loop roads giving direct access to dwellings. Culs-de-sac may serve as access to not more than 100 dwellings, whilst loop roads may give access to not more than 200, subject to equal traffic distribution.

There are no special vehicle access restrictions. A **parking space convenient** to a dwelling must be provided.

A carriageway width of 4.800m is required. The width and number of footways required will depend on likely pedestrian traffic. A through pedestrian route requires a footway of 2.000m on one side of the road, normally two footways of 1.500m will be required, while very low traffic on small schemes of less than 25 units will require only one footway of 1.800m width.

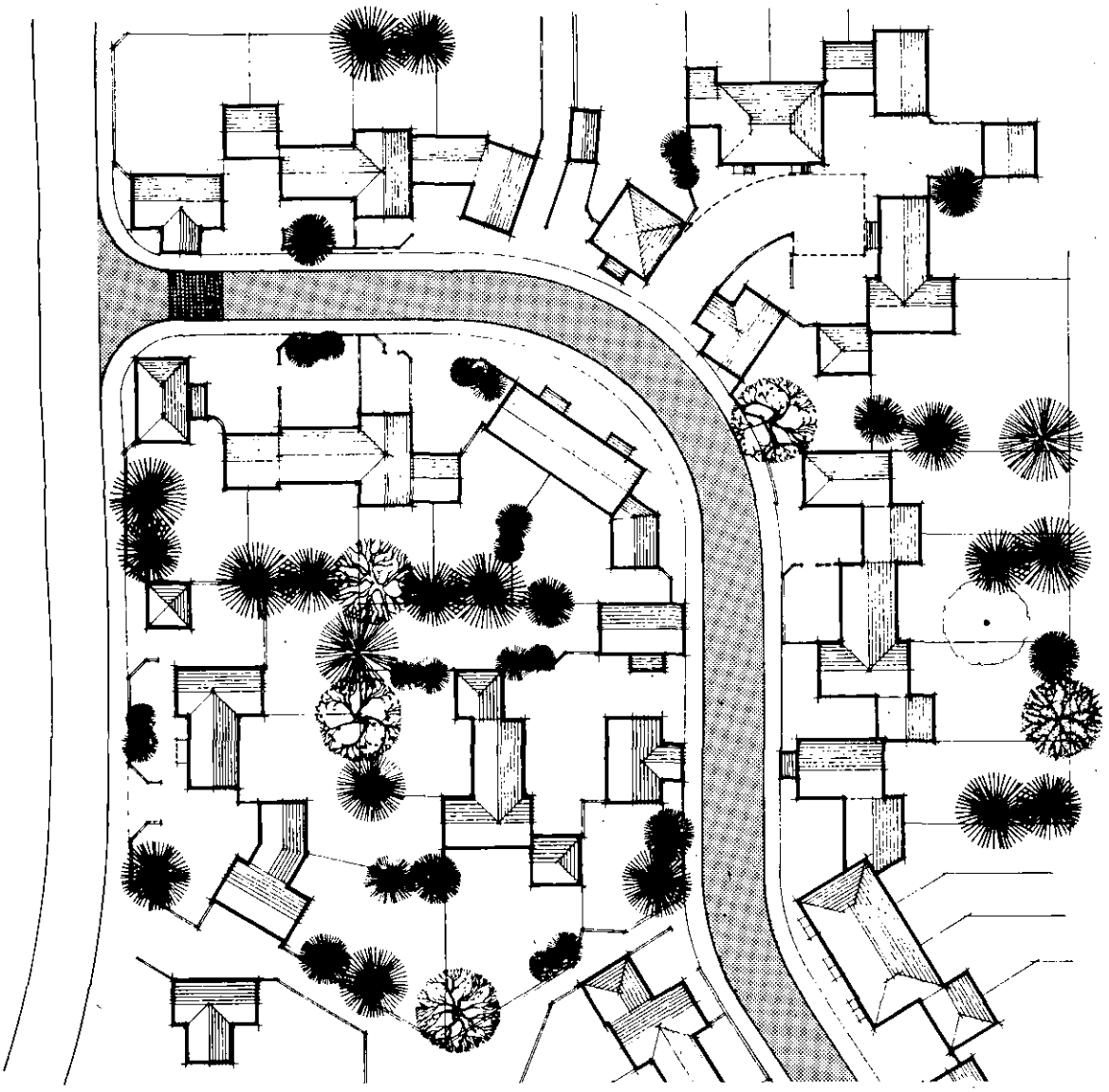
The road may take access from road types 2a, 2b, 3 and 4a, or an existing county road.

A junction requires a minimum kerb radius of 7.500m. The minimum length of minor road at a T-junction, required to be straight is 15m. Sight lines of x distance 2.400m by y distance 60m are required. Y distances may be reduced where traffic speeds are low. A ramp or rumble strip may be required for a length of six metres.

The standard design of a junction with an existing county road will be to the requirements of the Highway Authority.

Roads should be aligned to reduce speed. The minimum centre line bend radius is 13.600m. There is no requirement for a length of straight road between bends.

A turning bay will be required at the end of the road, where it is a cul-de-sac.



The design speed is 15 KPH. Where road alignment allows or encourages higher speeds, then the appropriate forward and junction visibility must be provided.

The maximum gradient should generally be in the order of 7%.

The character of this road should encourage very low vehicle speeds, and signal to the driver that the carriageway may be used as a pedestrian surface. The provision of a ramp or rumble strip at the junction, (except in the case of a county road) may be required. However, a special surface finish, which should be applied to the whole length of the road, is essential to show the difference in character from more heavily trafficked estate roads. Suitable surface finishes would be:

(i) coarse surface dressing
(ii) chippings rolled into asphalt surfacing
(iii) interlocking concrete block paving

The Highway Authority should be consulted before the surface treatment is agreed.

TYPE 4b MINOR ACCESS WAY

These are **minor shared surface culs-de-sac** giving direct access to dwellings, in schemes of a rural or arcadian character. They may serve as access to no more than 25 dwellings, and should not generally exceed a length of 150m or 300m where looped serving up to 50 dwellings (subject to equal traffic distribution). They could be used for single sided development.

There are **no special access restrictions** from buildings where the total carriageway width is a minimum of 4.800m. Where the width is reduced to 3.000m, then the plots served should allow for car egress in forward gear.

An **overall carriageway width** of 4.800m is required. This may be provided in 3 ways:

(i) a vehicle way of 3.000m with a pedestrian margin of 1.8000m, delineated by a row of setts. This margin would be used by light pedestrian traffic and for vehicle passing.

(ii) a vehicle way of 3.000m with a minimum verge of 1.800m (under which services would be located and which would be adopted). The carriageway should widen to 4.800 metres, to allow for passing bays where necessary.

(iii) a vehicle way of 4.800m, with wide verges, and a footway of 1.500m on one or both sides.

Where there is a through pedestrian route, then a separate footpath of 1.800m width must be provided.

Where houses are located at the edge of the vehicle way they should be set back 500mm and protected by bollards.

A parking space convenient to the entrance and within the curtilage of the dwelling must be provided for each dwelling served by this road. Where the carriageway width is reduced to 3.000m, it would be advisable for off street parking within the curtilage of the dwelling to be provided for delivery lorries etc.

The road may take access from road Types 2a, 2b, 3, 4a and 4b, or existing county roads.

A junction requires a minimum kerb radius of 4.500m. The minimum length of minor road at a T-junction required to be straight is 15m. The first 12m must be 4.800m width, narrowing over a length of 5m if required. This initial length must be provided with a separate footway of 1.800m width on one side of the carriageway. A ramp or rumble strip must be provided. Sight lines of x distance 2.400m by y distance 60m are required. Y distances may be reduced where traffic speeds are low. The first passing bay should be visible from the junction.

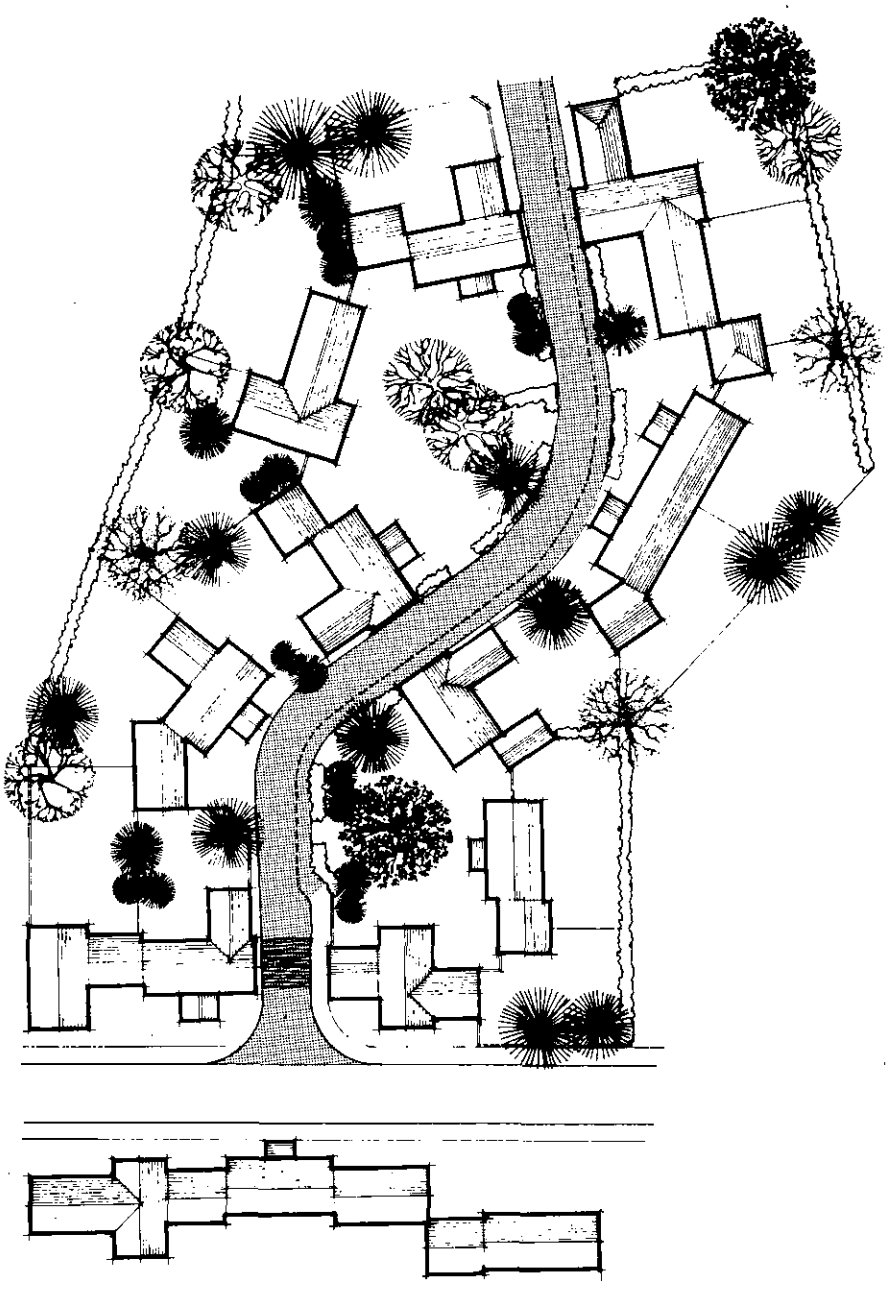
The standard of design of a junction with an existing county road will be to the requirements of the Highway Authority.

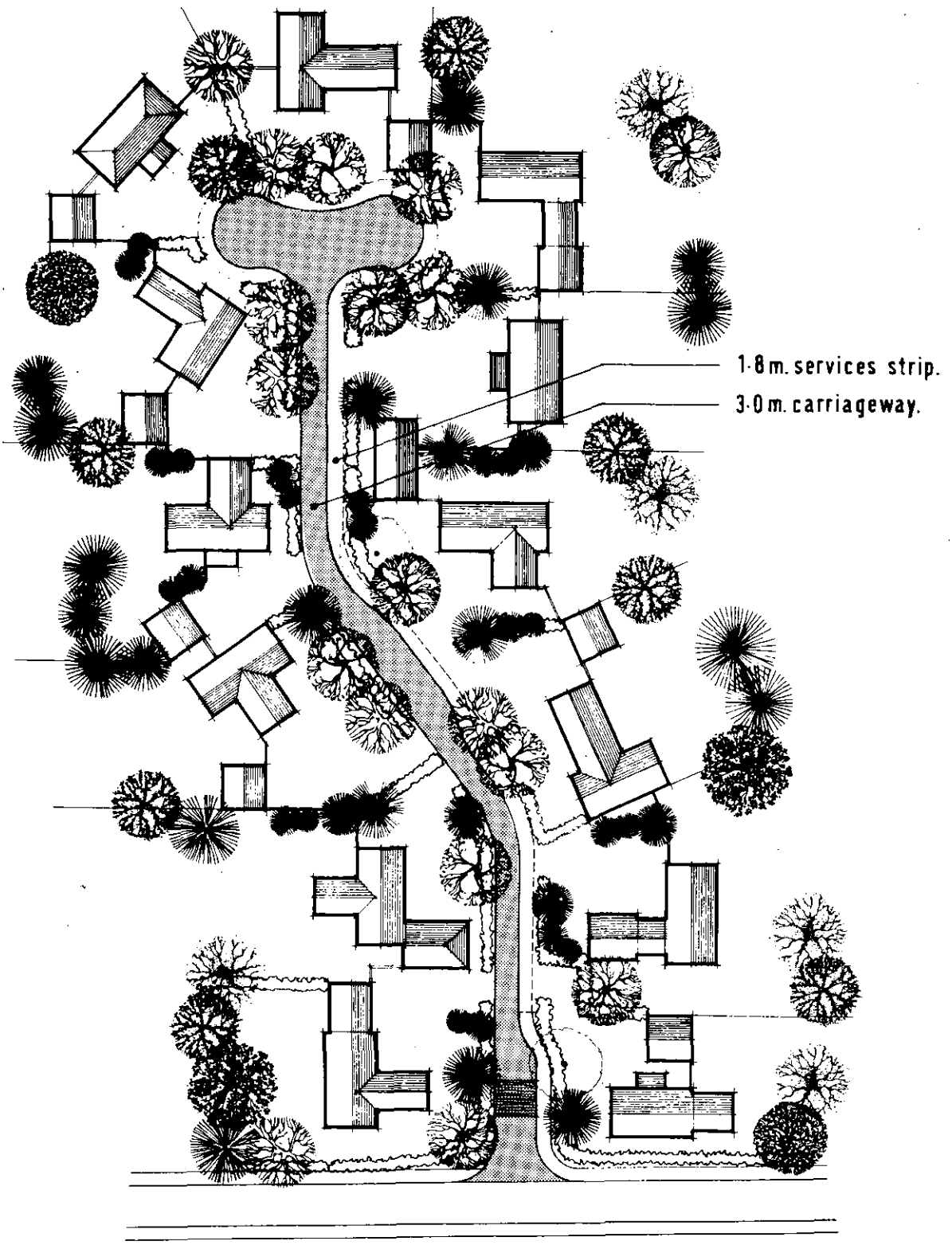
Roads must be aligned to reduce speed. The minimum centre line bend radius is 13.600m. There is no requirement for a length of straight road between bends.

A turning bay will be required at the end of the road if it is a cul-de-sac.

The design speed is 15 KPH.

The maximum gradient should generally be in the order of 8%.





The character of this road should encourage very low vehicle speeds, and signal to the driver that the carriageway may be used as a pedestrian surface. The provision of a ramp or rumble strip at the junction, may be required (except in the case of a junction with a county road). However, a special surface finish which should be applied to the whole length of the road, is essential to show the difference in character from more heavily trafficked estate roads. Suitable surface finishes would be:

(i) coarse surface dressing
(ii) chippings rolled into asphalt surfacing
(iii) interlocking concrete block paving

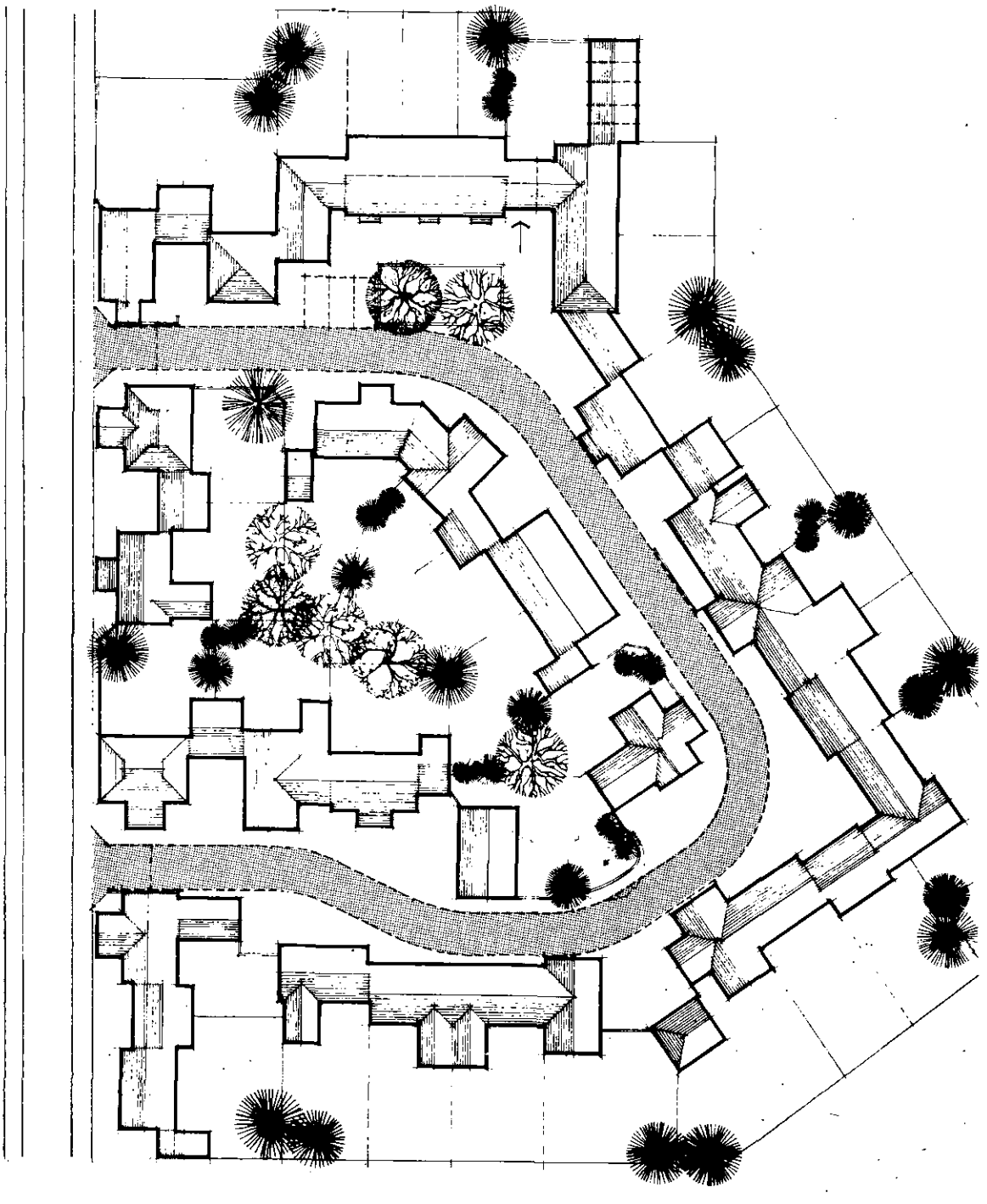
The Highway Authority should be consulted before the surface treatment is agreed.

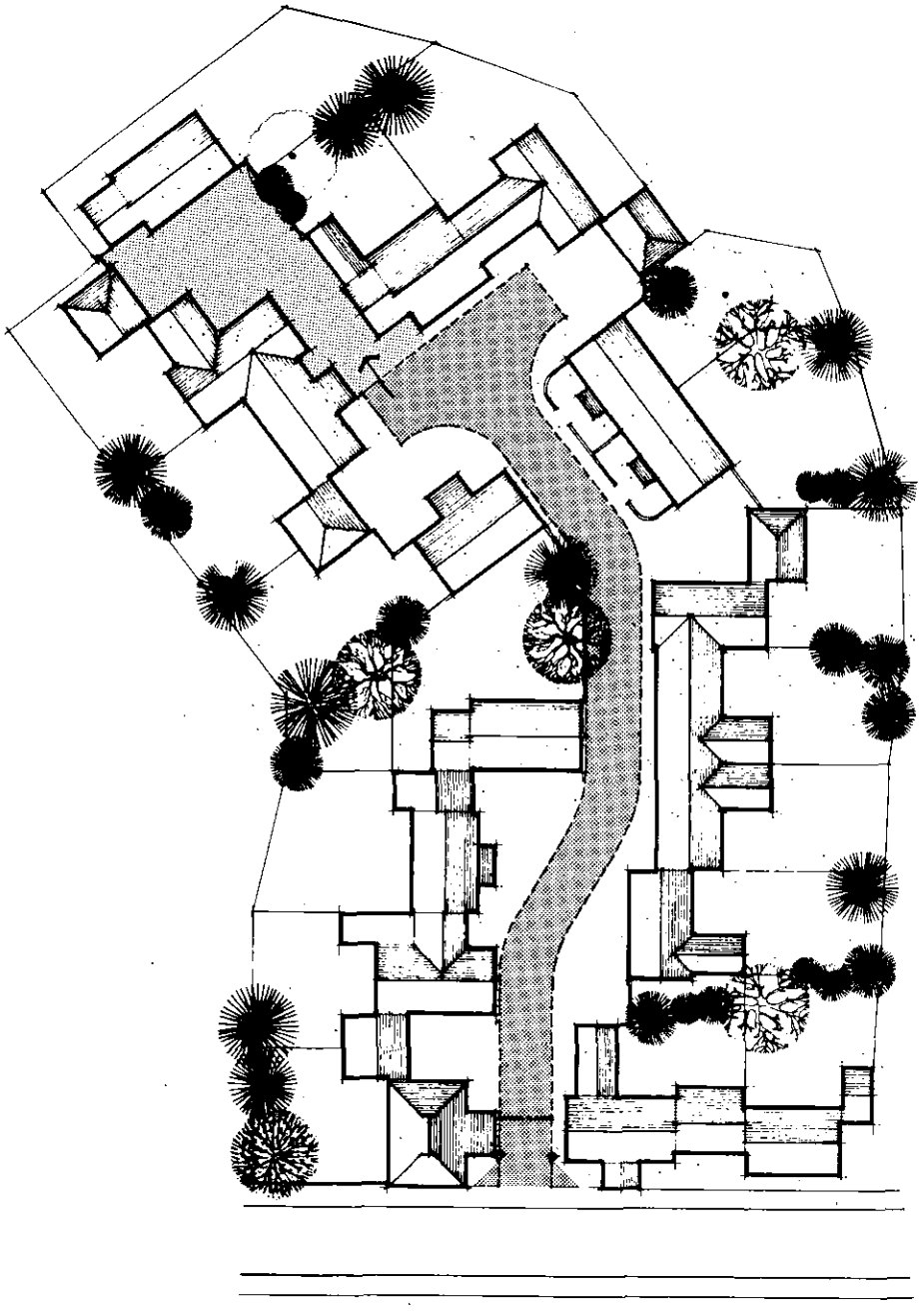
TYPE 5a MEWS

These are **culs-de-sac or minor loop pedestrian/vehicular shared surfaces** in medium and high density developments of an urban character. Culs-de-sac may serve as access to a total of 25 dwellings and may not exceed 100m in length. Looped mews may give access to a total of 50 dwellings and should generally not exceed 200m in length. Where garages are located outside the mews then the number of dwellings served may be increased appropriately but may not exceed more than double the numbers shown.

There are **no special access restrictions** from buildings, and no vehicle/pedestrian sight splays are required.

The minimum width should be 5.800m, of which 4.800m should form the carriageway, with a 1.000 metre minimum margin delineated by rows of setts, and which would be adopted.





This margin should be of variable width, and on tight bends should accommodate the swept path of large vehicles. It may also be used as a services strip. Where the carriageway abuts a building then the building should be protected by a bollard and should be set a minimum of 500mm from the edge of the carriageway. No separate footways are required, and because of this a mews should not normally be used as through pedestrian route.

The mews may take access from road types 2a, 2b, and 4a; and from county roads where provision is made for a standard estate road junction to the requirements of the Highway Authority.

A **special junction detail** is required. For the first 8m from the back of the footway the mews must be restricted in width to 5.800m (except for the 2.100m x 2.100m sight splays) and, in order to restrict forward visibility for the motorist, be contained by buildings or walls of a minimum height of 1.800m. There should be no doors, gates of other entrances on to the mews within this first 8m.

No windows or doors should open outwards, or overflow pipes etc. project over the net adoptable area of the mews, or over other areas where the public have unrestrained access.

To slow down the speed of vehicles entering the court, a vehicular crossing with mountable kerb is required, combined with a further ramp with a 50mm upstand placed 6.000m back from the back edge of the footway. Further ramps may be required within the layout. A 2.100m x 2.100m vehicle/pedestrian sight splay must be provided at each side of the entrance.

The minimum length of straight carriageway from the junction is 10.500m.

Sight splays of x distance 2.400m by y distance 60m are required. The y distance may be reduced where traffic speeds are low.

The mews must be aligned to reduce speeds.

Where the mews is a cul-de-sac, then a turning bay must be provided, of size 3 dimensions.

Where soft landscaped areas abut the mews surface, then an upstand kerb or setts of at least 50mm must be provided to protect the soft areas from vehicle damage. It is essential that such areas should be carefully detailed. They should consist of areas of shrubs and ground cover, with the edges protected by cobbles, setts etc. Grassed areas are not acceptable. Paved areas adjacent to the mews must be strengthened to carry vehicles.

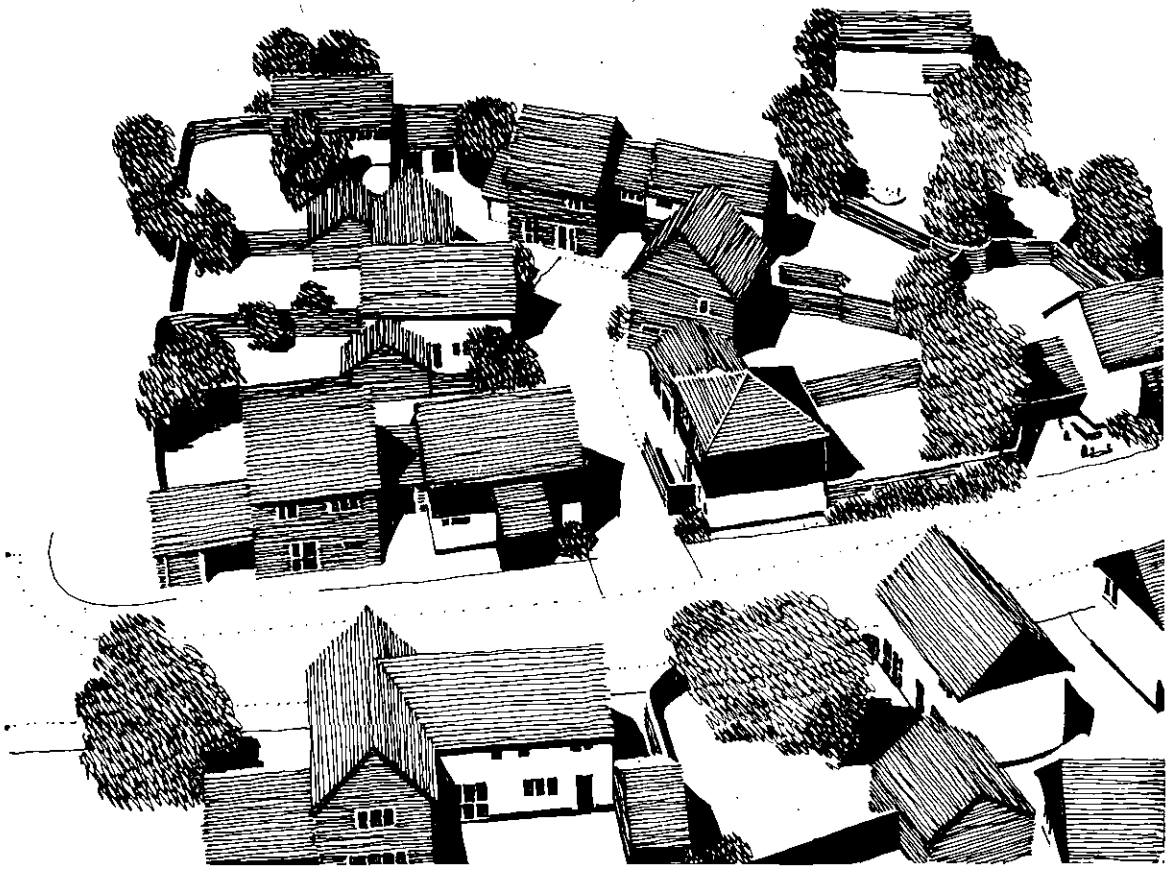
The maximum gradient should normally not exceed 8% and may in no circumstances exceed 10%.

The **design speed** of the mews is very low. Low speeds should be further encouraged and it is a requirement that the pedestrian nature of the court be emphasised by the use of special surface finishes which should be applied to the whole length of the mews, such as:

(i) coarse surface dressing
(ii) chippings rolled into asphalt surfacing
(iii) interlocking concrete block paving
(iv) brick paviors or setts

The Highway Authority should be consulted before the surface treatment is agreed.

TYPE 5b MEWS COURT



These are **culs-de-sac in medium and high density developments** of an urban character, serving as access to a total of not more than 12 dwellings, and not exceeding 36m in length. Where garages are located outside the mews court then the number of units served may be increased appropriately, but may not exceed 25. They are **shared pedestrian/ vehicular surfaces** requiring careful and sympathetic detailing to ensure that they fit into an overall design concept for the scheme.

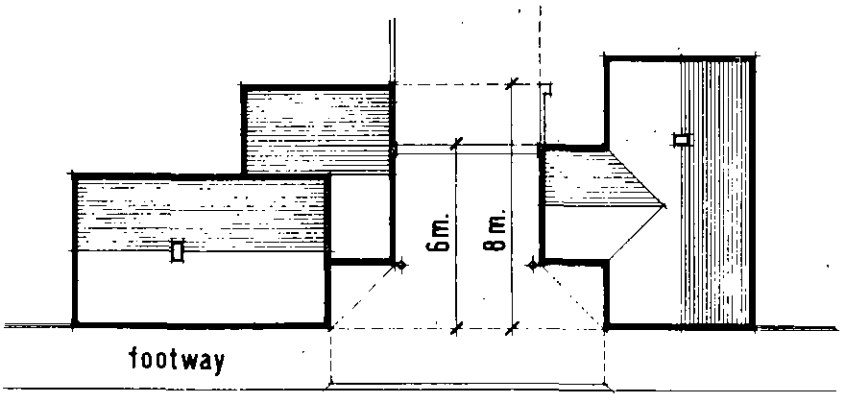
There are **no special access restrictions** from buildings, and no vehicle/pedestrian sight splays are required.

The **minimum width** of the mews court is 4.800m. No separate footways are required, and therefore a mews court should not normally be used as a through pedestrian route.

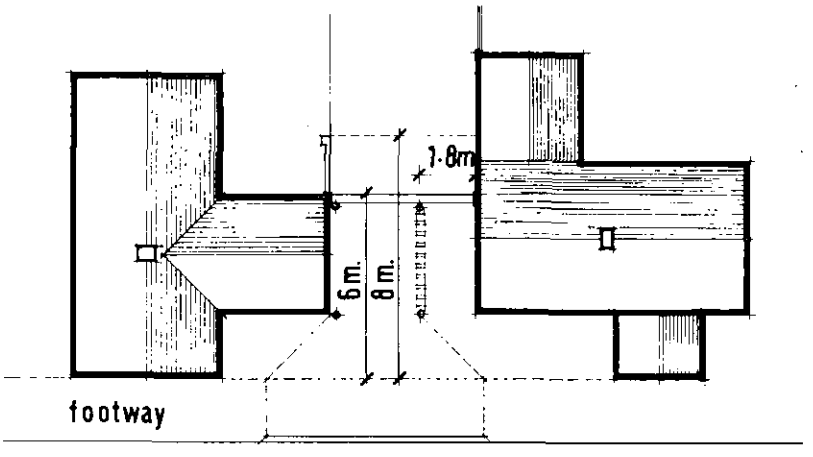
The mews court may take access from road types 2b, 3 and 4a and is not acceptable off an existing county road.

A **special junction** detail is required. For the first 8m from the back of the footway, the mews court should be restricted in width to 4.800m (except for the 2.100m x 2.100m sight splays) and contained within buildings or walls of a minimum height of 1.800m. A variety of entrance details may be envisaged within this width, for example:

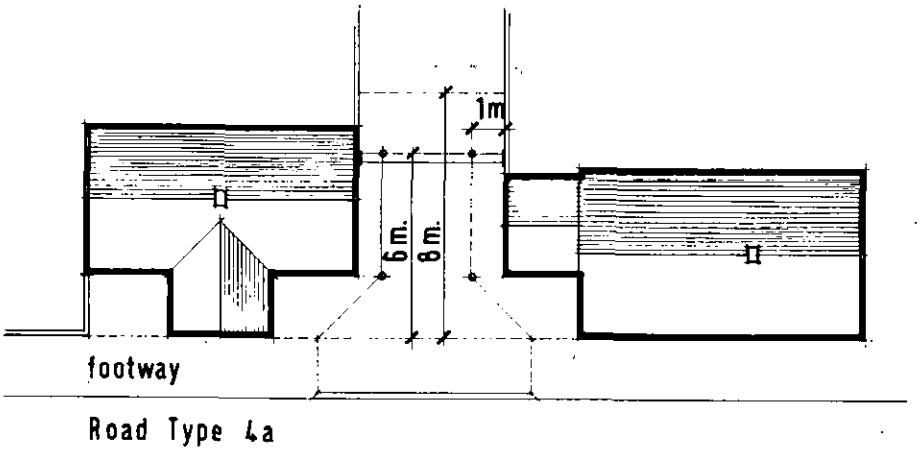
(i) bollards may be set against the walls to protect the buildings



(ii) A pedestrian margin of 1.800m delineated with setts and demarcated with bollards could provide added protection for the pedestrian at the entrance. This is acceptable only off Type 4a roads.



(iii) Pedestrian margins, with at least 1.000m on one side, could be provided on either side of a 3.000m wide vehicle way, protected by bollards. This is acceptable only off Type 4a roads.



In all cases a vehicle carriageway of a minimum width of 3.000m is required.

There should be no doors, gates or other entrances on to the mews court within the first 8m.

No windows or doors should open outwards, or overflow pipes etc. project over the net adoptable area of the court, or over other areas where the public have unrestrained access.

To slow down the speed of vehicles entering the court, a vehicular crossing with mountable kerb is required, combined with a further mountable kerb with a 50mm upstand placed 6 m back from the back edge of the footway.

A 2.100m x 2.100m vehicle/pedestrian sight splay must be provided at each side of the entrance.

The minimum length of court from the junction required to be straight, is 10.500m. Sight lines of x distance 2.400m by y distance 60m are required. The y distance may be reduced where traffic speeds are low.

A size 5 turning bay is required.

Where **soft landscaped areas** abut the court surface, then an upstand kerb or setts of at least 50mm must be provided to protect the soft areas from vehicle damage. It is essential that such areas are carefully detailed. They should consist of areas of shrubs and ground cover, with the edges protected by cobbles, setts etc. grassed areas are not acceptable. Paved areas adjacent to the court must be strengthened to carry vehicles.

The maximum gradient should normally not exceed 8% and in no circumstances may exceed 10%.

The **design speed** of the court is very low. Low speeds should be further encouraged and it is a requirement that the pedestrian nature of the court be emphasised by the use of special surface finishes which should be applied to the whole length of the court, such as:

(i) coarse surface dressing
(ii) chippings rolled in asphalt surfacing
(iii) interlocking concrete block paving
(iv) brick paviors or setts

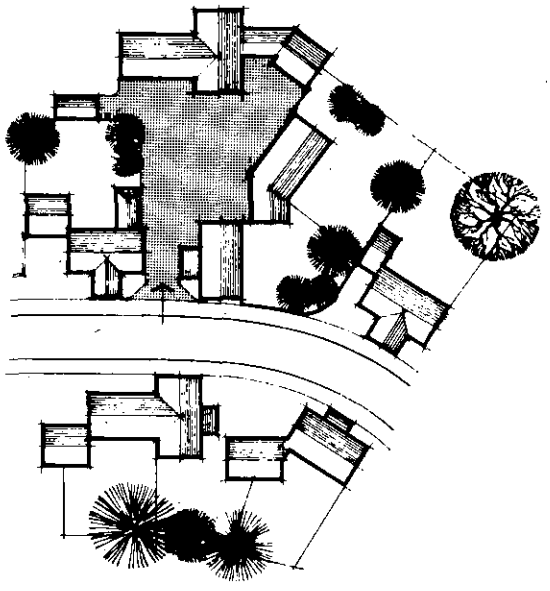
The Highway Authority should be consulted before the surface treatment is agreed.

5.0 Private Drives: Design notes

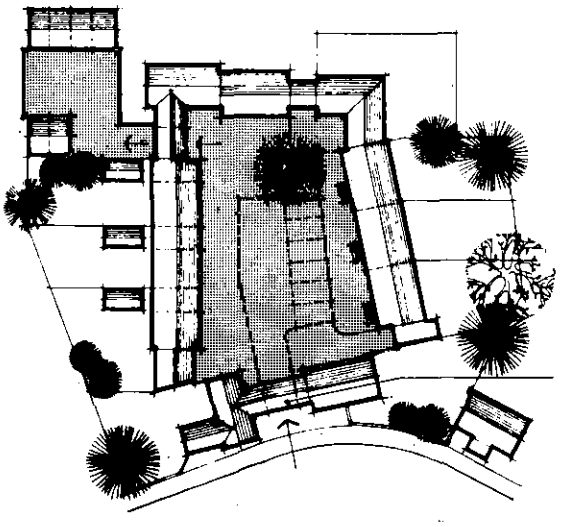
5.1 Definition

PRIVATE DRIVES ARE VEHICULAR AND PEDESTRIAN ACCESS WAYS NOT SUITABLE FOR ADOPTION AS HIGHWAYS MAINTAINABLE AT PUBLIC EXPENSE. AS SUCH THEY FALL INTO TWO MAIN CATEGORIES:

(i) DRIVES GIVING ACCESS TO A MAXIMUM OF FIVE DWELLINGS



(ii) DRIVES WHICH ARE INCAPABLE OF FUTURE ADOPTION BECAUSE OF PERMANENT PHYSICAL CONSTRAINTS. (OFF ROAD TYPE 3 AND BELOW ONLY)



5.2 Access restrictions

Private drives may take access, subject to certain dimensional requirements, from all road types. Access may be allowed from Type 1 roads in certain circumstances, and the design of the junction will be to the requirements of the Highway Authority.

Where they take access from Type 1 and 2a roads, turning facilities must enable egress in forward gear. This also applies to heavily trafficked junctions of Type 2b roads with other major roads.

In general, vehicular access is prohibited over radius kerbs at junctions or turning bays unless a special kerb detail is used (road type 4b only).

In road types 5a and 5b, vehicular access is prohibited in the first 8m of their length.

5.3 Vehicles to be accommodated

Private drives should in general, be designed to accommodate the 95th percentile car, to the dimensions and turning circles set out in the relevant Department of the Environment Design Bulletin. For long drives it may be necessary to allow for use by some commercial vehicles, and if so, all dimensions will need to be increased appropriately.

5.3.1 Width

The minimum drive width is 2.400m for a single dwelling with a single garage. A shared private drive (leading off road Types 1, 2a, 2b and 3) should be 4.100m wide for first 6.000m from highway boundary with a taper at least 6m long from 4.100m width to 2.400m width. Shared private drives leading from road Types 3 (when serving less than 100 dwellings) 4a, 4b, 5a, 5b, may be reduced to 2.400m. Where a double garage is provided for any one dwelling the drive should be 4.800m wide or the width of the garage (whichever is the greater) for a length of at least 9m in front of the garage doors with an appropriate taper if desired beyond this 9m length.

Where part of a drive is used as a hardstanding it must be at least 2.400m wide for a single hardstanding (or 3.000m wide where contained between walls,) and at least 5.000m wide for a double hardstanding (or 5.400m wide where contained between walls). Details of the crossover construction can be obtained from the Highway Authority.

5.4 Junction details

5.4.1 Vehicle/Vehicle Sight Lines

(a) 2.400m x a maximum of 60m sight lines from the edge of the carriageway should be provided on each side of drive where private drives join estate roads of types 2a, 2b, 3. The y distance will be related to the design speed of the road.

(b) 2.400m x in the order of 20m sight lines from the edge of the carriageway should be provided on each side of the drive where private drives join estate roads to types 4a, 4b.

No obstruction over 600mm in height should be permitted within sight lines.

Vehicle/vehicle sight lines are not normally required where private drives join estate roads of types 5a and 5b.

5.4.2 Vehicle/Pedestrian Sight Splays

A 2.100m x 2.100m sight splay from the back of the footway should be provided on each side of drive where private drives join the back of footway of estate roads of types 1, 2a, 2b, 3, 4a, 4b.

No obstruction over 600mm in height should be permitted within these sight splays.

Vehicle/pedestrian sight splays are not normally required where private drives join estate roads types 5a and 5b.

5.5 Parking facilities on Shared Private Drives

In shared private drives parking facilities for each dwelling must be provided clear of the shared drive area, turning space, passing bays etc. It is essential on both single and shared drives that adequate manoeuvring space be provided to allow vehicles to enter and leave all garages and parking spaces with other vehicles parked on all other parking spaces.

5.6 Turning facilities

All private drives having access to road types 1, 2a and to road type 2b near a junction must contain turning facilities. These must be of sufficient size to allow three point turns by the 95th percentile car.

It is suggested that single or shared drives which entail reversing over 18m, should be provided with turning facilities.

5.7 Passing places

Passing places will be required on shared drives of considerable length, or from which ends are not intervisible.

5.8 Alignment

Drives should normally meet the back of the footway at right angles, although drives may be permitted to meet the back of the footway at oblique angles at turning heads.

The minimum inside radius on a drive should be 4.500m.

5.9 Maximum gradient

A maximum gradient of 10%/1 in 10 with appropriate rounding where drives join estate roads so that vehicles do not "ground" when entering or leaving will be allowed.

6.0 General Design Criteria

6.1 Visibility

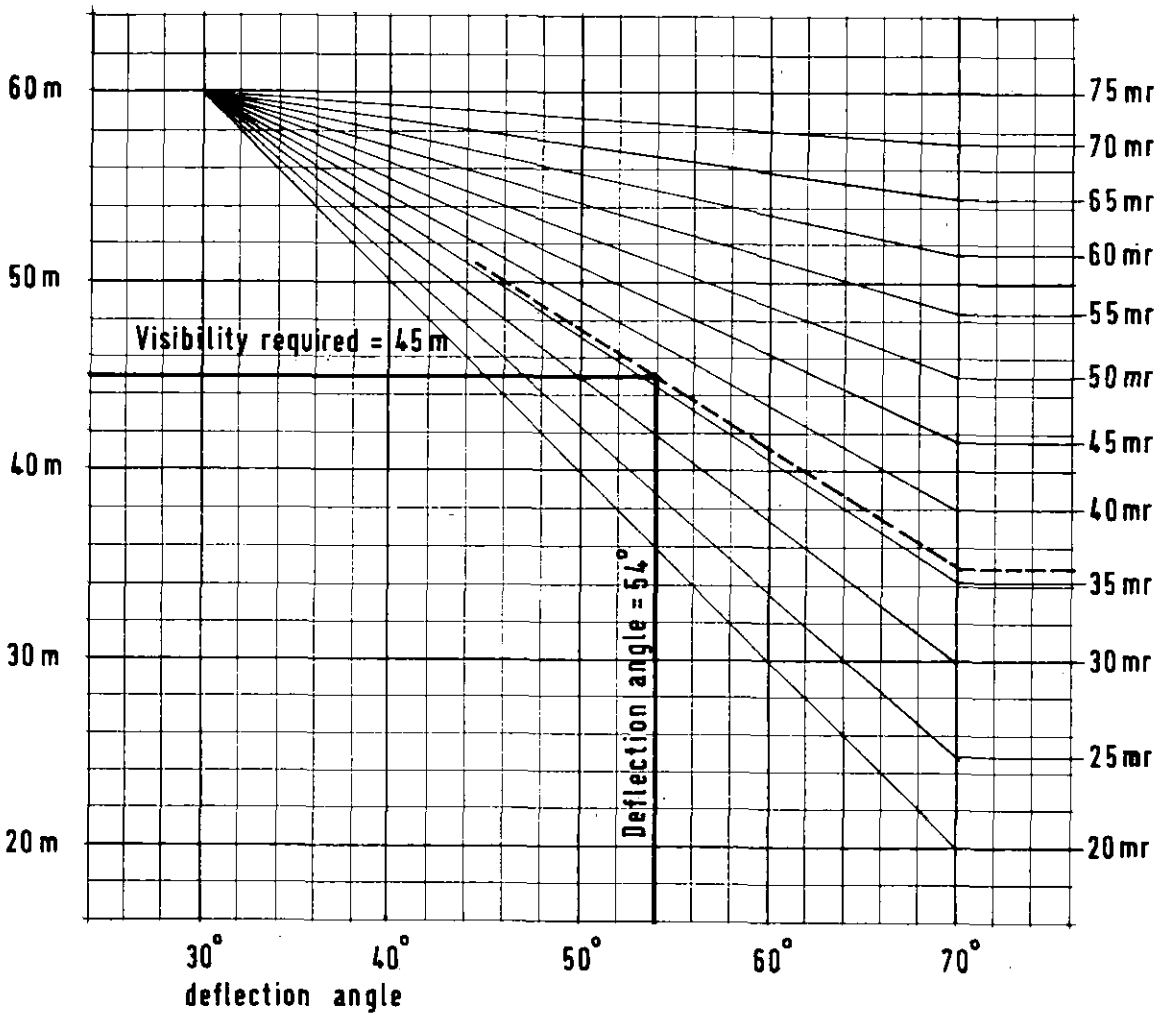
6.1.1 Forward visibility

At all points on the estate road system, *except on road types 5a and 5b, sufficient* forward visibility must be provided to allow the driver of a vehicle to stop safely. The forward visibility required is related to vehicle speed which is in turn dependent on road alignment. To limit vehicle speeds it is necessary to use bends of small centre line radius and large deflection angle.

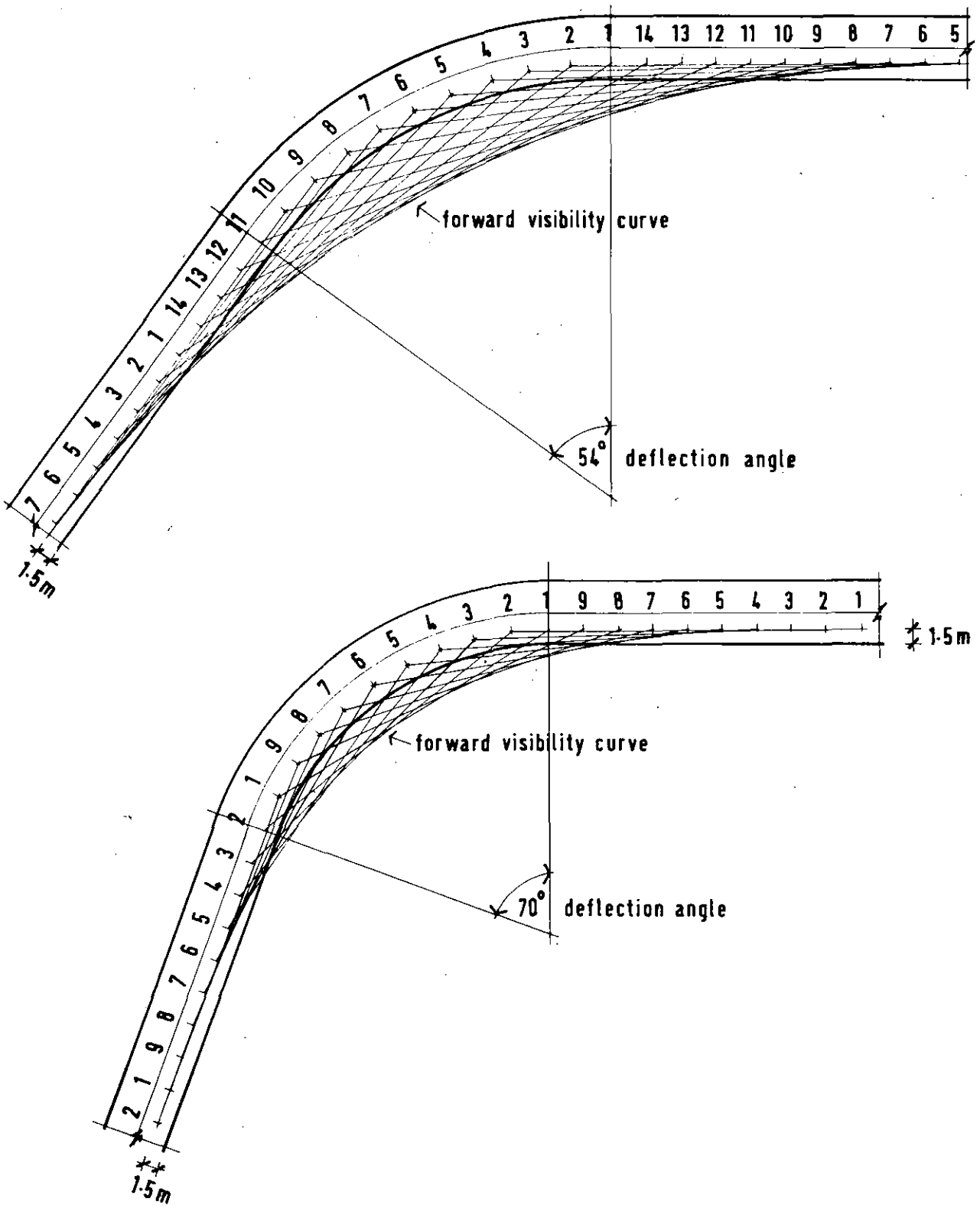
Where vehicle speeds are not restricted by road alignment then a minimum forward visibility of 60m should be provided on the centre of the nearside lane. (Vehicle speed 50 KPH). This would apply to bends with deflection angles less than 30° with a centre line radius of 75m or more.

For bends with deflection angles of over 30° and centre line radii of less than 75m the graph below should be used to determine forward visibility. The figure obtained from the graph should be rounded to the nearest multiple of 3.000m.

The construction of the forward visibility curve is shown below.



Example 1- when centre line bend radius = 36 mr and deflection angle = 54° MINIMUM FORWARD VISIBILITY = 45 m	Example 2- c.l. bend rad. = 25 mr def. angle = 70° MIN. FORWARD VISIBILITY = 25 m



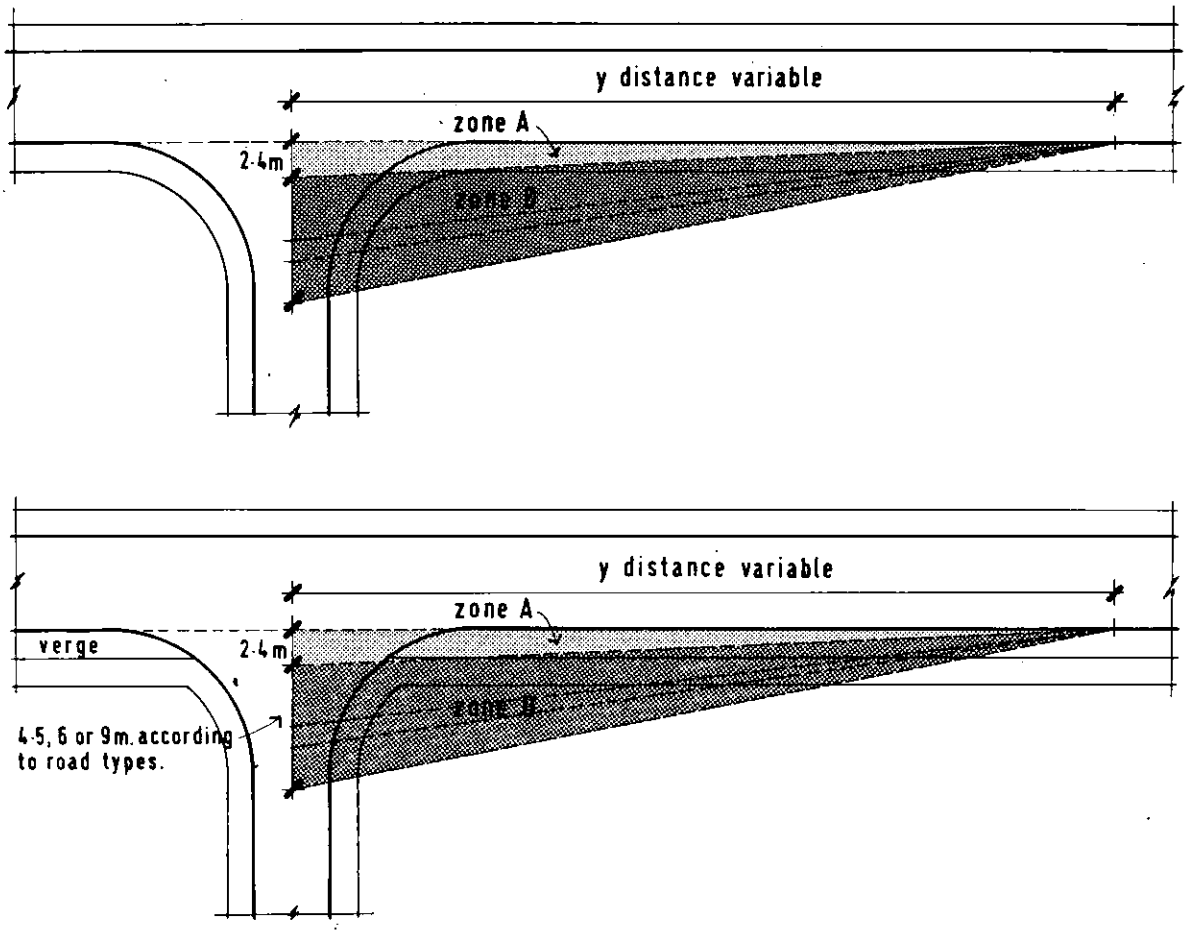
6.1.2 Junction visibility

The normal 'y' distances for sight lines at junctions are those given in the description of each road type (section 4.0), and these 'y' distances are to be used in all cases where the speed of vehicles on the through road at the T-junction is not restricted by road alignment within this 'y' distance.

Where the main road at the T-junction contains, within the 'y' distance, a bend with a deflection angle of over 30° and a centre line radius of less than 75m, it may be possible for the 'y' distance to be reduced.

6.2 Planting in Sight Splays

At junctions the sight splay can be divided into two visibility zones.



The type of planting considered suitable within sight splays is set out in the following table:—

Planting	Zone A	Zone B
Existing Trees	Normally no trees permitted. However, in exceptional cases trees may be retained. Final decision to be made on site in consultation with the local highway and planning authorities.	Trees may be retained. Final decision to be made on site in consultation with the local highway and planning authorities.
New Trees	No trees permitted.	Trees may be permitted. The precise location will be agreed with the highway authority.
Ground cover	Ground cover permitted providing the plants do not generally exceed 600mm in height when mature.	As for Zone A.

Notes

1. All new trees should be of slender girth when mature and have a trunk clear of side growth to a height of 1.800m.

2. Grass is not precluded from the areas of sight splays, but these areas tend to be small and awkwardly shaped, and consequently expensive to maintain.

Within forward visibility curves, ground cover to a height of 600mm as an alternative to grass is acceptable. Trees may be allowed, but the locations shall be agreed, on site, with the highway authority.

6.3 Dimensional criteria

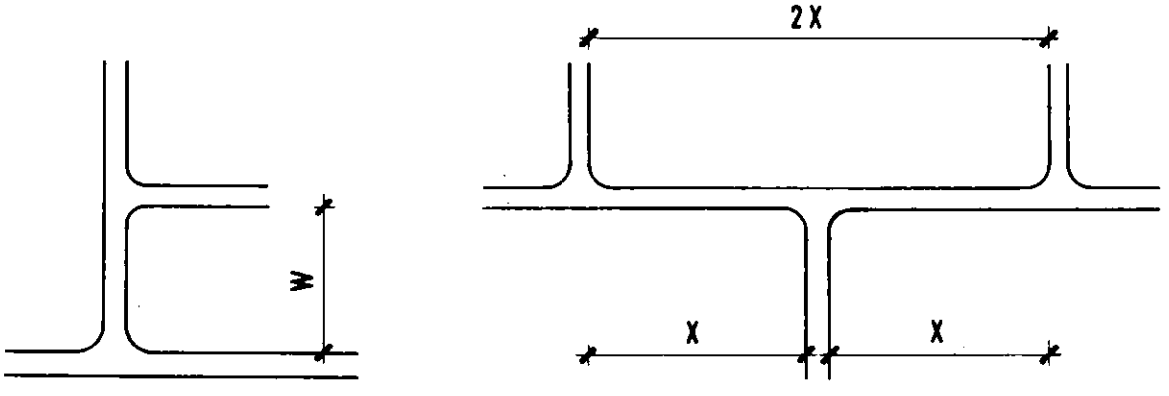
6.3.1 Widening on bends
Widening on bends of some road types may be a requirement of some authorities. In each case the relevent highway authority should be consulted.

6.3.2 Junction spacing
Minimum stagger between junctions on opposite sides of the road is X. Minimum stagger between junctions on the same side is 2X. X is to be determined from the following tables.

Side road at junction	Main road at junction				
	Type 1	Type 2a	Type 2b	Type 3	Type 4a
Type 1	60m	–	–	–	–
Type 2a	60m	30m	–	–	–
Type 2b	60m	30m	30m	–	–
Type 3	60m	30m	20m	20m	–
Type 4a	–	30m	20m	20m	20m
Type 4b	–	20m	10m	10m	10m
Type 5a	–	20m	No Limitation		
Type 5b	–	–	No Limitation		

Minimum distance along the stem of a T-junction to the first side road:

W = 2X but with 30m minimum (this minimum is to apply to Types 5a and 5b also)



6.3.3 Turning bays

On road types 2b, 3, 4a, 4b, the turning bay size is determined by the expected type and frequency of vehicles manoeuvring.

Any cul-de-sac system off a Type 1 or higher category road is to provide a turning bay of not less than size 2 dimensions, this may be contained within the first road junction off the cul-de-sac. Where very large vehciles are likely to frequent the system, then it may be necessary to incorporate a size 1 turning bay.

On types 4a and 4b, which are side turnings from types 2b, 3 and 4a, and which are less than 36m in length, a size 4 turning bay may be used.

On type 5a a size 3 turning bay will be required.

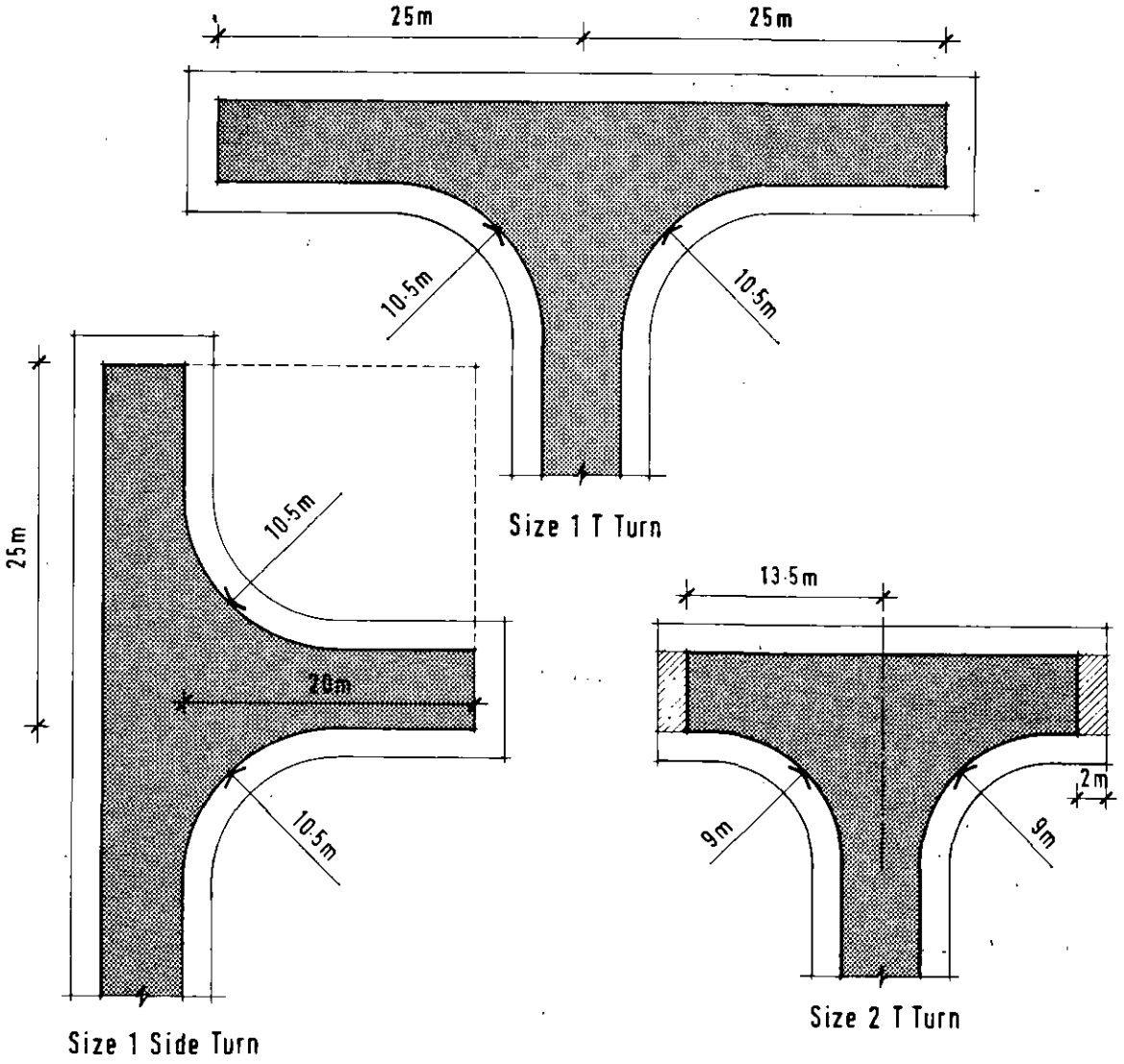
On type 5b a size 5 turning bay will be required.

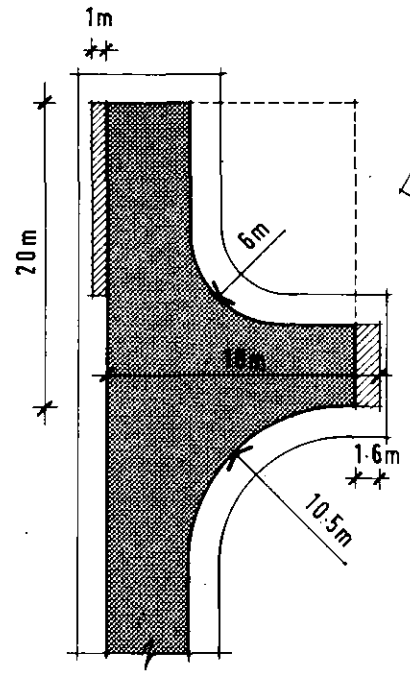
The hatched areas in the diagrams below are required for vehicle overhang and must be included as part of the highway.

They can be either:

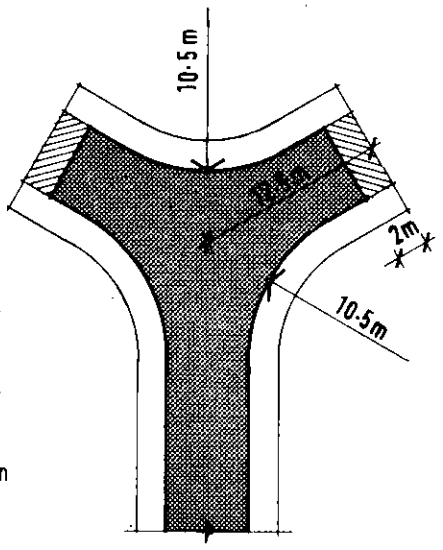
(i) in road type 5a combined vehicle/pedestrian area, or
(ii) footway

Further information on the characteristics of vehicles turning may be obtained from DB32 (Residential Roads and Footpaths).

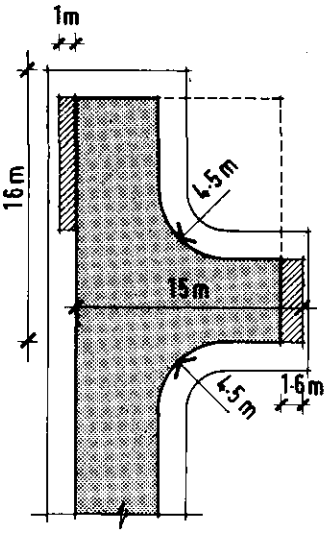




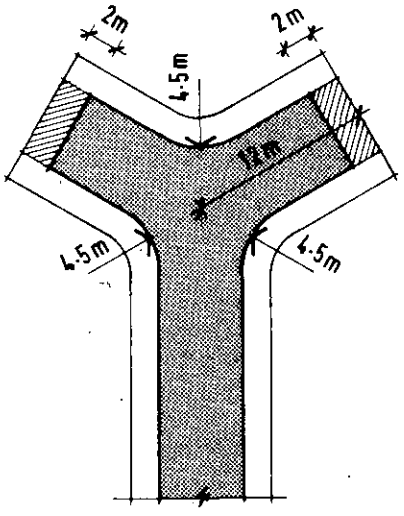
Size 2 Side Turn



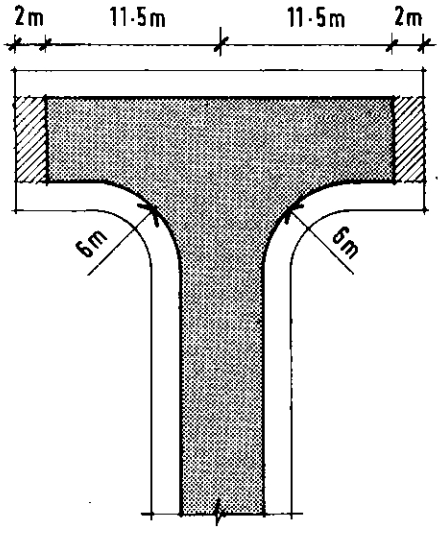
Size 2 Y Turn



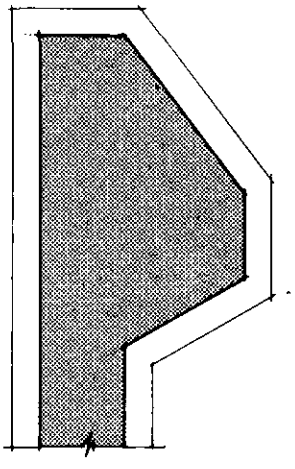
Size 3 Side Turn

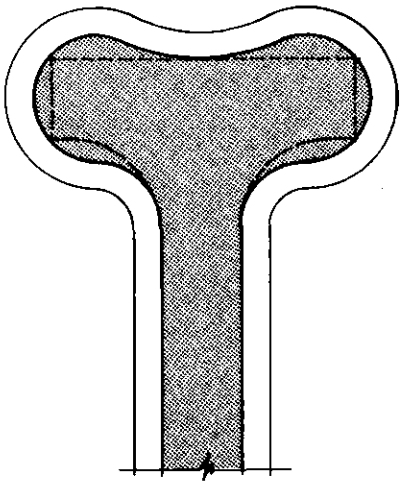


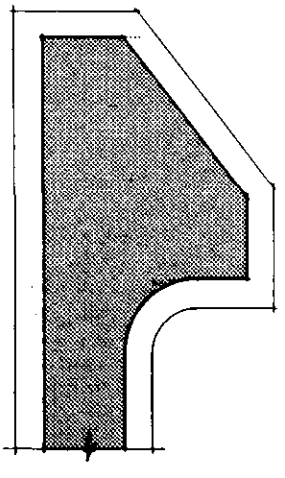
Size 3 Y Turn

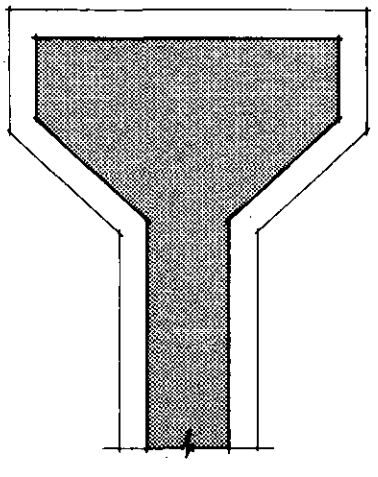


Size 3 T Turn

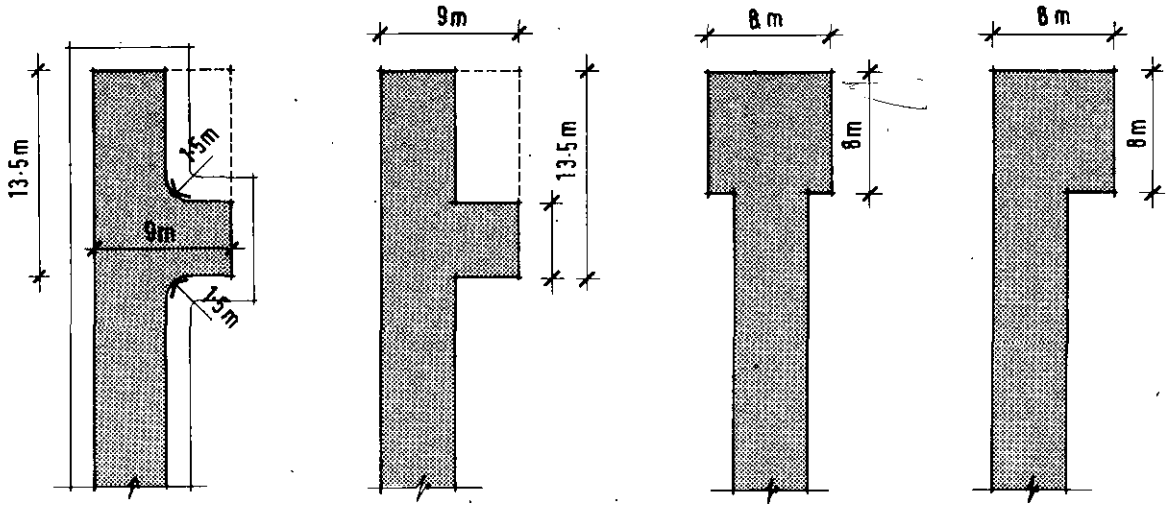








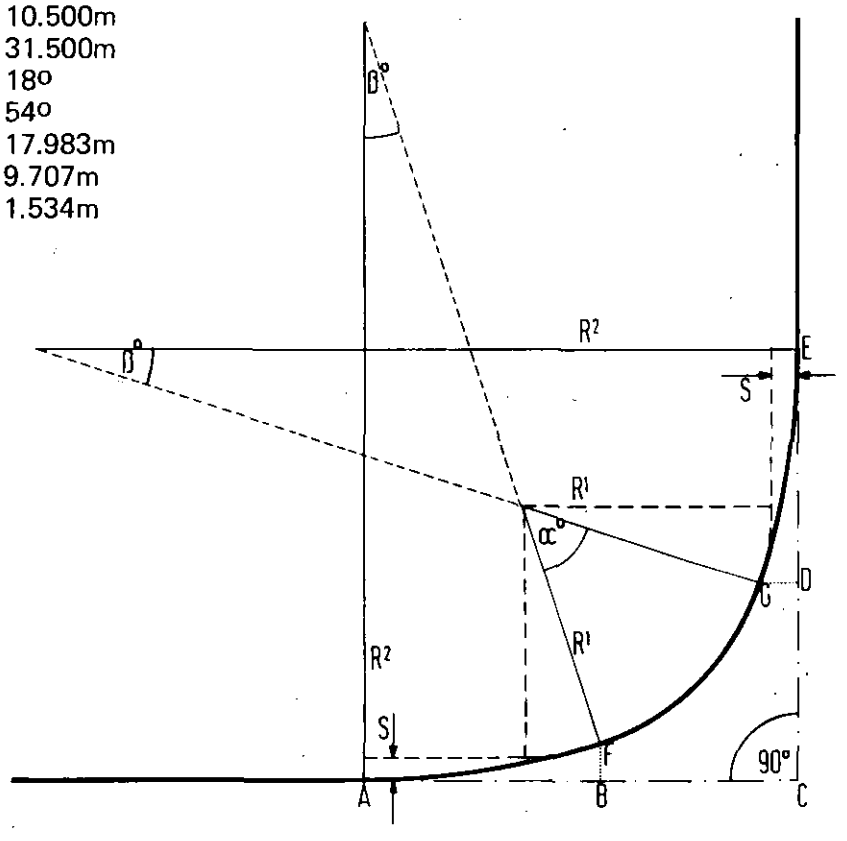
Size 3 Alternative forms



6.3.4 Compound Kerb Radius Junctions

The diagram illustrates details of compound curves required to make up the radius kerbs at the junctions of Types 1 and 2a with other roads.

S	= 1.028m
R1	= 10.500m
R2	= 31.500m
β	= 18°
α	= 54°
AC.CE	= 17.983m
AB.DE	= 9.707m
BF.DG	= 1.534m



6.3.5 Vertical Clearance

Vertical clearance of 5.000m is required over the full width of carriageway plus 500mm at either side. In the event of a crossfall on the carriageway being greater than 2½% (1 in 40) the 500mm dimension will need to be increased to 610mm on the low side of the carriageway.

The vertical clearance required at the entrance to a Mews Court is 4.115m. If clearance is less than 5.000m, it must be signed. However, if a separate service vehicle access is provided then the clearance at the secondary entrance could be reduced to 2.250m.

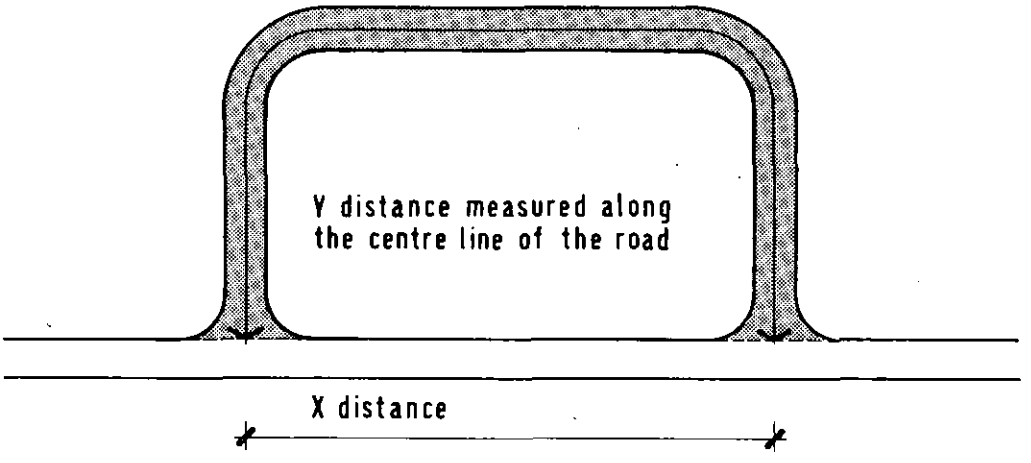
6.3.6 Gradients

The gradients stipulated are a maximum, which may be subject to modification on sites which merit special consideration.

6.4 Loop Roads

Road types 3, 4a, 4b and 5a may be formed as loops only where 'Y' is at least 50% great than X.

The maximum number of dwellings which may be served and the maximum length of loop roads will depend on the particular layout, but in no case may exceed twice the figures for culs-de-sac.



6.5 Culs-de-sac

On road types 3, 4a, 4b, 5a and 5b culs-de-sac must be incapable of extension without demolition of dwellings. Open ended culs-de-sac will generally be required to be of a minimum layout of a Type 2b road. In circumstances where the area for future development is physically limited then the road type should be commensurate with the future area to be served.

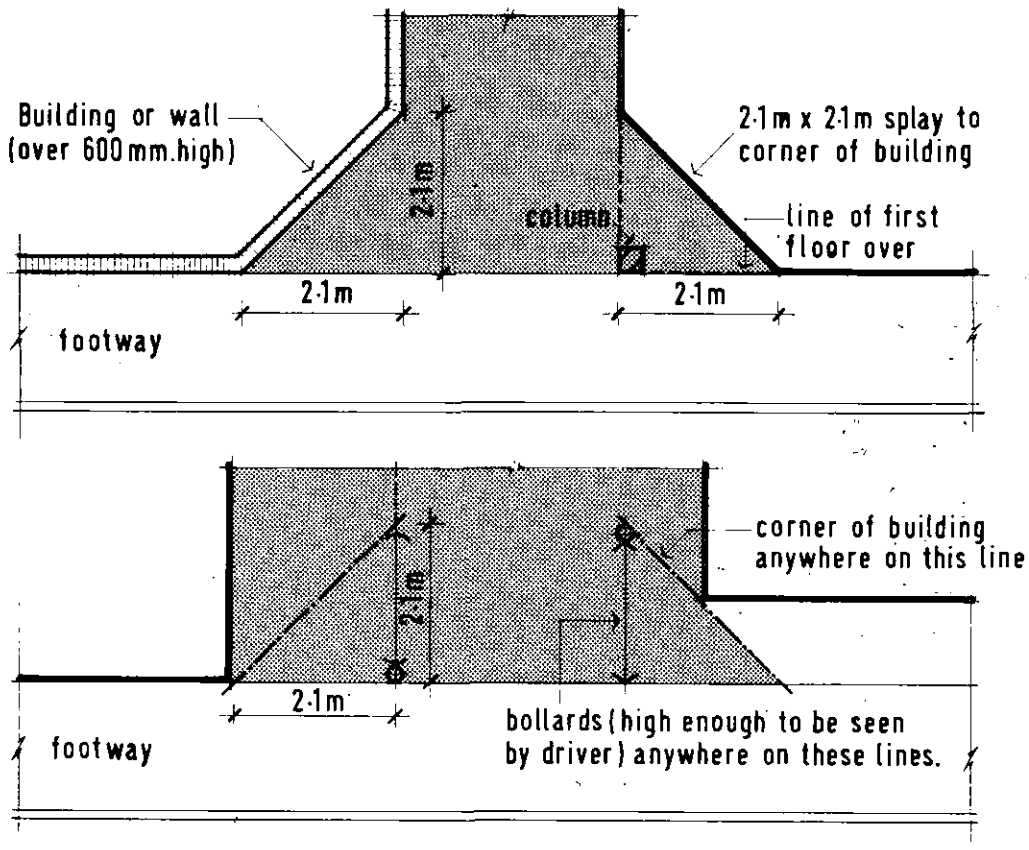
6.6 House drives

House drives are to meet the back of the footway at right angles, and may not deviate therefrom by more than 10°.

A 2.100m x 2.100m sight splay is required behind the footway to give clear visibility above a height of 600mm to at least 1.800m. Vehicular access is not permitted across radius kerbs at junctions.

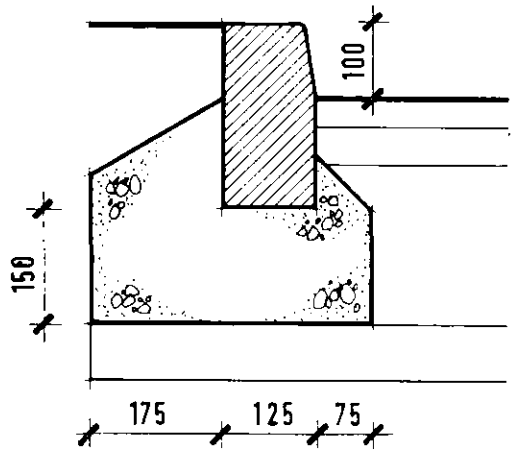
6.7 Bollards

Bollards used to protect buildings, where necessary, on road types 4b, 5a and 5b should be approximately 1.200m high, and made of cast iron. Cast Iron Bollard No. 4 manufactured by Mather and Smith Ltd. of Ashford, Kent is acceptable, although other similar designs would be approved.

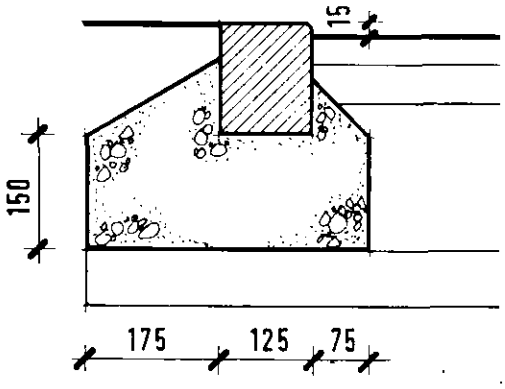


6.8 Kerbs

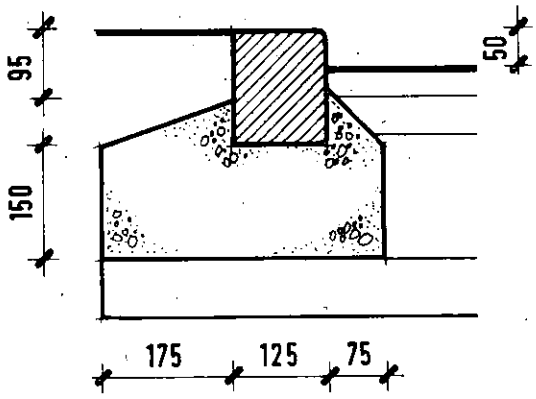
The design of kerbs should complement the design speed and character of the road. Precise details appear in the Highway Authorities' specifications.



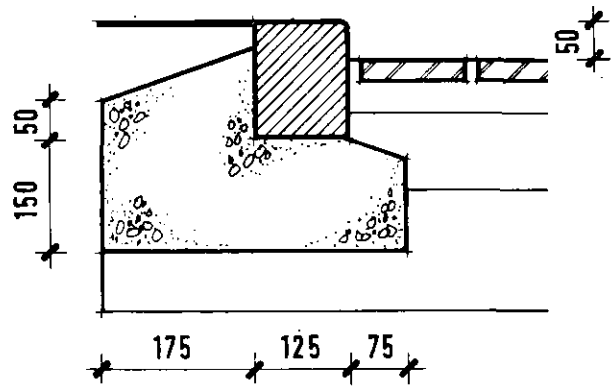
Upstand Kerb to road
Types 2a, 2b and 3



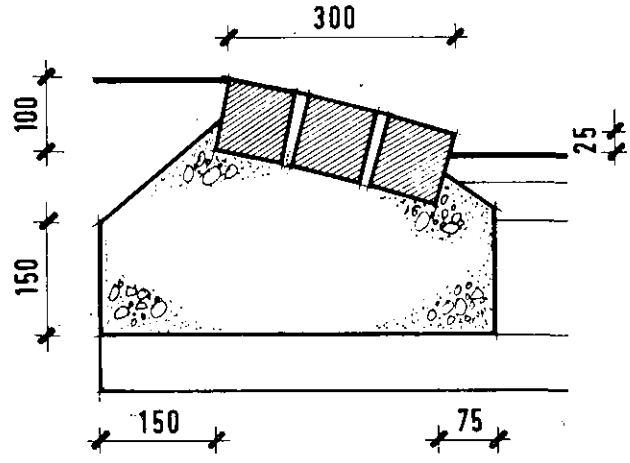
Dropped Kerb



Suggested kerb treatment
on Type 4a roads



Edge detail with paviors



Suggested kerb treatment
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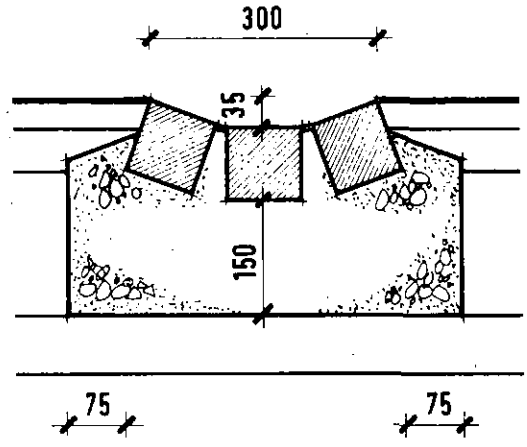
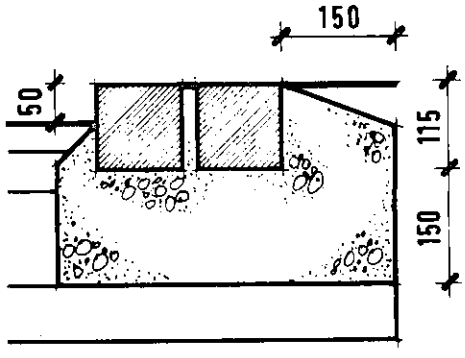
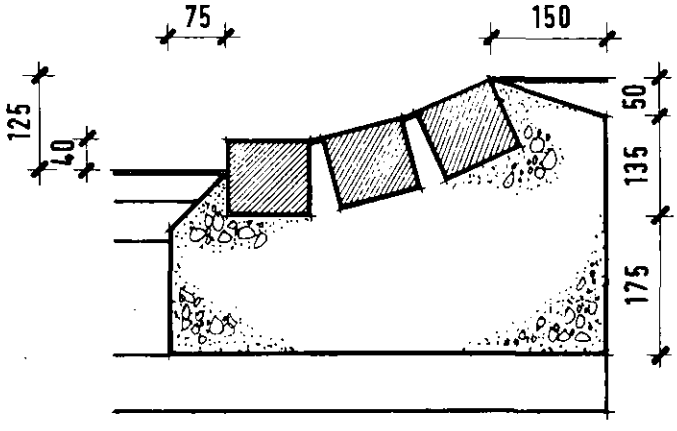


Channel formed with setts



Granite sett kerb



Setts or engineering bricks

7.0 Lighting

7.1 **Suitably designed highway lighting in residential areas will meet the amenity requirements of the community by providing considerable assistance to drivers and pedestrians, an aid to crime prevention and visual interest to the environment.**

The daytime visual impact of the equipment is of equal importance. The type and number of lights, the amount of light and degree of optical control and its relationship to lantern design, along with the installation and operating costs have been carefully considered in arriving at the new design standards.

The relative emphasis placed on all these factors will vary with the characteristics of the traffic and of the locality. Thus standards of lighting are graded downwards to be broadly consistent with the road hierarchy. Mews Courts should not normally require public lighting, however, in certain circumstances lighting may be desirable. In no circumstances would the Highway Authority light a private drive.

In rural locations the wishes of the local parish council are respected. This may be to either have a much reduced number of street lights which the council are prepared to adopt for operational costs, or that no lighting be provided at all.

7.2 Design Standards

(i) **Type 1 Local Distributor**

Mounting height should normally be 6.000m with octagonal galvanised steel or tubular steel columns painted in an unobtrusive colour.

Lanterns would be side entry with semi-cut-off distribution, and with a polycarbonate vandal resistant bowl.

Economic operating costs may well dictate the use of a low pressure sodium lamp but future development of the 'White' light from high pressure sodium sources should always be borne in mind.

(ii) **Types 2a, 2b and 3**

Major Access, Transitional and Intermediate Access Roads

Mounting height should normally be 5.000m with octagonal galvanised steel or tubular steel columns painted in an unobtrusive colour. Lanterns would be side entry with semi-cut-off distribution and with a polycarbonate vandal resistant bowl. Economic operating costs may well dictate the use of a low pressure sodium lamp but future development of the 'White' light from high pressure sodium sources should always be borne in mind.

(iii) **Types 4a, 4b and 5a**

Minor Access Roads and Mews

Mounting height should normally be 4.000m with octagonal galvanised steel or tubular steel columns painted in an unobtrusive colour, or purpose-made wall brackets. Lanterns would be post-top asymetric distribution and a 'White' light high pressure discharge lamp.

(iv) **Type 5b**

Mews Court

Where required, as for types 4a, 4b and 5a.

(v) **Footpath/Cycleways**

Cycleways/Spine footpaths and segregated local access routes, by being solely designed for bicycle/pedestrian movement, provide the opportunity for imaginative amenity lighting schemes. Wherever possible, covenants should be obtained so the bracket mounted lights can be used in favour of free standing columns, as this helps to keep the pavement area clear of unnecessary obstructions. The lighting of other 'pedestrian access routes' will usually be incidentally achieved from the road lighting scheme, although specially provided footpath lighting may need to be used in some instances.

A detailed specification of lighting requirements can be obtained from the Highway Authority.

8.0 Parking, Garage Courts and Servicing

WITHIN NEW HOUSING AREAS, CAR PARKING SHOULD BE PROVIDED IN AN ADEQUATE, CONVENIENT AND VISUALLY SATISFACTORY MANNER FOR BOTH RESIDENTS AND VISITORS. (INTERPRETATION MAY VARY FROM DISTRICT TO DISTRICT).

(i) **Where the parking space is within or conveniently adjoining the curtilage of the dwelling the normal standard shall be one car parking space for each new dwelling, in addition to a garage or a space for a garage**

The parking space should be clear of the carriageway, footway and sight splays. It should be convenient for use by occupants and visitors to each dwelling and must be constructed before the dwelling is occupied.

(ii) **Where dwellings are built around pedestrian squares or are served off a segregated footpath access, then grouped parking spaces should be allocated as follows:**

(A) **Local authority housing schemes:**

Where communal parking is to take place on local authority schemes, an initial provision of 50–100% should be made depending on the likely level of car usage within the estate.

(a) such parking is to be provided at a **reasonably convenient** point to the entrance of the dwellings served; and

(b) to plan for the long term allocation of vehicle parking, a ***maximum*** future provision of 150% should be indicated on the initial layout – in the form of hardstandings, garages or communal parking areas.

The standard for initial provision is based on the current highest requirements of all District Councils and Development Corporations. It is sufficiently flexible to allow for the differing levels of car ownership throughout the County. The term 'reasonably convenient point' makes allowance for the fact that it would not be possible to attain parking provision convenient to the front door of every dwelling served without creating visual and design problems, e.g. in terraced housing which constitutes the greater part of local authority housing. This wording aims to achieve the best fit of objectives: the accommodation of the car convenient to the home in such a way as to minimise the attendant dangers of on-street parking, and the impact of the car on the environment.

Convenient parking will be required in the following instances:–

(a) Off road types 2a, 2b, 4a and 4b
(b) Near junctions

(B) **Housing Association schemes:–**

Where only communal parking is to take place on Housing Association schemes, a provision of at least 100% should be made depending on the likely level of car usage within the estate, and such parking to be provided at a **reasonably convenient point** to the entrance of the dwellings served.

The allocation of a higher standard for initial provision is due to the fact that the local authority has no power to extend provision at a later date.

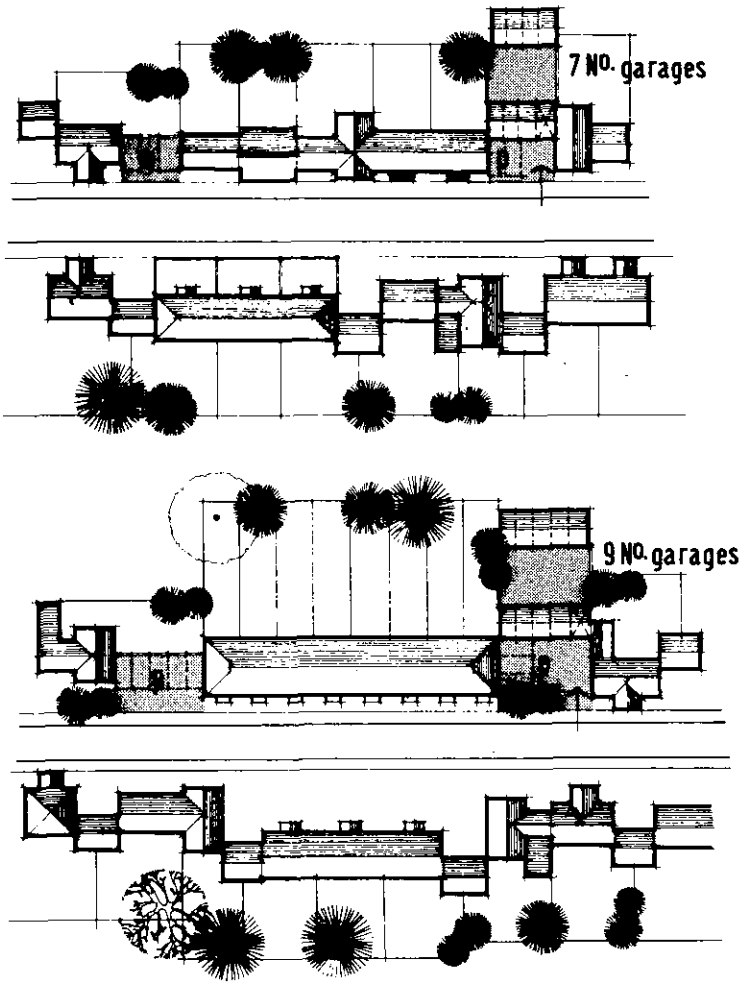
(C) Private Housing Schemes:

Where communal parking is to take place in private housing schemes.

(a) a provision of at least 100% should be made depending on the likely level of car usage within the estate; and

(b) it is **desirable** that such parking be provided at a **convenient point** between the road and the entrance of the dwellings served.

The phrase "it is desirable that" acknowledges the fact that there will be some instances where parking between the dwelling entrance served, and the access road is not in the best interests of either an attractive or an economically viable layout. In these cases, parking should be located at ends of terraces of a maximum of 8 dwellings or in small courts which are visually linked to the dwellings served in a manner similar to that which will occur in local authority housing schemes.

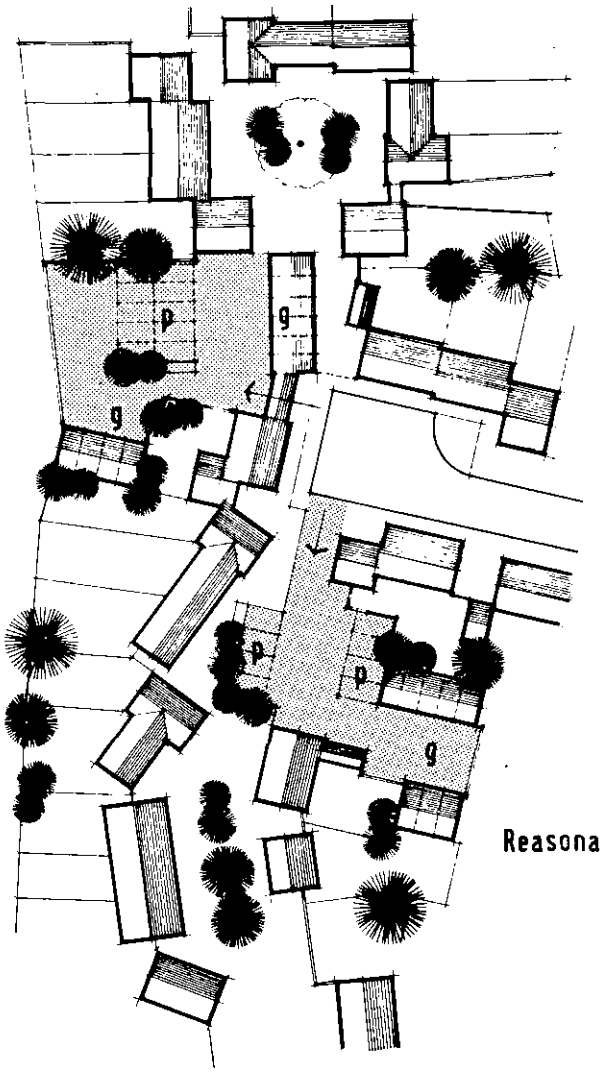


Parking at ends of Terraces

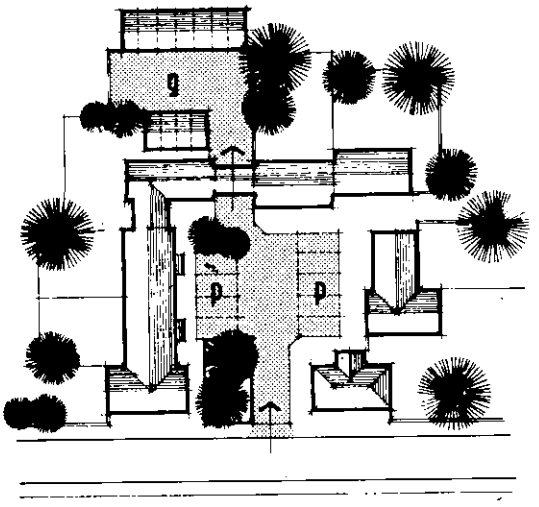
It is , however, essential that convenient parking, that is, a space which is more convenient to the front door than parking on the highway, is provided in the following instances:

(a) Off road types 2b, 2a, 4a and 4b
(b) Near junctions

(iii) In the case of dwellings specially designed for occupation by old persons' the standard shall be one parking space for every 3 old persons dwelling units, any garages provided being additional to the parking space. .



Reasonably convenient parking



Parking Court

8.1 Parking Space

The minimum size of a parking space is 4.800m. x 2.400m. An additional space for opening the garage door will be required when the parking space is sited in front of the garage.

A vehicle/pedestrian sight splay of 2.100m x 2.100m *will normally* be required giving clear visibility above a height of 600mm, where the parking space abuts the footway. Exceptions to the requirement will be garages and parking spaces in Mews Courts (and in private drives).

Parking spaces and house drives should normally meet the back of the footway at right angles.

Double garages and parking spaces should be laid out so that the use of one does not obstruct access to and from the other.

Parking spaces between structures may require an increased area for pedestrian movement around the vehicle. The length should be increased by 1 metre and width by 500mm.

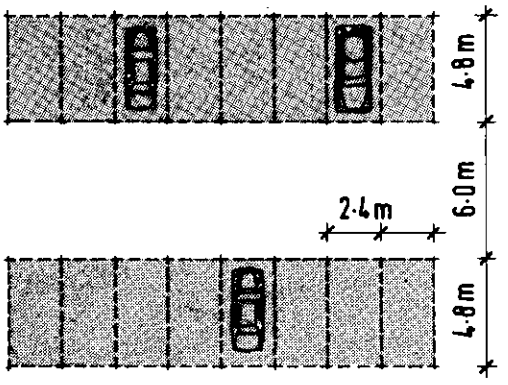
8.2 Garages

The minimum internal garage size is 4.800m x 2.400m.

The use of through garages, with doors back and front, *is strongly recommended* when this can give access to the rear curtilage, for additional parking and storage.

8.3 Communal Parking Courts

Where communal car parking is provided the minimum size of each parking space will be 2.400m x 4.800m. A minimum width of 6.000m will be required between rows. (Parking in New Housing Schemes parts 1 and 2, D.O.E. 1977)



Where communal parking spaces are located adjacent to turning bays then the vehicle crossing should be provided with mountable kerbs to act as a distance stop, this will assist large vehicles to turn properly.

The entrance ways to parking courts will be as follows:

(i) Up to 8 parking spaces, as for shared/private drives, see Section 5.0

(ii) 9 parking spaces and over, access way to be 4.100m wide.

Laybys allowing car parking parallel with the highway should provide a space of 6.000m x 2.400m per car.

Careful attention should be paid to the design of parking courts. It is essential that the parked car or the surface provision for parking should not become the dominant element in a residential development. In any scheme which is predominantly one of terraced units, then the visual impact of the parking provision becomes a major problem. Parking courts should be broken down into fairly small areas, and well enclosed by buildings. The incorporation of some good soft landscaped areas and tree planting can help to reduce the apparent size of parking areas. Good detailing and the use of surface materials such as tar sprayed pea shingle or gravel, exposed aggregate concrete, block paving etc. in areas, especially adjacent to the highway, would relieve the tedium of the standard black top finish, reduce the apparent scale and add texture and variety to the floorscape.

8.4 Garage Courts

In courts a minimum width of 7.300m will be required between the fronts of garages. (Parking in New Housing Schemes parts 1 and 2, D.O.E. 1977).

The end wall or kerb of garage courts will need to be recessed for most types of car to be able to manoeuvre properly.

Casual parking spaces shall not obstruct or be immediately in front of garage doors in communal courts.

The following standards are suggested for entrance ways to garage courts:—

(i) up to 8 garages and hardstandings as for private drives — see Section 5.0.

(ii) 9 — 25 garages and hardstandings, access way to be 4.100m.

(iii) Over 25 garages and hardstandings. Access way to be 4.100m plus a 1.750m wide footway unless there is a direct secondary access to all houses from the garage court.

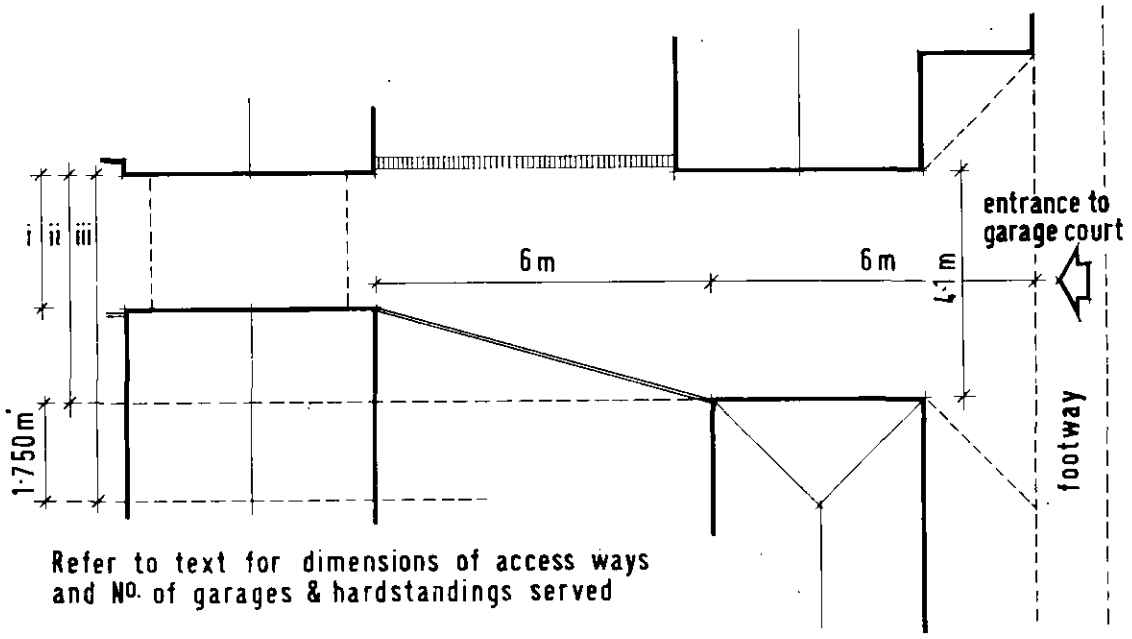
For access ways to garage courts serving 9 or more garages and hardstandings, a minimum centre line radius of 7.500m is suggested.

Sight lines at the junction of the access way to the garage court with the highway should be as required for a drive or road type commensurate with the number served.

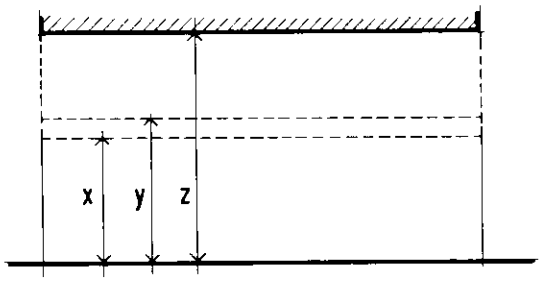
Facilities for washing cars will usually need to be provided within communal garage courts. These should be sited clear of the required vehicular access and parking areas. Consideration should also be given to the provision of spaces for caravan storage.

(iv) In cases where the planned estate roads and culs-de-sac will not give the above standards of vehicular access then additional provision to allow emergency access by fire brigade engines should be made. In such cases the overall width of the fire path should not be less than 3.000m and changes in direction should be by bends not exceeding 8.500m radius to the outer edge. A minimum head-room of 3.500m will also be required.

Supplementary information on the above requirements can be obtained from the Chief Fire Officer.



Refer to text for dimensions of access ways and No. of garages & hardstandings served



Headroom Requirements:

x 2·235m access to garages only.
y 2·591m access to parking spaces.
z 4·115m access for service vehicles.

8.5 Servicing

General delivery and collection vehicles:

The maximum carrying distance from the delivery and collection vehicles to dwelling refuse points shall be in the order of 36.500m. However, requirements may vary from district to district.

Fire Engines:

(i) Access for fire service pumping appliances should be provided to within 45.720m of the entrance to all one and two-storey premises and to within 36.500m of the entrances of three and four-storey block of flats and maisonettes. These distances relate to the 54.850m length of hosereel tubing carried on appliances. It is, therefore, important that these be adhered to, so as to ensure sufficient tubing for internal fire fighting.

(ii) Blocks exceeding 12.800m in height will require special consideration in respect of access for Fire Brigade vehicles and rescue appliances.

(iii) Access for vehicles should be continuous; that is to say from one or more positions it must be possible to approach all dwellings sharing a common address name. It is not sufficient that different groups of dwellings sharing a common address should each be approachable from one of several positions. Access where possible should be to the fronts of dwellings; rear access is, however, acceptable provided that:

(a) the dwellings are numbered and readily accessible from the rear,

(b) the rear service roads are separately named

(c) the dwellings are numbered in relation to the rear service road from which there is a vehicular approach.

APPENDIX 1

Adoption Standards and Maintenance

THE LOCAL AUTHORITY MAY ADOPT AND MAINTAIN, THOSE PUBLIC AREAS ESSENTIAL TO THE FUNCTIONING AND APPEARANCE OF RESIDENTIAL DEVELOPMENT.

Where public adoption is not practical, alternative arrangements shall be required, to ensure the proper maintenance of such areas.

1.1 Highways

Planning Authorities will approve the size and layout of roads and footpaths within housing areas, taking into consideration the views of the highway authority. The highway authority will approve their construction and drainage, for the purposes of adoption. Highways will include carriageways, footways, turning heads, verges, sight splays and forward visibility curves, pedestrian/cycleways and footpaths.

Highway verges, where provided, should make a visual contribution to the character of the scheme. Soft landscaping and tree planting should be in species not requiring high maintenance. (See Section 6.2). Where the adopted verges are contiguous with private gardens, (as with road Type 4b) the householder should be made fully aware of the rights of the highway authority and statutory undertakers. Covenants should be used to ensure that the householder does not build walls or fences, and carry out tree and hedge planting within the highway land.

1.2 Parking Spaces and Parking Courts

Individual or communal parking spaces provided for the specific use of individual householders will not be adopted or maintained by the highway authority. These spaces must be conveyed to the householders.

Where communal parking spaces occur in parking courts, and Mews Courts, and are not for the regular use of any specific dwelling, then they may be adopted by the highway authority.

Short term waiting bays for the use of delivery vehicles etc. on type 4b roads, will be adopted and maintained by the highway authority.

1.3 Street Lighting

Street lighting will be adopted by the highway authority. Schemes should be submitted by the developers to the highway authority for their approval. (See Section 7.0).

1.4 Adoption Procedure

To secure the adoption of estate roads as public Highway on completion the developer is advised to enter into an agreement with the highway authority under Section 40 of the Highways Act 1959.

When a development receives approval under building regulations, then the highway authority will seek a guarantee that all roads, footpaths, verges etc. will be completed in accordance with the standards set down by that authority.

Before work begins on a site in an area where the advance payment code applies the developer must

(i) complete payment of the estimated costs of the works under the Advance Payment Code of Section 192 of the Highways Act 1959 or

(ii) enter into a Section 40 Agreement and provide a bond for due completion.

Once work has commenced on site then the highway authority should be notified so that arrangements for regular inspection and approval can be made. Any highway work which has not been inspected will remain unadopted until relevant tests have been carried out at the developer's expense.

1.5 Public Open Space

Where landscaped amenity open space and childrens play areas are proposed for adoption, then the agreement of the District or Borough Council is necessary. These areas should consist of space which is either useful, or which enhances the appearance of the development and all other soft landscaped areas should remain in private ownership.

The local authority will adopt public open space though this may be on the basis of a commuted sum agreed with the developer. The land will then need to be dedicated or conveyed to the authority for purposes of maintenance.

APPENDIX 2

Provision for Statutory and Other Services

2.1 General Considerations

The majority of residential roads and footpaths whilst having a primary function of providing for vehicular and pedestrian movement, have a secondary function of providing routes for statutory and other services underground.

It is essential that these services are provided in a manner which is technically and visually satisfactory, and that they should be considered as an integral part of any housing layout. Early consultation and liaison with all statutory undertakers, is essential, as adequate notice of the intention to develop a site is required.

The reduction of land in the public zone in recent urban housing layouts, has meant that the provision of routing of services has to be more carefully considered and co-ordinated than they have been in the past. The limits of adoptable highway land should be defined at an early stage.

Attention is drawn to the Ministry of Public Building and Works study groups report 'Co-ordination of Underground Services on Building Sites' (H.M.S.O. 1968). The proposals in this report for common trenching, should be implemented wherever possible. Detailed advice on the location of services is contained within the recommendations made by the joint committee of Civil and Municipal Engineering Institutions "Report of Joint Committee on the Location of Underground Services."

Statutory Undertakers have powers to reinstate open streets and lay and maintain apparatus is public highways and other public land. The Public Utilities Street Works Act 1950 and other specific enactments stipulate these powers, to ensure that the undertakers have adequate facilities for immediate repair and maintenance. Statutory undertakers prefer to maintain these rights by laying their mains in the public highway other than in the carriageway. Where special carriageway and footway surface finishes are to be employed early liaison with the highway authority and statutory undertakers is recommended.

2.2 Easements

In some cases, shared private drives for example, it may be necessary to obtain multiple easements across land in private ownership. This can lead to a number of problems and disputes between householders, and the statutory undertakers, particularly where an emergency has arisen or where some plots have been sold before the legal work of obtaining easements has been completed. If easements are essential then no service will be connected until satisfactory easements have been agreed and completed for the whole development.

2.3 Routing

2.3.1 Footpaths and Footways

Normally services are best located below the footway. Where the footway is provided as part of the highway then it should generally run parallel with the kerb, so that the alignment can be determined at an early stage and the necessary plant can be laid. Where footpaths and footways follow a separate alignment then facilities for marking out may be required before services are provided.

A minimum width of 1.800m should prove adequate for trenched services. However, this assumes that there is no overspill concrete from the edging or kerb haunch, and that the street lighting provision and road signs, where appropriate, do not intrude into this width. Where reduced widths are necessary, then the agreement of the statutory undertakers should be obtained.

2.3.2 **Carriageways, shared surface streets and private drives**

The provision of services under the carriageway is costly to install, and can cause maintenance and reinstatement problems. However, where this is essential each individual statutory undertaker should be consulted at an early stage.

Shared surface streets, where the highway consists only of carriageway, usually serve few dwellings, and would be subject only to light traffic, thus the cost of instalment is likely to be less than that involved with heavier trafficked routes. Consultation with all statutory undertakers is essential, so that services can be routed in such a way as to allow for maintenance and repair without blocking the carriageway. A planning condition will be imposed on development in shared surface streets that all dwellings, roadworks and services must be completed before any of the houses are occupied.

In the case of larger shared surface streets, a delineated pedestrian margin will be provided of a minimum width of 1.000m. Services should be routed, as far as possible, within this area.

2.3.3 **Soft Landscaping**

The location of services under landscaped areas such as verges, which form part of the adopted highway is preferred by most statutory undertakers because of ease of maintenance and repair. It should be noted that problems can be caused by excessive haunching, as the services run at a constant depth, and by tree roots. The routing of services should be carefully considered in the design of planting and landscaping schemes, and the statutory undertakers should be consulted.

Where service strips are provided, adjacent to the carriageway, they should be clearly designated as part of the public highway, and should be a minimum width of 1.800m.

Service strips or adopted footpaths, could be provided between the ends of culs-de-sac to provide interlinking mains and avoid dead-ends.

2.4 Individual Requirements

2.4.1 **Gas**

The supply of gas is the most critical of the services as any constructional failure may have serious consequences. Where the shared surface or footway abuts the building, it will be necessary to provide breather strips of 300mm width to allow any gas leaking to escape vertically, without leaking into the building. The main will be sleeved at Mews Court entrances. Where a large main is closer than 3.100m to the dwelling all foundation walls abutting the footway or shared surface must be protected. Breather strips should not form part of the adoptable highway, but be contained within the curtilage of the dwelling.

2.4.2 **Water**

Water mains are usually laid at a minimum of 2.000m from any buildings, to eliminate the possibility of damage by foundation thrust. However, they can be laid closer provided the base of the footings are below the invert level of the pipe.

Dead end mains should be avoided where possible, as they can cause dirty water. Short lengths may be acceptable, as in Mews Courts.

2.4.3 **Electricity**

It is important that the position of street lights should be clearly located on any layout submitted to the electricity board.

Sub-stations should be conveniently sited and should be totally enclosed in a suitably designed structure. This will help to cut down noise to nearby dwellings and give the installation a more acceptable appearance, both from adjoining dwellings and at street level.

2.4.4 **Post Office Telephones**

To alleviate some of the congestion, the Post Office will lay their cables in both footways. These cables are laid at a shallow depth and can be accommodated with the sewers, which are at a lower depth.

Developers may reduce the cost of undergrounding by providing ducts from the main cable to the lead-in point at each dwelling.

A call box may be required on larger developments.

2.4.5 **Sewers**

Sewers are best located, wherever possible, within the footways. Large, deep sewers under the carriageway can cause settlement and maintenance problems, unless special measures are taken.

In certain developments it may be necessary to lay sewers under the carriageway. Although such lengths of sewers should be kept to a minimum to prevent excessive backfill and maintenance charges and ensure minimal disruption to traffic flows during repair work.

Sewers should be laid in accordance with Appendix II of the Anglian Water Authorities Manual of Sewerage "Section 18 Public Health Act 1936 – Design Notes".

Landscaped areas through which sewers are routed should not be planted with poplars or willows within 5.000m of the sewer, nor should trees which will exceed 6.000m in height be planted along the line of the sewer.

2.5 Meter Cupboards

Whilst the advantage of providing each dwelling with external meter boxes is fully understood, it should be noted that the appearance of much recent housing has been marred by these unsightly cupboards. It is a requirement that **external boxes will not be permitted except on side elevations,** or where they are screened and then they should be painted to match the wall material. Thought should be given to the incorporation of meter boxes into porches and the design of special metercupboards, in which standard units are placed.

2.6 Name Plates and Markers

These are best fixed to walls and buildings where they can be clearly seen. Free standing street furniture and statutory undertakers' markers should be kept to a minimum.

ACKNOWLEDGEMENTS

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