

HIGHWAYS FOR INDUSTRIAL, COMMERCIAL AND RETAIL DEVELOPMENTS

TECHNICAL DESIGN GUIDE

*Part Two
Commercial*

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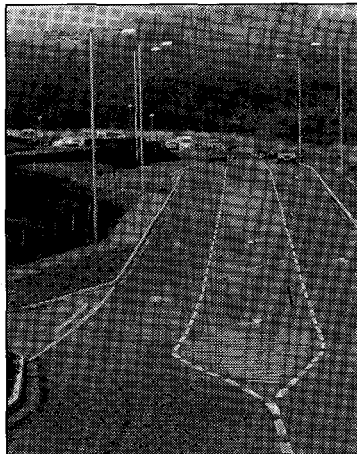
1 - INTRODUCTION

- 1.1 This document has been prepared by Dorset County Council, as the Local Highway Authority, to give technical guidance for the highway design of industrial, commercial and retail developments. It is intended to be in addition to the Technical Design Guide for Highways in Residential Estates and Parking Guidelines and should be read in conjunction with the Specification for the Construction and Drainage of Estate Roads.
- 1.2 The character of the various types of development this document covers vary widely. Not only can the sizes of the development differ from a single unit to an estate, but the sizes and types of individual units can be vastly different. These differences can have a considerable effect on the design of the required highway infrastructure due to the level of traffic generated and the type of traffic whether private cars or large heavy goods vehicles. Also affected are the levels of parking and servicing requirements. It is essential that the areas of land-use of sites, especially when multiple developments are anticipated, should be discussed initially with the Local Planning Authority.
- 1.3 Because of these wide variations, the criteria of design set out in this document cannot always be definitive and therefore it is recommended that developers of a proposed industrial, commercial or retail development, whether an individual unit or an estate, should consult with the Local Highway Authority, or its agent as appropriate, as early as possible in the design process. Such discussions will help to resolve any difficulties relating to highway and junction requirements for the development before a planning application is submitted to the Local Planning Authority.
- 1.4 In considering any proposals for this type of development, the requirements of Planning Policy Guidance: 13 "Transport" will be taken into account in respect of parking, public transport and non-car based travel especially in urban areas.

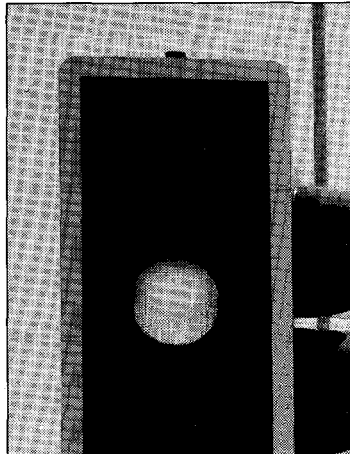
2 - ACCESS AND LAYOUT

- 2.1 This type of development will often have a severe impact on the existing highway network and will not only require special junction improvements at the point of access but also could affect other parts of the highway network away from the immediate development area.
- 2.2 The precise requirements for any junction or network improvements will be dependent upon the level and type of traffic anticipated to be generated by the development. To ascertain the level of traffic and its effects the Local Highway Authority is likely to require a detailed Traffic Impact Assessment prior to the submission of a planning application.

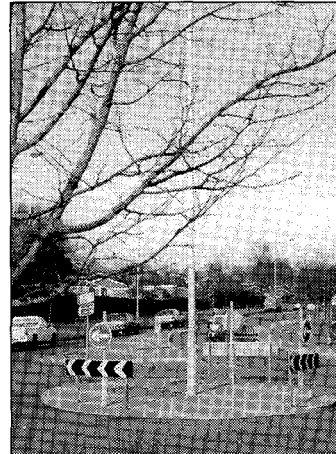
TYPES OF JUNCTIONS



Right Turn Lane



Traffic Lights



Roundabout

- 2.3 A Traffic Impact Assessment (TIA) will be required for the following level of development:-
- (a) Use Class A1 - Retail - GFA in excess of 1000 sq m.
 - (b) Use Classes A2, B1 and B2 - Commercial and Industrial - GFA in excess of 5000 sq m.
 - (c) Use Class B8 - Warehousing - GFA in excess of 10,000 sq m.

or, where any combination of Use Classes generate more than 100 vehicle movements in/out combined in a peak period or there is an aggregate of 100 or more on-site parking spaces to the guidelines set out in Chapter 7 below.

- 2.4 Also a TIA might be required for other land use classes which although do not generate high levels of traffic generally but where that generated traffic is all heavy goods vehicles. Quarrying and land-fill development might require a TIA if the operations are deemed likely to have sufficient affect on the surrounding highway network.
- 2.5 In the case of a single unit development it is essential that the internal layout is designed to ensure that queues of traffic do not encroach on the adjacent road system. This is of particular importance for large retail development, where there should be adequate queuing space between the point of access and the nearest conflict point within the development. To reduce conflict points in developments which have a high level of private vehicles and commercial or servicing vehicles it is necessary to segregate the types of traffic as soon as possible.

- 2.6 Access points into and out of the development must be designed to prevent the existing traffic causing entering traffic to queue back onto the adjacent highway.
- 2.7 Where petrol filling stations are provided as part of the development they should be sited on the exit road.
- 2.8 For industrial estates one of the main traffic problems arise due to the physical size of the vehicles generated by the developments. Heavy goods vehicles require increased carriageway widths, especially on bends and they also require a greater area for turning and manoeuvring. For these reasons wherever the size and shape of the site permits a road layout involving loop roads is preferred, both for facilitating traffic movement and for making the most economic use of land.
- 2.9 For developments generating less than 250 hgv trips/day access for individual units can be from a single industrial access road, but a loop arrangement is preferable (see diagram 2.1). A cul-de-sac up to 250 m in length may be acceptable if site conditions require it. However, this will only be permitted with the provision of adequate turning facilities.
- 2.10 Any turning facilities must be kept free of parked vehicles and such facilities should normally be be sited abutting the site boundary.
- 2.11 In larger developments a number of industrial access roads should feed to the main industrial distributor road which should not provide direct access to individual units. It is likely that for larger developments two points of access to the existing highway network will be required. This will give the opportunity to provide a loop system as shown in diagram 2.2.

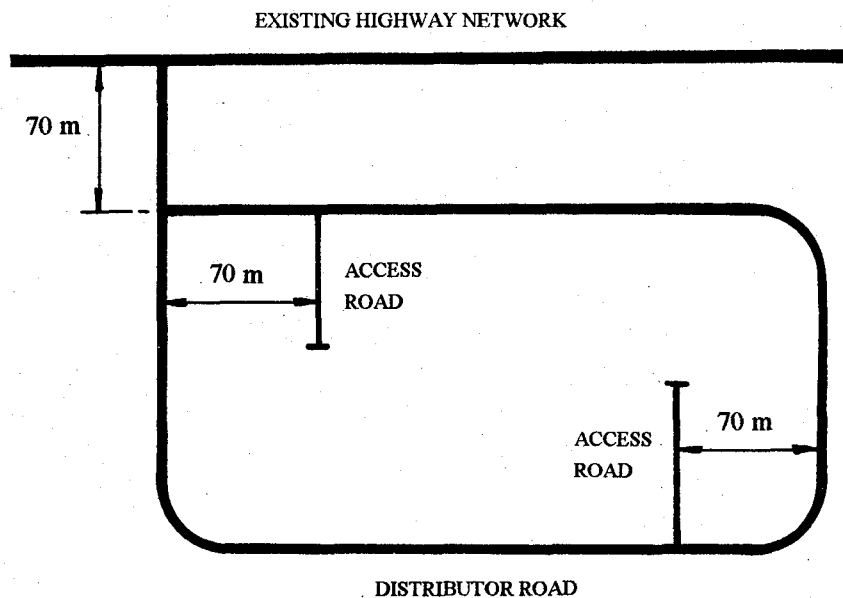
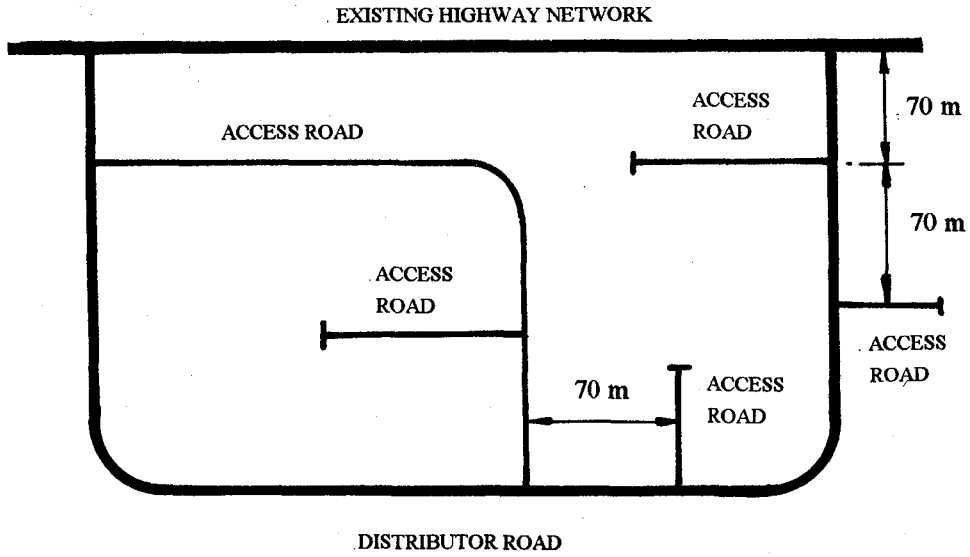
DIAGRAM 2.1 - SINGLE ACCESS POINT

DIAGRAM 2.2 - TWO ACCESS POINTS



3 – INDUSTRIAL/WAREHOUSING DEVELOPMENTS

- 3.1 Any large individual unit shall have its own access road with a minimum carriageway width of 6.7 m. Where access is required for joint use of more than one unit, this minimum carriageway width shall be increased to 7.3 m. For access roads leading solely to staff or visitors car parks, the minimum carriageway width shall be 5 m for two way traffic, but this can be reduced to 4 m for one way traffic.
- 3.2 Any security facilities shall be sited to allow a minimum of 20 m from the rear edge of footway or verge to allow vehicles to stand without interfering with vehicular or pedestrian movement on the adjoining highway.

Siting of Security Facilities



- 3.3 To ensure that manoeuvring and servicing areas are kept clear of parked vehicles, designated car parking areas for staff and visitors shall be provided to the levels required by the guidelines in Chapter 7 below. Wherever possible separate access shall be provided to parking and servicing areas to segregate private and goods vehicles.
- 3.4 Designated parking areas shall be provided for goods vehicles, especially for warehousing development.
- 3.5 Well defined bays for waste skips and compactor units shall be provided to prevent encroachment into parking, manoeuvring or servicing areas.
- 3.6 Where individual units have forecourts abutting the access roads, these must be of sufficient size to prevent vehicles encroaching onto either the footway or carriageway for parking or manoeuvring.
- 3.7 Formal marking of forecourts for designated uses will normally be required to help regulate proper usage and to prevent encroachment and this can be reinforced by the use of physical barriers such as bollards, railings or landscaping. The use of different coloured or textured surfacing can be used to designate areas especially for pedestrian areas.
- 3.8 Areas for manoeuvring large goods vehicles must have a maximum gradient of 1:20 and a minimum gradient of not less than 1:60. Gradients greater than this will create problems for large vehicles and the area will require to be increased substantially to ensure that the turning movement can be achieved. Gradients less than 1:60 will create drainage problems and will result in ponding of surface water.
- 3.9 For loading and unloading bays the gradient should not be greater than 1:40, to prevent the movement of goods being conveyed on trolleys or wheeled containers.

- 3.10 Where there are projections or canopies over or forecourts these should have a minimum clearance of 4.5 m, however if there is a gradient, ie to underground facilities, this may be required to be increased to 5 m. All structures overhanging a distributor or access road must have a minimum clearance of 5.3 m, in accordance with Department of Transport standards.

4 – SCIENTIFIC/TECHNOLOGICAL/COMMERCIAL DEVELOPMENTS

- 4.1 Generally for this type of development, the traffic generated will be predominantly private cars or small goods vehicles. Access roads shall have a minimum carriageway width of 5 m for two way traffic and this can be reduced to 4 m for one way traffic. However, if it is anticipated that heavy goods vehicles will require access to the development then the carriageway requirements set out in paragraph 3.1 above, shall be provided.
- 4.2 Any security facilities shall be sited to allow vehicles to stand without interfering with vehicular or pedestrian movement on the adjoining highway.
- 4.3 To ensure that manoeuvring and servicing areas are kept clear of parked vehicles, designated car parking areas for staff and visitors shall be provided to the levels required by the guidelines in Chapter 7 below. Wherever possible separate access shall be provided to parking and servicing areas to segregate private and goods vehicles.
- 4.4 Where multi-storey or underground car parking is proposed, the minimum width of ramp shall be 3 m for a straight ramp or 3.65 m for a curved ramp, with a minimum of 0.5 m clearance to walls or other structures. The maximum gradient of a ramp shall not exceed 1 in 7 for a rise less than 1.5 m; for a rise greater than 1.5 m the maximum gradient shall not exceed 1 in 12. Care must be taken at changes of gradient to avoid grounding or headroom problems.
- 4.5 To improve the feel of space within the car park, the desirable headroom shall be 2.4 m, with a minimum headroom of 2.05 m. Also to improve security and for safety of use all floors shall be well-lit at all times.
- 4.6 It is desirable that all parking spaces designated for those with a mobility handicap shall be located close to access points to the building.
- 4.7 As mentioned previously the traffic generated by these types of development is predominantly private cars and therefore there is a greater opportunity to attract the use of public transport as an alternative mode of transport for the journey to and from work. In order to encourage this form of transport, provision should be made in business parks and similar developments for penetration of public transport services. Laybys for public service vehicles shall be provided on the estate roads. For single unit developments laybys shall be provided either on the existing highway network adjacent to the development or public transport facilities shall be provided within the site. It is suggested that discussions early in the planning of a development should take place with the local bus operators to decide the extent of the public service facilities required.
- 4.8 Cycle facilities shall also be provided in accordance with the requirements in Chapter 9 below.

5 - RETAIL DEVELOPMENT

- 5.1 This type of development whether it be food retail or non-food retail generates high levels of traffic which are predominantly private cars. Wherever possible separate access shall be provided to car parking areas and service areas to segregate customer traffic and goods delivery vehicles.

Segregation of Traffic



- 5.2 Access roads to customer and staff car parking areas shall have a minimum carriageway width of 5 m for two way traffic and 4 m for one-way traffic. Access roads to service areas shall be provided to the requirements set out in paragraph 3.1 above.
- 5.3 Servicing and manoeuvring areas shall be kept clear of parked vehicles and shall be set out in accordance with paragraphs 3.8 and 3.10 above.
- 5.4 Well defined bays for waste skips and compactor units shall be provided to prevent encroachment into parking, manoeuvring or servicing areas.
- 5.5 Where recycling facilities are provided for the use of customers, these shall be located in defined bays within suitably designated areas to prevent encroachment into the customer parking areas. Provision must be made for the access and manoeuvring of collection and servicing vehicles to such facilities.
- 5.6 Customer and staff parking areas shall be provided and set out in accordance with the Parking Guidelines in Chapter 7 below.
- 5.7 Where multistorey or underground car parking is proposed this shall be in accordance with paragraphs 4.4 and 4.5 above.
- 5.8 It is desirable that all parking spaces designated for those with a mobility handicap, this includes those with a physical handicap and parents with children shall be located close to the main access points to the buildings.
- 5.9 Where multistorey or underground servicing is considered, the minimum width of the ramp between kerbs shall be 4 m for one-way traffic or 7.3 m for two-way traffic, with a minimum clearance of 0.5 m between kerb and any wall or other structure. The maximum gradient of the ramp shall not exceed 1 in 10.
- 5.10 Curved ramps are not recommended for use by heavy goods vehicles and will only be permitted with the written consent of the Local Highway Authority.

DESIGNATED PARKING SPACES

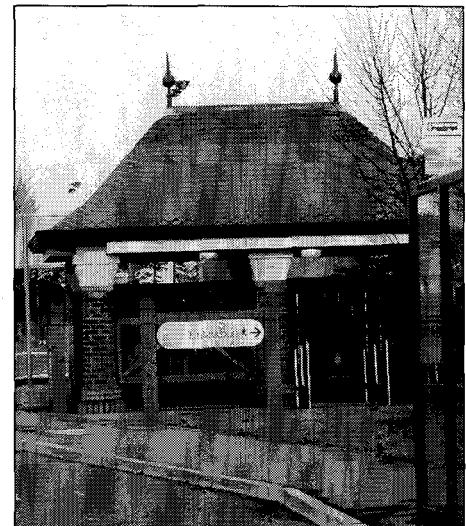


Disabled



Parent and Child

- 5.11 The minimum headroom for underground servicing areas shall be 4.75 m, but this shall be increased where there is a change of gradient to provide sufficient clearance.
- 5.12 Where canopies are provided in service areas these shall have a minimum clearance of 4.5 m.
- 5.13 Where multistorey or underground servicing is considered, the service area shall be managed by suitable methods, to be agreed with the Local Planning Authority, to prevent any vehicle waiting to load or unload in the service area from interfering with pedestrian or vehicular traffic on the adjoining highway. Any control system shall be sited a minimum of 20 m from the rear edge of the adjacent footway or verge.
- 5.14 Footways shall be provided, where possible away from access roads and will not be permitted within service areas for the use of the general public.
- 5.15 Where more than one retail unit development is proposed, footways shall be provided between units.
- 5.16 To encourage the use of public transport for journeys to or from retail developments, provision shall be made available for public service vehicles. For multi unit developments laybys shall be provided for public service vehicles within the development and for single unit developments, laybys shall be provided within the site or on the adjacent highway network. It is suggested that discussions early in the planning of the development should take place with the local bus operators to decide the extent of public service facilities required.
- 5.17 Cycle facilities shall also be provided in accordance with the requirements in Chapter 9 below.



Public Transport Facilities

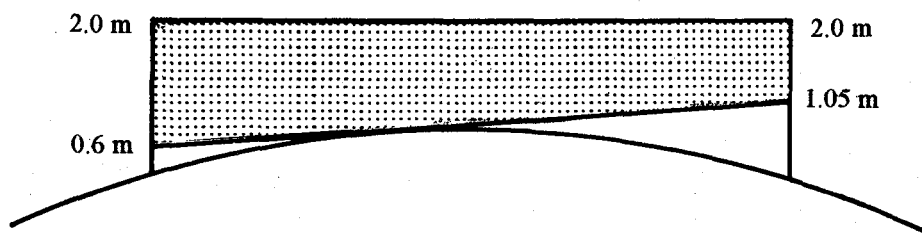
6 – GENERAL DESIGN

Forward Visibility

- 6.1 At all points in the road system sufficient forward visibility must be provided to allow the driver of a vehicle to stop safely. Forward visibility at curves and brows of hills shall be provided to enable an object, 600 mm high, laying in the carriageway to be seen in sufficient time to enable the vehicle to be stopped in safety. The limits for the eye height of drivers are taken as 1.05 m for private vehicles and 2.0 m for heavy goods vehicles. (See diagram 6.1). The minimum forward visibility shall be provided as follows:-

Distributor roads	60 m
Access roads	45 m

DIAGRAM 6.1 -



- 6.2 No minimum forward visibility distances are given for access roads within individual sites except for those roads to which the public have access, where the minimum distance shall be 45 m.

Junction Design

- 6.3 Table 6A below gives the design requirements, spacing of junctions and individual accesses and visibility standards. The requirements for junctions and accesses onto existing roads may need to be modified; these will be dependent upon the actual speed of traffic on the existing road.

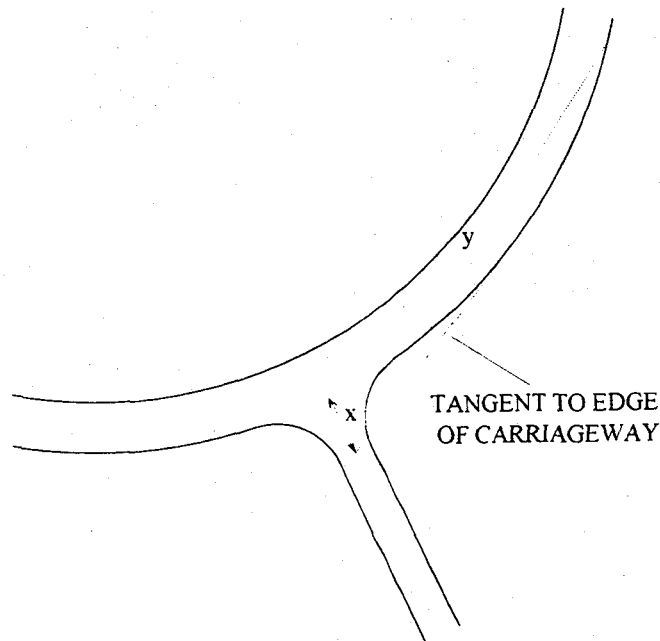
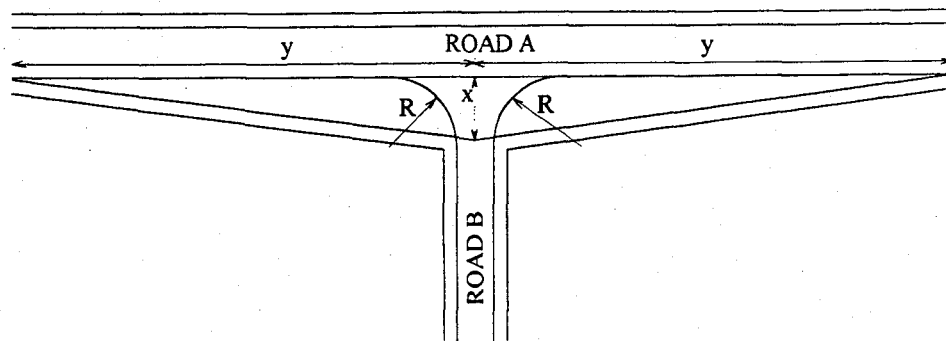
TABLE 6A - JUNCTION DESIGN REQUIREMENTS

Junction Type		Radius R (metres) R (See Diag 6.2)	Minimum Junction Spacing (metres)		Sightlines (metres) (See Diag. 6.2)	
Major Road	Minor Road		Adjacent	Opposite	X	Y
Existing Highway	Distributor Road / Access Road	20	100	70	9.0	90 *
Existing Highway	Single Access	20	100	70	9.0 **	90 *
Distributor Road	Access Road	15	90	40	9.0	90 *
Distributor Road	Single Access	15	90	40	9.0 **	90 *
Access Road	Single Access	10	90	40	9.0 **	60

* Dependent upon the actual 85 percentile speed of the traffic on the major road. (See Tables 6B and 6C).

** Dependent upon the level of usage of the development, may be reduced to 4.5 m in certain circumstances.

DIAGRAM 6.2 -



VISIBILITY SPLAYS

- 6.4 The “major road distance” will depend upon the speed of traffic on the major road. Where the traffic speed on the major road (excluding the fastest 15%) for wet weather is known, then this speed or the next highest speed, should be used as the major road speed in Table 6B and the appropriate “major road distance” should be taken. Where there is a speed limit and the actual speed of the traffic on the major road is unknown then Table 6C should be used.

TABLE 6B

Major Road Speed (kph)	120	100	85	70	60	50	40	30
Major Road Distance (metres)	295	215	160	120	90	70	45	33

TABLE 6C

Speed Limit (mph)	70	60	50	40	30	20		
Major Road Distance (metres)	295	215	160	120	90*	45*		

* Includes an allowance for motorists travelling at 6 mph (10 kph) above the speed limit.

- 6.5 By careful design of the road layout it should be possible to minimise the amount of land taken up by visibility splays. Ground cover planting within visibility splays should help minimise future maintenance costs compared with grass.
- 6.6 All areas of land contained within forward visibility lines and sight lines at junctions and bends must form part of the land for which planning permission is granted and must be within the control of the prospective developer prior to commencement of construction. This land shall be dedicated to the highway.
- 6.7 At a junction when a minor road or individual access is on a gradient to the major road and is used by heavy goods vehicles, the first 20 m of the minor road or access from the major road kerb line shall be at a gradient not exceeding 1 in 25.
- 6.8 Changes in gradients shall be accommodated by the use of a vertical curve to prevent grounding of long vehicles.

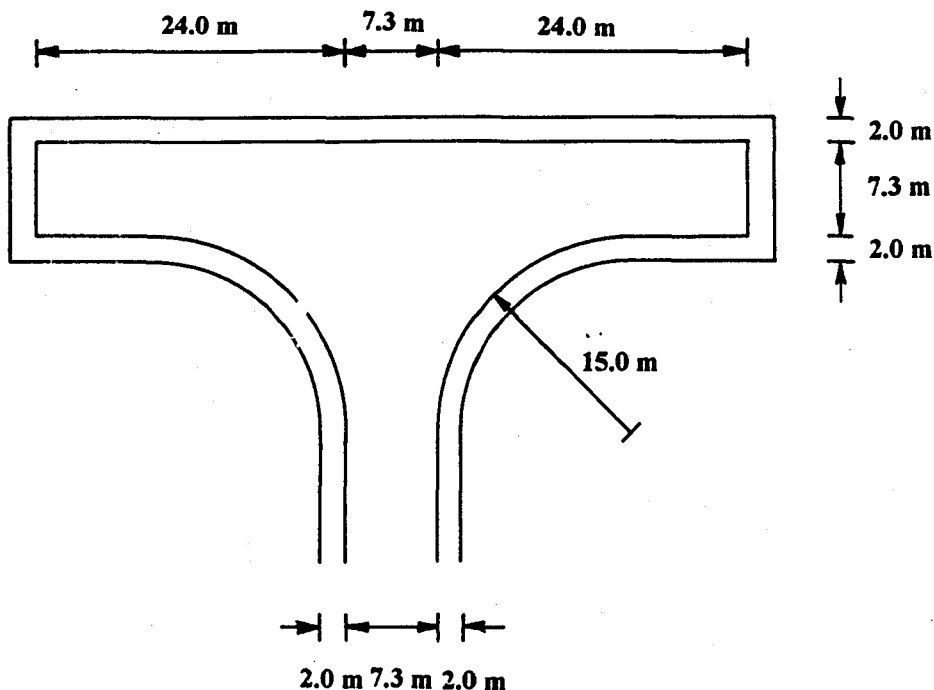
Widening on Bends

- 6.9 The minimum centre line radius for a two-way distributor road or access road shall be 80m. Adjoining land would be seriously affected by forward visibility requirements for any bend with a centre line radius below 80 m.
- 6.10 A bend of 80 m centre line radius will require widening at its mid point to 9 m to allow sufficient clearance for two heavy goods vehicles to pass.
- 6.11 On all roads a minimum clearance of 0.5 m shall be provided between the kerb line and any structure or street furniture, and on bends this shall be increased to 1.0 m on the outer edge to allow for overhang of large vehicles.
- 6.12 The minimum outer radius for curved ramps to car parking areas shall be 12 m. Curved ramps to service areas used by heavy goods vehicles will not be permitted.

Vehicle Turning Areas

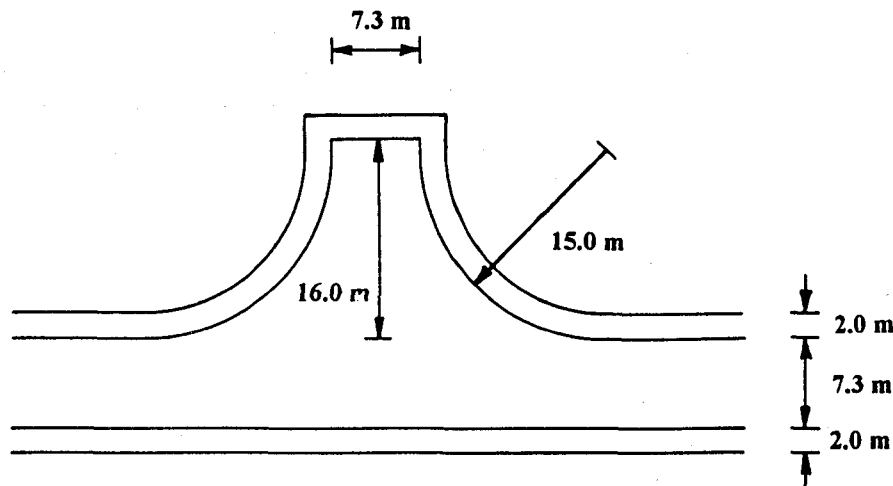
- 6.13 As mentioned above the preferred layout for an industrial estate is for a looped roads system as shown in diagrams 2.1 and 2.2 above. However on smaller sites where loop roads are not practicable or on larger estates where there is a requirement to serve a small group of units off the main loop road system, cul-de-sac will be acceptable.
- 6.14 Where a cul-de-sac is permitted adequate turning facilities must be made available. The preferred means of making provision for vehicles to turn is by a hammerhead incorporating the dimensions shown in Diagram 6.3

DIAGRAM 6.3 - HAMMERHEAD TURNING AREA



- 6.15 In certain circumstances, where the layout of individual units or the availability of land precludes the use of a hammerhead, a side road stub may be permitted, as shown in Diagram 6.4

DIAGRAM 6.4 - SIDE ROAD STUB TURNING AREA



- 6.16 Alternatively a roundabout, to the minimum dimensions shown in Diagram 6.5 may be used. This layout is preferred by the users of heavy goods vehicles as it eliminates the reversing of these large vehicles. However the use of this option is normally ruled out due to the area of land required and the awkward plot shapes which result.
- 6.17 Whichever method of turning facility is provided it should normally abut the site boundary and accesses into individual units will not be permitted from such facilities.
- 6.18 Turning facilities shall be kept free of any parking or servicing vehicles.

Construction and Materials

- 6.19 The first 10 m of any access onto an adopted highway shall be constructed to the specification and satisfaction of the Highway Authority.
- 6.20 Table 6D gives the various materials for carriageway and footway construction. For sub-base and other construction details see “The Specification for the Construction and Drainage of Estate Roads”.

TABLE 6D Materials

Carriageway	Wearing Course Base Course	Rolled Asphalt - Dense Bitumen Macadam
Footway and Cycleway	Wearing Course Base Course	Dense Bitumen Macadam Dense Bitumen Macadam
Edge Restraint		Standard Concrete Kerb

Provision of Services

- 6.21 An important requirement for any industrial, commercial or retail development is the provision of utility services.

It is essential that early consultation and liaison with all the statutory undertakers takes place to ensure the economical layout and installation of service apparatus and for the future maintenance of plant and equipment. Developers attention is drawn to the National Joint Utilities Group publications.
- 6.22 Careful consideration must be given to the routing of services which should normally be laid beneath the footway. In seeking planning permission developers must indicate on their plans the position of the principal service runs and identify those areas which are intended for adoption as publicly maintained highways.
- 6.23 The addresses and telephone numbers of all the Statutory Undertakers are given in Appendix B.

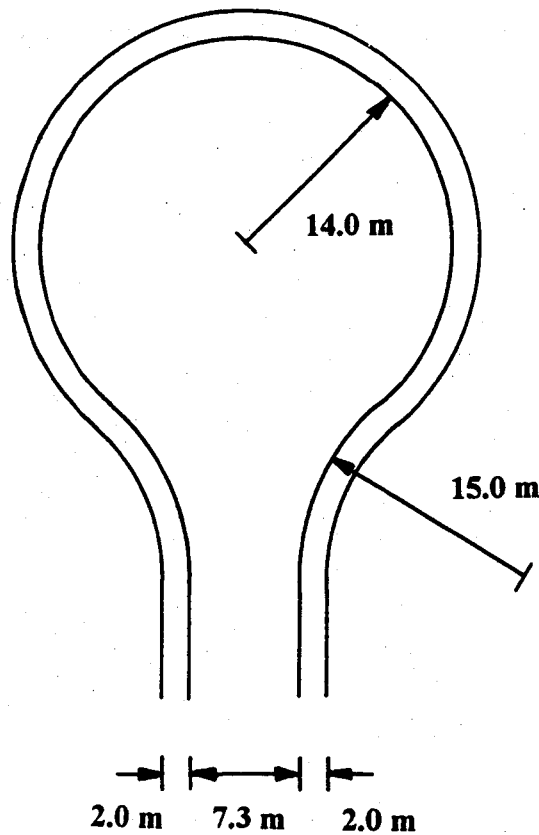
Drainage

- 6.24 The applicant, at the outline planning stage, will be required to show that the site can be adequately drained.
- 6.25 The design and construction of all foul and surface water sewers shall be to the satisfaction of the Regional Water Authority in whose area the works are being carried out. An Agreement under Section 104 of the Water Industries Act 1991 should be entered into with the Regional Water Authority for the adoption of these sewers. Highway drains are defined as those drains taking surface water from areas to be adopted

as part of an Agreement under Section 38 of the Highways Act 1980 and shall be designed to the satisfaction of the Highway Authority.

- 6.26 Highway drains for surface water should normally be located within the highway or within land to be adopted by the Highway Authority.
- 6.27 Interceptors or oil separators shall be installed as required by the Environment Agency's Pollution Prevention Guidelines set out in Appendix C.
- 6.28 Evidence will be required that the developer has a right to discharge surface water at the proposed point of discharge, free of any liability which may be binding upon the Highway Authority.

DIAGRAM 6.5 - ROUNDABOUT TURNING AREA



7 – PARKING

7.1 The design of any development must include the provision of parking spaces in accordance with the “Parking Guidelines” published by the Highway and Planning Authorities and as summarised in Table 7A below. This level of provision is to prevent parking on the highway network and in turning and servicing areas. The levels of provision will vary according to the type and size of the development. However, it should be noted that, in those areas where there are current adopted Local Plans there may be some variance in the parking guidelines set out below and those in the Local Plans. In those instances the guidelines, set down in the Local Plan, have precedence and guidance should be sought from the Local Planning Authority.

TABLE 7A

Development	GFA m ²	Number of Spaces
(1) General Industrial	(a) First 300 (b) > 300	1 space for 20 m ² 1 space for 30 m ² + 10% for visitors + 1 HGV space for 200 m ²
(2) Light Industrial & Hitec	(a) First 300 (b) > 300	1 space per 20 m ² 1 space for 30 m ² + 10% for visitors + 1 HGV space 500 m ²
(3) Warehousing (stand alone units not located on industrial estates)	-	1 space per 100 m ² + 1 HGV space per 225 m ²
(4) Commercial	(a) First 300 (b) > 300	1 space per 20 m ² 1 space per 30 m ² + 10% for visitors
(5) Retail (Food & Non-Food)	(a) < 500	1 space for 20 m ² + 1 space for staff per 100 m ² + 1 HGV space per 500 m ²
(6) Food Retail	(a) 500 - 5,000 (b) 5,000 - 10,000 (c) > 10,000	1 space per 10 m ² + 1 staff space per 100 m ² + 1 HGV space per 500 m ² As for 6(a) above but + 1 HGV space per 750 m ² As for 6(a) above but + 1 HGV space per 1000 m ²
(7) Non-Food Retail	> 500	1 space per 20 m ² + 1 staff space per 100 m ² + 1 HGV space per 1000 m ²
(8) Garden Centres	Covered Area Outside Area	1 space per 20 m ² + 1 space per 30 m ² + 1 HGV space per 500 m ²

- 7.2 All visitor and parking for those with a mobility handicap should be located close to the main entrances to the development. All spaces should be clearly designated and signposted at the car park entrance.
- 7.3 Disabled parking provision must be included in the above allocations where developments are likely to be visited by those people with a mobility handicap in accordance with the following criteria.

Industrial or Commercial Development

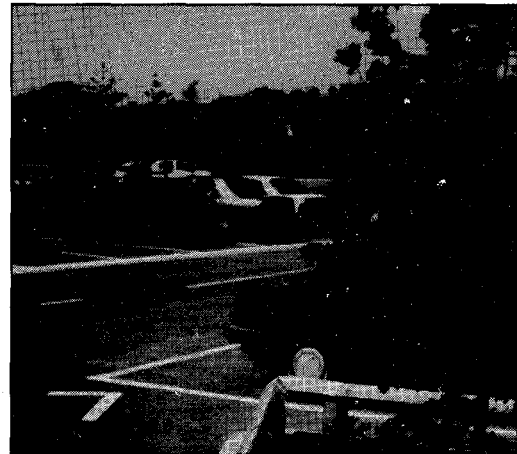
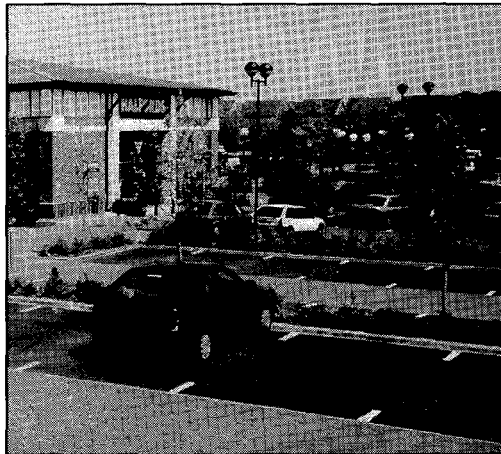
Up to 200 spaces provided - a ratio of 5% of all spaces (Min. 2 spaces)
 Over 200 spaces provided - a ratio of 2% of all spaces (Min. 6 spaces)

Retail

Up to 200 spaces provided - a ratio of 6% of all spaces (Min. 3 spaces)
 Over 200 spaces provided - a ratio of 4% of all spaces (Min. 4 spaces)

- 7.4 The dimensions of parking facilities for Heavy Goods Vehicles shall be provided in accordance with the latest publication of the Freight Transport Association on vehicle turning, parking and manoeuvring.
- 7.5 Where a development involves multi-storey or underground car parking, the layouts shall conform with "Design recommendations for multi-storey and underground car parks (2nd Edition) published by the Institution of Structural Engineers.
- 7.6 Full landscaping proposals for parking and service areas must be submitted with all applications. Planting should be used to relieve the monotony of large paved areas and to provide visual features. Landscaping can also be used to enhance and segregate areas of different uses. Grass, ground cover plants, shrubs and trees should be pollution-resistant varieties, and in the case of trees should not be liable to heavy leaf-fall, fruit dropping or branch shedding. Care should be taken that planting does not obscure visibility or reduce the effective length or width of any parking space.

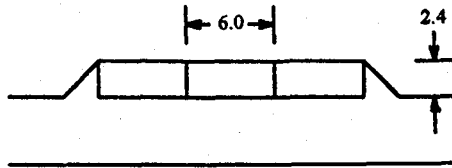
Landscaping to parking areas



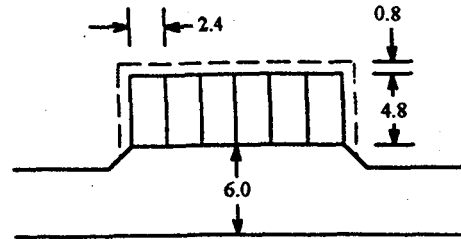
- 7.7 Diagram 7.1 sets out the minimum dimensions for car parking spaces, parking bays and grouped policy areas

DIAGRAM 7.1- PARKING AREAS

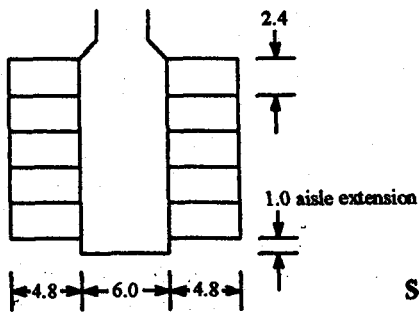
Note: All dimensions in metres



MINIMUM PARALLEL PARKING BAYS

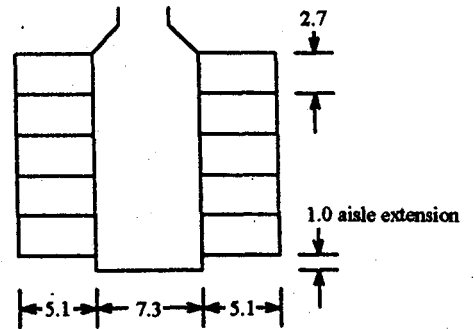


MINIMUM PERPENDICULAR PARKING BAYS



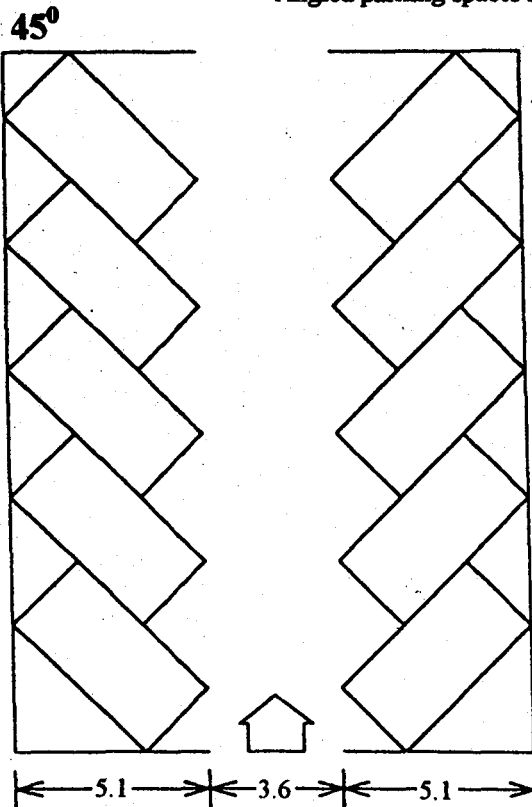
MINIMUM GROUPED PARKING AREA

Scale: 1:500



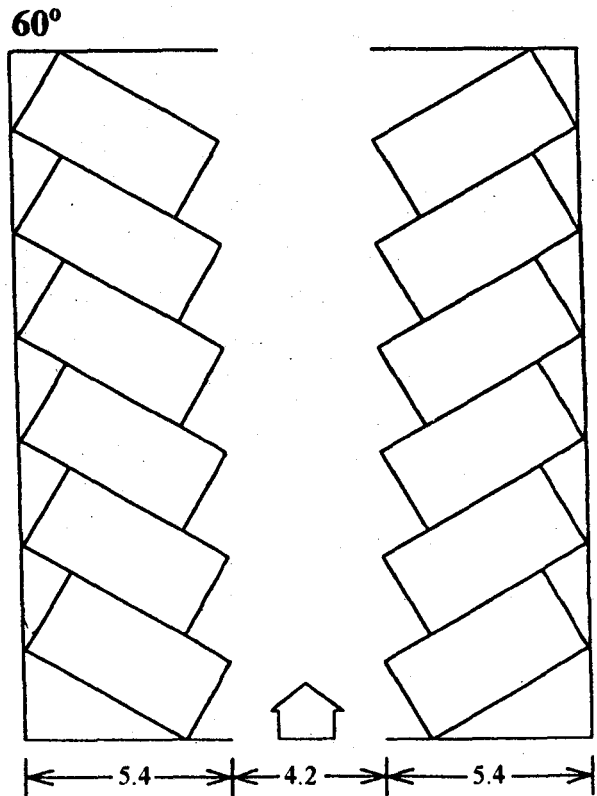
MINIMUM GARAGE COURT AREA

Note: Car spaces can only be interlocked properly at 45°. Angled parking spaces should be on a one-way system.



ANGLED PARKING SPACES

Scale: 1:200



Note: Landscaping proposals should be submitted with all applications in accordance with details indicated in Section 2.11

Cycle Parking

- 7.8 Cycle parking facilities should be provided in accordance with these “Parking Guidelines” and as summarised in Table 7.D below. They must be located in a secure environment where they are highly visible and frequently observed. Good lighting is important and the location of stands should be clearly sign-posted.
- 7.9 The provision of cycle parking facilities should
- * help to eliminate the haphazard chaining of cycles to railings and lamp posts
 - * remove unsightly clutter and reduce inconvenience to pedestrians and the blind
 - * assist greater utilisation of cycle routes by removing one of the factors which discourage cycling: lack of a safe place to leave a cycle at the end of a trip.
 - * reduce the incidence of theft of cycles and accessories.
- 7.10 Cyclists needs will vary between short, medium and long stay requirements. Short and medium for visitors and long stay for staff.
- * Short/Medium Term Parking (visits up to 2 hours in duration)

A small number of racks at frequent intervals will be better used than a large group and should ideally be placed no more than 30 m from the destination.
 - * Long Term Parking (visits longer than 2 hours)

Long term parking should be located so as to enable formal supervision. Where possible, it should be protected from weather and provide secure locking systems. Ideally it should be located no more than 70 m from the destination. There may be a demand for shower facilities.
- 7.11 The preferred cycle stands are shown in Diagrams 7.2 and 7.3. The “Sheffield Type” design supports the cycle frame, takes locks easily and enables both wheels to be secured against theft without risking damage to the cycle and should be used for all long term parking. Given judicious spacing this type of stand can accommodate 2 cycles per stand (1 on either side) and Diagrams 7.4 and 7.5 show typical parking stand layouts. The wall stand is primarily for short term parking or where space is limited.

TABLE 7B

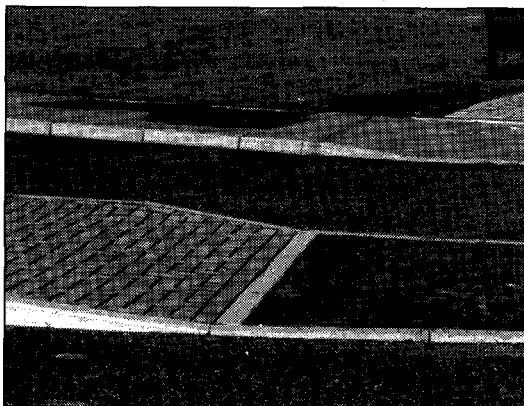
Development	GFA m ²	Number of Spaces
(1) General Retail	-	1 space per 45 m ² + 1 staff space per 45 m ²
(2) Scientific/ Technological/Commercial		1 space per 1000 m ² + 1 staff space per 200 m ²
(3) General Industrial	First 200 200 - 1000 > 1000	1 space per 45 m ² 1 space for 250 m ² 1 space for 400 m ²
(4) Warehousing	First 200 200 - 1000 > 1000	1 space per 45 m ² 1 space per 250 m ² 1 space per 800 m ²

8 – PEDESTRIANS

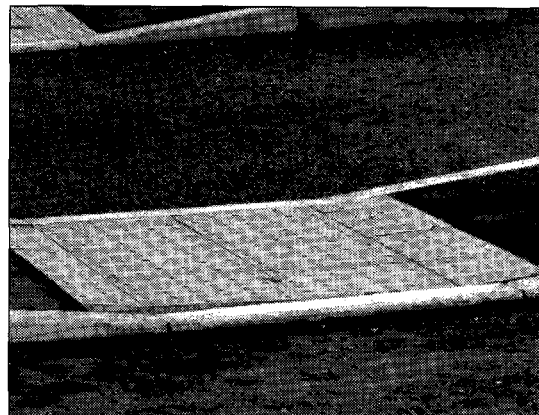
- 8.1 The amounts of pedestrian traffic for the various types of development vary considerably. Within the same types of development there can be significant differences according to the location in relation to residential areas, the availability of public transport and to the layout of the development.
- 8.2 A footway 2 metres wide will normally be required on each side of distributor and access roads. However, where there is industrial or commercial development only on one side of a development, a single footway together with the provision of a 1 metre hardened strip may be acceptable. This will depend upon the likely pattern of pedestrian movements.
- 8.3 The Highway Authority may also agree to some relaxation of this requirement in the case of shorter loop-roads, culs-de-sac and service areas in industrial or commercial development.
- 8.4 All retail development will require the provision of footways on each side of any distributor or access road, together with footway access to public transport facilities and car parking. Where trolleys are provided for the use of the customer, footway access between the main entrance or collection point and the car parking area shall be a minimum of 3 metres wide. Provision shall be made to prevent trolleys being used on any public highway.
- 8.5 Provision shall be made for pedestrian movements between multi-unit retail developments.
- 8.6 Footways shall be designed with the needs of the elderly and those with a mobility handicap in mind. They should have a maximum gradient of 1 in 12 and a ramp must be provided adjacent to any steps. Steps will not be permitted on adopted public footways. Strategically placed barriers may be needed to halt pedestrians before they cross the road.
- 8.7 At junctions between footways and carriageways and at road junctions, kerbs must be dropped to assist wheelchair users and those with prams and pushchairs. Tactile paving shall also be provided to assist those with impaired vision and it shall be laid in accordance with the guidelines published by the Department of Transport.



Trolley barriers



Dropped Kerbs



Tactile Paving

- 8.8 Wherever practicable layout of developments shall allow for segregation of pedestrian and vehicular traffic.

Examples of Segregated Footways



9 – CYCLISTS

- 9.1 Provision shall be made to encourage the use of cyclists in developments. Cyclists need safe, direct and secure routes and consideration must be given as to whether the development needs to be integrated into the wider system of provision for cyclists.
- 9.2 Wherever possible, cyclists are best segregated from both pedestrians and other forms of traffic. However where this is not possible, the footway should be designed as a shared unsegregated cycle track/footway and carriageway widths shall be increased to accommodate cyclists where it is considered necessary.
- 9.3 Cycle tracks shall be designed with a normal maximum gradient of 1 in 20 with an absolute maximum gradient of 1 in 15 for short distances.
- 9.4 Parking for cyclists shall be provided as set out in Chapter 7 above.

10 - PUBLIC TRANSPORT

- 10.1 More emphasis is being placed upon the use of public transport, especially for the journey to and from work. It is therefore essential that wherever possible public transport facilities should be located as close as possible to a development. Good public transport access increases the potential labour market for industrial and commercial developments and increases the numbers of customers in retail developments.
- 10.2 For large industrial or commercial developments consideration should be given to providing public transport facilities within the estate, close to the entrances of units.

Turning facilities may also be required at terminal points.
- 10.3 For single unit development, the public transport facilities should again be provided close to the entrance of the unit. These will include the provision of bus laybys and bus shelters.
- 10.4 For retail development consideration should be given to the provision of facilities within the development, close to the main public entrances, with easy access for passengers. For single unit development again facilities should include bus laybys and shelters.
- 10.5 It is recommended that developers should liaise in the early stages of the design of a development with local public transport operators to discuss the requirements for the provision of facilities.

APPENDIX A

LOCAL AUTHORITIES - UP TO 31 MARCH 1997 - AFTER WHICH DATE DELETE PAGE

PLANNING AUTHORITY	HIGHWAY AUTHORITY	AGENT AUTHORITY (in certain circumstances)
East Dorset District Council Council Offices Furzehill Wimborne Dorset BH21 4HN Tel: (01202) 886201	County Surveyor Dorset House Bournemouth BH1 2NL Tel: (01202) 221095	
North Dorset District Council "Nordon" Salisbury Road Blandford Forum Dorset DT11 7LL Tel: (01258) 454111	County Surveyor County Hall Dorchester DT1 1XJ Tel: (01350) 224223	
West Dorset District Council 58 High West Street Dorchester Dorset DT1 1UY Tel: (01250) 65211	County Surveyor County Hall	
Purbeck District Council Westport House Wareham Dorset BH20 4PP Tel: (01929) 556561	County Surveyor County Hall	
Christchurch Borough Council Civic Offices Bridge Street Christchurch BH23 1AZ Tel: (01202) 486321	County Surveyor Dorset House	Head of Technical Services Division Civic Offices Bridge Street Christchurch BH23 1AZ
Bournemouth Borough Council Town Hall Bournemouth BH2 6DY Tel: (01202) 552066	County Surveyor Dorset House	The Director of Development Services Town Hall Annexe Bournemouth BH2 6EA
Poole Borough Council Municipal Offices Civic Centre Poole BH15 2RU Tel: (01202) 675151	County Surveyor Dorset House	Head of Highways and Transportation Services Poole Borough Council Civic Centre POOLE BH15 2RU
Weymouth & Portland Borough Council Municipal Offices North Quay Weymouth DT4 8TA Tel: (01305) 761222	County Surveyor County Hall	The Borough Engineer Municipal Offices North Quay Weymouth DT4 8TA

STATUTORY UNDERTAKERS

Area	Address of SU
1. Electricity	
East and Central Dorset	Southern Electricity 25 Bournemouth Avenue Branksome Poole BH12 1HH (01202) 762828
South West Dorset	South Western Electricity Priorswood Road Taunton Somerset TA2 8DD (01823) 335258
2. Gas	
	Southern Gas PO Box 1 30 Yarmouth Road Parkstone Poole BH12 1JW (01202) 762821
3. Telephones	
	Mercury Communications Ltd Mercury House Great Park Road Almondsbury Bristol BS12 4QW (01454) 895693
East Dorset	British Telecom Bournemouth ATE 18-20 Bath Road Bournemouth BH1 2NR
Central Dorset	British Telecom Room 29 1st Floor Dorchester TEC Alington Avenue Dorchester DT1 1QD (01305) 263242
West Dorset	British Telecom Exbridge House Commercial Road Exeter EX2 4BB (01392) 212512

4. Water

East Dorset

Bournemouth & West Hampshire Water PLC
George Jessel House
Francis Avenue
Bournemouth
BH11 8NB (01202) 591111

Central Dorset

Wessex Water PLC
Mains Record Department
2 Nuffield Road
Poole
BH17 7RL (01202) 671144

South West Dorset

South West Water Services Ltd
Exwater
Eagle Way
Fountains Industrial Estate
Exeter
EX2 7HY (01392) 445544

5. Rivers

Environment Agency
Rivers House
Sunrise Business Park
Higher Shaftesbury Road
Blandford Forum
DT11 8ST (01258) 456080

6. Cable Communications

Nynex Cables Comms
25 Bourne Valley Road
Branksome
Poole
BH12 1HH (01202) 718719

7. Public Sewers

East Dorset

Wessex Water PLC
Holdenhurst (WWTW)
Riverside Avenue
Castle Lane East
Bournemouth
BH7 7ES

ENVIRONMENT AGENCY**POLLUTION PREVENTION GUIDELINES****THE USE AND DESIGN OF OIL SEPARATORS IN SURFACE WATER DRAINAGE SYSTEMS**

These notes are for guidance only and early consultation with your local Environment Agency office is advisable, as each site will be considered according to the individual circumstances. Details of local offices given in Appendix B above.

Note that throughout these guidelines the term 'separator' is used instead of the more commonly used 'interceptor'. The terms have the same meaning.

1. SITES NORMALLY REQUIRING OIL SEPARATORS

- a) Oil storage and handling areas.
- b) Industrial yard areas.
- c) Areas where vehicle maintenance is likely to take place.
- d) Commercial vehicle parks.
- e) Large car parks.
- f) Certain lengths of motorway and trunk road designated by the Environment Agency as high risk.
- g) Lock-up garage blocks (in excess of 10 units).

2. SITES NORMALLY NOT REQUIRING OIL SEPARATORS

- a) Small car parks. (less than 10 spaces)
- b) Most normal stretches of highway.

Note: These areas should be provided with deep seal trapped road gullies to BS.5911 1982 with a minimum water seal of 85 mm.

3. SEPARATOR DESIGN CRITERIA

- a) The maximum flow received by the separator should be given at least six minutes retention. This flow should be calculated in accordance with the design criteria used for the drainage system which, will usually be based on a rainfall rate of 50 mm per hour. See Appendix C1 below.
- b) Conventional separators (ie those without integral by-passes or separate oil storage compartments) should be of single chamber construction.
- c) Multi-chamber units are discouraged but, if used, six minutes retention should apply to each chamber or to the largest chamber only. The total capacity should not be used for calculating retention times.
- d) The minimum overall capacity of any oil separator should be one cubic metre.
- e) By-pass style separators, approved by the Environment Agency, may be used for large areas allowing flows generated by rainfall in excess of 5mm per hour to by-pass the separator through a properly designed overflow device.

- f) The inlet to the main chamber should not be direct to the water surface.
- g) Clean uncontaminated water such as roof drainage should preferably be discharged downstream of the device.
- h) Adequate facilities must be provided for inspection of the separator and tanker access must be available for cleaning purposes.
- i) Where a separator is provided in a drainage system, trapped gullies are not necessary unless required to satisfy any other regulations.

NOTE: Trapped gullies are always requested within adoptable highways even when a separator is provided within the drainage system.

- j) Where it is anticipated that large quantities of silt may jeopardise the efficient operation of a separator, an independent upstream silt trap should be incorporated in the system.
- k) Adequate venting arrangements should be incorporated in the structure. In many cases ventilated covers will be sufficient.
- l) In some cases flow cut-off valves may be required to isolate the separator.

4. MAINTENANCE

It is important to recognise that oil separators require regular maintenance. A routine programme of inspection should be established, and the separator cleaned as required.

NOTE: A separator will not work properly for soluble oils or if detergents or degreasing agents are present.

APPENDIX C1

SEPARATOR SIZE

To determine the minimum separator capacity required for conventional single chamber units, based on 6 minutes retention, multiply the catchment area in square metres by a factor of 5 to give a separator volume in litres.

eg. for catchment area 800 sq m
Single chamber separator capacity = $800 \times 5 = 4000$ litres

for approved by-pass units, a factor of 0.5 is used

eg. By-pass separator capacity = $800 \times 0.5 = 400$ litres

