

Highways Guide For Development

Streetscene SPD Annex 1

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INTRODUCTION

Bracknell Forest Council is the Unitary Authority which covers the six parishes which make up the Borough of Bracknell Forest. The Borough is situated approximately 30 miles west of London between the M4 motorway to the north and the M3 motorway to the south.

In relation to new development, the Council acts as the Local Highway Authority (LHA) and the Local Planning Authority (LPA).

PURPOSE AND FORMAT

This Guide is intended for developers and their advisors together with the officers and members of Bracknell Forest Council. It forms part of the Streetscene Supplementary Planning Document (SPD).

Its principal aim is to assist Developers and their advisors in the process of detailed design, construction of new highways and improvements to existing highways to accommodate new development. The approval, inspection and adoption process are explained.

Stress is also laid on the need for developers to be guided by professional advisors in all but the most straightforward of cases. Delay and misunderstanding could result from the developer not being properly advised.

There is a correlation between the Manuals for Streets 1 & 2 (MfS), the Streetscene SPD and this Guide. In general MfS and the SPD will set out the requirements of the Council in terms of good aesthetic design and practice within residential streets. This Guide will give detailed advice and technical information on how the highway elements within the streetscene can be achieved, to enable adoption of streets as highway, as well as covering works to improve and extend existing highway. It should be read in conjunction with the SPD, MfS and Standard Detail drawings which are published separately.

All of the documents should be consulted before making a planning application which includes proposals for the adoption of new, or alterations to existing, highways. The technical aspects will affect the design of highways and will have an influence on the planning layout.

Any queries arising from the use of this Guide should be directed to:

Engineering Projects and Highway Adoptions
Environment, Culture and Communities
Bracknell Forest Council
Time Square
Market Street
Bracknell
RG12 1JD

01344 352000

SECTION ONE

1.0 ROLE OF THE HIGHWAY AUTHORITY

- 1.0.1 Bracknell Forest Council is the Local Highway Authority (LHA) for all highways within the Borough of Bracknell Forest except for a small section of the M4 motorway.
- 1.0.2 The Council carries out responsibilities as LHA in respect of development management, adoption, capital works, highway safety and maintenance.
- 1.0.3 The LHA has a set of standard drawings which are applied to all designs for new highway, which is to be adopted within the borough, as highway maintainable at the public expense.
- 1.0.4 It should be noted that the Council is concerned to ensure that the existing highway is maintained in a state of good repair during the course of development.
- 1.0.5 Where development abuts the existing highway the developer will be expected to contact the LHA before construction commences. Reinstatement of any damage to kerbs, footways or verges is the responsibility of the developer.

1.1 ROAD SAFETY AUDITS

- 1.1.1 Road Safety Audits (RSA) are required for all planning applications where proposals would; alter existing highway, intensify the use of an existing access, provide a new access onto the highway or lead to the provision of new adoptable highway.
- 1.1.2 In some cases, small scale development may not require a RSA. This requirement is determined at the discretion of the highway development control officer or highway adoption team. However, a RSA is likely to be necessary for proposals that depart significantly from recognised guidance.
- A Stage One RSA should accompany any pre-application or full planning application/reserved matters application.
 - A Stage Two RSA would subsequently be required when the Developer makes a submission for an agreement under Section 38 or Section 278 of the Highways Act 1980.
 - Stage Three and Stage Four RSAs will subsequently be required prior to adoption of any new highway.
- 1.1.3 Any audit shall be carried out in accordance with the Design Manual for Roads and Bridges Volume 5 Section 2 HD 19/03, Guidance published by the Institution of Highways and Transportation and LHA Road Safety Audit policy.
- 1.1.4 Audits shall be carried out by suitably qualified auditors. If the auditors are not on the Council's approved list, they shall submit details of their qualifications and experience for approval. A copy of the list is available from Engineering Projects and Highway Adoptions.
- 1.1.5 Any RSA shall also be accompanied by comments from the designer either accepting the auditor's comments or giving reasons for non-acceptance of the auditor's comments.

1.2 OFF-SITE HIGHWAY WORKS

- 1.2.1 In accordance with the transport policies of the Local Transport Plan and BFC Core Strategy Development Plan Document, when considering the transport aspects of planning applications the LHA will seek in appropriate cases, to ensure that improvements to surrounding roads are carried out in conjunction with the development.
- 1.2.2 Such improvements may, in the case of major sites be extensive. They could, for example, involve the carrying out of part of the Council's approved transport strategy for an area.
- 1.2.3 If there is a need for off-site works, this will usually be made clear during pre-application consultations. If the works involved are minor and within existing highway or site boundaries, then this may well be dealt with by conditions on the planning consent.
- 1.2.4 Where more substantial works are involved the developer will be expected to take advice from professional transport/highway engineers, so that preliminary investigative and design work can be carried out under the guidance of the LHA's officers.
- 1.2.5 The works should generally be designed in accordance with the Design Manual for Roads and Bridges (DMRB) published by the Highways Agency, together with reference to the latest Department for Transport technical memoranda and advice notes. Part 2 of the guide gives more details of the procedure for checking designs.
- 1.2.6 If agreement can be reached on the extent of off-site highway works, and the means of funding and carrying out those works, then the next step would be to enter into a formal legal agreement (see paragraph 1.6). This would normally be signed and sealed before the issue of planning permission for the development. It would not prejudice the decision of the Planning Authority in deciding whether to grant permission.
- 1.2.7 When carrying out development along the frontage of an existing highway the developer will be required to carry out works in the immediate vicinity of the site, for example:
- Realignment of kerbs and edgings
 - Realignment or addition of highway drainage
 - Resurfacing or reprofiling of the carriageway and/or footway
 - Modifying, upgrading or adding street lighting
 - Closing or realigning existing accesses
 - Work to landscaped areas
- 1.2.8 The programming/management of the site needs to take in to account any such works to the existing highway, as well as ensuring continuing safe provision for pedestrians, cyclists and other road users outside the site frontage.

1.3 PROVISION FOR PEDESTRIANS

- 1.3.1 Pedestrian routes are provided in the form of footways, footpaths or, in very lightly trafficked areas, ways shared by vehicles and pedestrians. Footways are areas reserved for pedestrian movement running parallel and adjacent to the carriageway. Footpaths are generally divorced from the carriageway, with a separate alignment.
- 1.3.2 All footways and footpaths must be safe, convenient and secure and their use cause as little nuisance to residents as possible. In achieving these basic objectives footways and footpaths should be designed to:
- a) allow pedestrians, pushchair and wheelchair users to pass each other freely and without hindrance;
 - b) allow for dropped crossings into garage drives or parking areas;
 - c) allow, in suitable circumstances, for occasional use by emergency services;
 - d) accommodate statutory underground services;
 - e) be well lit and viewed from dwellings or highways over their entire length.

1.4 PROVISION FOR CYCLISTS

- 1.4.1 Bracknell Forest Council is keen to promote cycling as a mode of transport and as a recreational pursuit. As the LHA it will require developers to provide cycling facilities as part of new development, where appropriate. As well as providing for people living or working in the newly developed area, this may bring opportunities for improving the safety and convenience of those already making regular cycle journeys by extending an existing cycletrack network. The particular needs of cyclists should be considered early in the design stage so that suitable provision can be made for them.
- 1.4.2 In most cases residential roads laid out to the standards set out in this guide will be safe and adequate for cycling. However, where separate main footpaths are to be constructed to form more direct and convenient routes to local centres and schools for example, the LHA will wish to consider the provision of a cycleway alongside the footpath.
- 1.4.3 When large scale development is being planned the LPA and LHA may well wish to consider the provision of a system of trunk footpaths and parallel cycleway segregated from the main road system for the area.
- 1.4.4 Cycleways should be designed and constructed to permit their adoption by the LHA. They should have a smooth, non-skid riding surface whose profile, as far as possible, continues without interruption across intersecting roads. Their layout should allow for ease of entry by maintenance vehicles whilst discouraging access by private vehicles.
- 1.4.5 Any changes of direction should be accomplished by the use of bends or adequate splays. The use of “right angle” changes of direction will not be acceptable.

1.5 PROVISION FOR PUBLIC TRANSPORT

- 1.5.1 Public transport plays an important part in the movement of people, and the siting and layout of new development should ensure good access to bus services. The aim should be to create an integrated road and footpath system in which every dwelling is within a minimum walk distance of 400m of a bus stop. Pedestrian routes should provide direct links between dwellings and bus stops.
- 1.5.2 Roads which, it is envisaged, will be used as bus routes should be designed to a minimum width of 6m, with a 150mm kerb face, dependent on location. They should be designed to a suitable alignment and strength for the purpose.
- 1.5.3 On larger scale housing developments it may be necessary, in order to ensure good penetration of bus services, to have routes through the site. Steps may have to be taken, however, to avoid routes which are attractive to general through traffic. Guidance on the construction of such links will be given by the LHA's officers.
- 1.5.4 Large housing developments should be phased in such a way that bus services can be introduced at an early stage. This may require the construction of special turning arrangements of a temporary nature. Where houses are occupied prior to adoption of the roads the LHA will require the operation of bus services to be permitted as soon as possible. In practice this may mean running buses on carriageways where the wearing course has not yet been laid. However, for bus services to new developments to become viable it is essential that they are established at the earliest possible stage in development.
- 1.5.5 In some cases sections of highway may need to be constructed for the sole use of buses and emergency services. It is usual in such circumstances to install some form of mechanical bus gate which helps to support a Traffic Regulation Order (TRO) which prohibits use by other vehicles.
- 1.5.6 Where a bus gate divides different areas of housing on a new development, or is installed between new development and existing development, the bus gate should be installed prior to the occupation of the new houses, so that the residents are aware of the bus gate and its associated TRO from their first occupancy on the development.

1.6 HIGHWAYS AGREEMENTS

- 1.6.1 The developer will enter into agreements for the adoption of new highway, or works on the existing highway. These Agreements include provision for the Council to be indemnified should the works not be completed. A deposit and a Bond (secured from an approved Surety) will be required for all Agreements. The Council's costs in examining the design, drawings, calculations, preparing the Agreement, etc; will be payable by the Developer.

On-site Highway Works

- 1.6.2 It is usual for a developer to enter an Agreement under Section 38 of the Highways Act 1980, in respect of those highways within a development which they want to be adopted as highways maintainable at the public expense, and which the LHA are prepared to adopt. The LHA has its own forms of Standard Section 38 Agreement for such use.

Advance Payment Code

- 1.6.3 The LHA will serve notices under the Advance Payments Code of the Highways Act 1980. The developer/owner shall pay or secure any sum notified, before building work commences. By entering an adoption Agreement the developer would have any sum paid returned, or would no longer be subject to securing such a sum.

Off-site Highway Works

- 1.6.4 Where off-site highway works are required by the LHA the developer will enter an Agreement under Section 106 of the Town and Country Planning Act 1990 for their provision. An Agreement under Section 278 of the Highways Act 1980 will be required before such works can commence. The LHA has its own form of Standard Section 278 Agreement for such use.

Changes to an Existing Highway

- 1.6.5 Where works involve a change to an existing Highway, for example a new junction, the developer will usually have to enter a Section 278 Agreement. In some cases this can be combined with a Section 38 Agreement to include the onsite works. No works can be carried out on the existing highway before the Agreement is completed and the requisite Notices served on the Traffic Manager. The LHA has its own form of Standard Section 278 Agreement for such use.

Commuted Sums

1.6.6 Where Developer's make use of the LHA's standard materials and designs there will usually be no requirement for the payment of commuted sums to cover future maintenance.

However, there will be some exceptions when the LHA will expect the payment of commuted sums, for example:

- Highway structures
- Trees planted within the highway
- Areas of highway additional to that required for normal use
- Non-standard materials
- Section 278 Works; additional contributions towards the maintenance of the additional areas of highway to be adopted. Both during the maintenance period and following adoption.

Further information can be found in this guide and the Streetscene SPD.

1.7 TRAFFIC MANAGEMENT ACT

- 1.7.1 Any works proposed to be carried out on the existing highway shall be notified to the Council's Traffic Manager in accordance with the New Roads and Street Works Act (NRSWA) and Traffic Management Act TMA). If works are likely to cause significant disruption and/or require traffic management measures, then early discussions with the Traffic Manager should take place before submitting any Notice.
- 1.7.2 It is important for developers to realise that entering an agreement or licence under the Highways Act, or the giving of notice under the NRSWA and TMA, for the carrying out of works on the existing highway, does not give permission for works to commence. The requirements of all Acts must be satisfied before works are commenced.

1.8 ADOPTION OF HIGHWAYS

Adoptable Highway and Structures

- 1.8.1 Highways and structures which the LHA will normally adopt include carriageways, footways, main footpaths, cycleways, verges and highway structures such as bridges, culverts and retaining walls which are constructed in accordance with the appropriate standards and are for the use of the general public. The process of adoption is regulated by an agreement under Section 38 of the Highway Act 1980.

Parking

- 1.8.2 Vehicle parking spaces for residents should be located off the adoptable highway. The LHA recognises that visitor parking spaces within a development should be accessible to the general public. This can be provided as a mix of both on-street and off-street parking evenly distributed throughout the development.
- 1.8.3 A maximum of up to 50% of the proposed visitor parking provision (currently 1 space per 5 dwellings) may be adopted as part of the highway depending upon the proposed layout. Any such spaces shall be constructed to allow for disabled parking.

Sight Lines

- 1.8.3 Full information on the application of sight lines for residential development within any new highway is given within MfS and the SPD.
- 1.8.4 Full information on the application of sight lines for industrial, commercial or retail development is given in Appendix E.

1.9 PRIVATE DEVELOPMENT AND THE ADVANCE PAYMENT CODE

- 1.9.1 Private developments should normally be in the form of a cul-de-sac. Layouts should try to avoid private ‘through’ routes as they are more likely to be used by the general public, possibly adding to the liabilities and future problems for residents.
- 1.9.2 For developments of six or more dwellings, developers/applicants should remember the implications both for themselves and house purchasers if the LHA do not adopt the roads, for example:
- Future maintenance liabilities;
 - Public liabilities;
 - Street cleansing and refuse collection;
 - Lack of specific pedestrian facilities;
 - Lack of or poor standard of lighting, drainage and so on;
 - The LHA have limited powers under the Highways Act; and
 - The police have no powers to remove obstructions.
- 1.9.3 Poorly-maintained private areas can also detract from the quality and appearance of a development.
- 1.9.4 For private developments of six dwellings or more (excluding blocks of flats), the LHA will normally serve a Notice on the Developer with an assessment of the cost of the proposed street works under the Advance Payments Code (APC), to protect frontagers’ interests.
- 1.9.5 The Developer should construct the works to an appropriate standard. However, because a Notice under the APC has been served and money has been paid or retained, the LHA are not indicating any future intention to adopt and maintain the street works at public expense.
- 1.9.6 If the develop/applicant clearly indicates that the development roads are to be private, the LHA may also require them:
- To deposit a map under Section 31 (6) of the Highways Act 1980 identifying the roads which are to remain private (and any to be adopted too as appropriate);
 - To erect road signs indicating that the roads are unadopted and to maintain the signs for as long as the roads remain unadopted, all at their expense;
 - To provide evidence that they have made clear to potential purchasers of the dwellings on unadopted roads what the status of the road will mean to them in practice;
 - Evidence that they have secured future maintenance of the roads, for example, a unilateral undertaking by them under Section 106 of the Town and Country Planning Act to set up a maintenance company;

- To indemnify the LHA against future petitioning by residents to adopt their road under Section 37 of the Highways Act 1980, where the road joins together two adopted highways¹; and
- To clearly mark the boundary between the private road and the publicly-maintained highway by a concrete or granite edging, boundary markers or similar.

¹ Note: The indemnity should normally be a legal covenant placed on the properties to prevent petitioning. The LHA must approve the wording of the covenant.

1.10 NAMING AND NUMBERING

- 1.10.1 Developers should note that street naming and numbering is the responsibility of the Council. Advice will usually be given during the planning process if the proposed layout could lead to naming and numbering problems.
- 1.10.2 The provision and erection of street nameplates will be a requirement of the Council, whether the development is private, or to be adopted under a Section 38 Agreement.
- 1.10.3 The design, number and locations of street nameplates will be notified to the developer. The LHA has a standard specification for nameplates, these can be found in the standard detail drawings.

1.11 HIGHWAY STRUCTURES

- 1.11.1 The LHA is responsible for the approval of all structures which are constructed over, under or adjacent to all public highways (Section 167 of the Highways Act 1980) and potentially adoptable highways.
- 1.11.2 Approval is required for all types of structure including bridges, culverts, retaining walls, gantries, support structures for pipes and conveyors, scaffolding, buildings which overhang the highway and temporary structures.
- 1.11.3 Approval extends to all highway structures whether they remain in private ownership or are adopted and subsequently maintained by the Council.
- 1.11.4 The LHA will also approve the form of construction and suitability of materials used on structures which are to be adopted and maintained by it. The LHA will normally adopt all structures which are a necessary feature of the public highway such as bridges supporting the road, retaining walls supporting the road, sign gantries and drainage culverts. Structures which would not be adopted (but would still be subject to approval) include private overbridges and retaining walls supporting adjacent development.
- 1.11.5 Those structures which will not be adopted may need a licence from the LHA in addition to approval.
- 1.11.6 All structures should be designed and detailed in accordance with the current Department for Transport standards and/or relevant British and European Standards. The calculations are not checked but instead a certificate of compliance should be submitted, signed by a competent person, normally a Chartered Structural Engineer.
- 1.11.7 They shall be constructed in accordance with the LHA's standard detail drawings, relevant Standards, Codes of Practice and the Department for Transport Specification for Highway Works as appropriate.
- 1.11.8 Other structures which require approval, such as buildings gantries and scaffolding, should be designed in accordance with appropriate Codes of Practice, British Standards and design manuals as appropriate and agreed with the LHA.
- 1.11.9 The cost of approval, inspection and the issuing of licences for structures (adoptable or private) will be charged to the Developer. In most cases a commuted sum will be required to cover the cost of maintenance for any structures adopted by the LHA.

1.12 DIVERSION AND STOPPING UP OF HIGHWAYS AND PUBLIC RIGHTS OF WAY

- 1.12.1 It is very important that the effect of a development on the existing highway network is considered at the outset of development.
- 1.12.2 The LPA and LHA have powers under the Town and Country Planning Act and Highways Act to make Orders to permanently stop up and divert highways. In addition, the LHA has powers under the Road Traffic Regulation Act to temporarily stop up or divert highways to allow works to be carried out. Discussions should be entered into at an early stage to ascertain the most appropriate orders to use.
- 1.12.3 It should be noted however, that any order making is subject to public notification and allows for objections to be received and determined. If necessary a public enquiry may be held before an Inspector. The Confirmation of an Order cannot be guaranteed.
- 1.12.4 Failure to obtain the authorisation to stop up or divert a highway or public right of way, where this is an essential element of the development could prevent works proceeding even though planning permission has been granted.
- 1.12.5 The setting up and maintenance of a highway diversion is the responsibility of the developer. The cost of making Orders is chargeable to the developer.

1.13 INDUSTRIAL, COMMERCIAL AND RETAIL DEVELOPMENTS & PUBLIC TRANSPORT INTERCHANGES

General

1.13.1 These types of development include the following;

- a) industrial trading estates
- b) science parks
- c) 'out of town' shopping centres
- d) exhibition centres/theme parks/sports centres and stadia
- e) lorry parks/transshipment depots
- f) bus and railway stations

Adoption

1.13.2 These forms of development fall outside the guidance contained within Manual for Streets, however, they may be provided alongside or as part of a residential development. The LHA may consider adoption of the entrance(s) to such development or in some cases, adoption of the highways within such development.

1.13.3 It is essential that early discussions take place between the Developer and the LHA and Local Planning Authority at the planning stage of any proposed development.

Design

1.13.4 The roads serving industrial, commercial and retail developments are generally divided into Access roads and Service roads.

- a) Access roads are designed to accommodate traffic flows containing less than 250 commercial vehicle trips per day and provide direct access to units of development.

Turning movements shall be provided for by a road loop or a turning head as shown in Appendix D.

Access roads may be considered for adoption by the LHA.

- b) Service roads are designed to accommodate traffic flows containing less than 50 commercial vehicle trips per day (i.e. possibly equivalent to about 15,000 m² gross floor area).

Turning movements shall be provided for by a road loop or a turning head as shown in Appendix D.

Service roads are not usually considered for adoption by the LHA.

- c) Road widths etc; are shown in appendix E.
- d) All land within sight lines is to be included within the public highway.
- e) Visibility must be available on a line between two points 1.05m above the carriageway level.
- f) Care must be taken in placing signs and street furniture within visibility splays to ensure that they do not obstruct visibility.
- g) Trees and plants within visibility splays will only be permitted with the specific approval of the LHA.

1.13.5 Roads serving other forms of development such as sports stadia, bus and railway stations will need to specially designed taking into account the type and scale of use, access points, etc.

SECTION TWO

2.0 GUIDANCE

- 2.0.1 Road width, alignment, drainage, lighting, etc; for residential roads should comply generally with the guidance in the LHA Standard Details drawings, the Design Manual for Roads and bridges, the Manuals for Streets and as set out below.
- 2.0.2 A Developer may employ an Architect or Contractor to act as his Agent for the purposes of designing and/or constructing the proposed adoptable works. The developer shall inform the LHA as to the extent of the Agent's responsibilities.
- 2.0.3 It is advised however, that the Developer employs highway/transport consultants who are familiar with these standards for the design of the highways.
- 2.0.4 If any works are required to be carried out on the existing highway, e.g. formation of a new access, etc; then an Agreement under Section 278 or in some circumstances, a Licence under Section 171, of the Highways Act will be required.
- 2.0.5 Details of the Developer's proposed contractor shall be sent to the Director of Environment, Culture and Communities for approval at an early stage. If necessary, references will be sought for works previously carried out by the contractor on the public highway.
- 2.0.6 If the references for the Section 278 or Section 171 Licence works are unsatisfactory, or the proposed contractor is inexperienced in such works, then the LHA may instead carry out the design and construction of the works on the public highway, and recover the full costs incurred from the Developer.
- 2.0.7 Under the terms of the Agreement under Section 38 or 278 of the Highway Act 1980, when the Works are all satisfactorily completed they are placed onto maintenance at the Developer's expense.
- 2.0.8 The minimum period of maintenance is one year. However, there are circumstances when this period will be extended:
- a) if the Agreement contains areas of landscaping (other than grass) the minimum period of maintenance will be two years.
 - b) if the highway drains to sewers which are to be adopted by Thames Water Utilities Limited under a Section 104 Agreement, the highway will remain on maintenance until the sewers are adopted.
 - c) if the highway connects to the existing public highway via another highway which is itself subject to an adoption Agreement, the maintenance period will be extended until the intervening highway is either adopted or dedicated to the public.

- d) if the highway is subject to construction traffic which will continue through and beyond the usual one year maintenance period, then the period will be extended until such time as, in the opinion of the LHA, the construction traffic has ceased.
- e) if any of the material used in the construction of the Works does not meet the specification (but does not warrant complete replacement due to marginal failure), the maintenance period may be extended to ensure that the material is fit for purpose or does not fail prematurely.
- f) if the Agreement includes the provision of a mechanical bus gate, the Developer shall pay for a 5 year Agreement with the bus gate manufacturer which covers the cost of all parts and labour in servicing and maintaining the bus gate. Such Agreement to commence upon issue of the Final Certificate of Completion.

2.1 MATERIALS

- 2.1.1 The LHA has standard materials and lighting columns which should be used to construct various types of residential street. A list of these materials are detailed in Appendix G, and the lighting columns in Section 2.8. A Developer should base their planning application on this list of materials.

In some circumstances it may be possible to change the materials used, for example if a feature square is proposed within a residential development, or for use outside retail premises, etc; in these circumstances early discussions should be held with the LHA regarding the suitability of the proposed materials and their acceptability for adoption.

The proposed use of materials which depart from those in Appendix G, will incur the payment of a commuted sum for their future maintenance.

2.2 CARRIAGEWAYS, CYCLEWAYS, FOOTWAYS AND FOOTPATHS

- 2.2.1 Where appropriate, proposals should demonstrate whether the design of the road widths are adequate for the type and flow of traffic they would be expected to accommodate. In order for the LHA to consider the acceptability of such proposals, both preliminary and detailed designs must include vehicle tracking assessments that provide an analysis of the swept paths.
- 2.2.2 The LHA will expect large scale development to consider the need for emergency access, and the promotion of access to travel modes other than the private car; e.g. buses, cyclists and pedestrians. In this respect some smaller developments may also require more than one point of access. Proposals will be considered on a case by case basis.
- 2.2.3 In order to provide adequate access for the types of vehicles likely to use the public highway (including emergency vehicles) and services, the roads proposed for adoption should generally accord with the requirements of MfS and the Streetscene SPD, however, notwithstanding the guidance in those documents, the LHA has minimum criteria which it will apply to adoption of highway. These criteria are set out in the appendices.
- 2.2.4 Roads likely to be used as bus routes should, in addition to being constructed to the criteria referred to above, have any bends designed to allow for a bus to pass a car with adequate clearance. To allow a bus to pass another bus or commercial vehicle, adequate forward visibility shall be provided to enable the drivers to be able to pass on a straight section of road.
- 2.2.5 Likewise main residential roads should have bends designed in the same way, but in this case the passing vehicles shall be a refuse vehicle and a car.
- 2.2.6 The LHA will not usually consider the adoption of highways with a carriageway less than 4.8m in width except for short sections, e.g. in areas of traffic calming when the minimum width should be 3.7m.
- 2.2.7 Only in exceptional circumstances, or where main pedestrian and/or cycle links are desirable, will paths divorced from roads be adopted. In such cases the minimum width shall be 2 metres and in cases of larger estates this may need to be increased to 2.5 metres for footpaths, and 3m for cycle paths. Such links must be provided with street lighting and highway drainage in accordance with the LHA's requirements.
- 2.2.8 In general, footways will be returned around the head of any cul-de-sacs. Where, however, special circumstances apply, and there is no overriding requirement for footway continuity, a verge of not less than 2 metres width may be accepted.
- 2.2.9 At all road junctions with footways, the kerbing shall be dropped over a length of two kerbs (1.8m) (plus two ramped kerbs), to facilitate crossing at these points. Tactile paving will only be required on main routes.

- 2.2.10 Adequate drainage provision shall be made to prevent highway water entering private land and likewise from private land onto the highway. Footway back edging will not be permitted to drop at drive crossings. The full 125/175mm between channel and back of footway must be maintained. The face at dropped kerbs should be 25mm wherever tactile paving is not required.
- 2.2.11 Examples of traffic calming features are shown in the Standard Details. If site specific designs are required they will be approved on a case by case basis.
- 2.2.12 Turning heads will be needed where no through route is provided or adjacent to facilities which will stop vehicle movement, i.e. bus gates; suitable designs are shown in Appendix D. The turning head may be of amorphous or irregular shape but must be of adequate size to make possible the vehicle turning movements allowed for in the designs referred to above.

2.3 SHARED SURFACE ROADS

Accessways

- 2.3.1 An accessway is a street which does not have a separate carriageway and footways. Instead all road users share the same surface. In general design terms, the accessway will consist of a 4.8m wide shared surface with 2m wide verges on either side. The verges are set at 2m width to provide an appropriate gradient for the pedestrian access to adjacent properties, together with radius kerbs, vehicle manoeuvring space for access to driveways and space for services.
- 2.3.2 The entrance to a shared surface road will normally use a rumble strip or ramp to indicate that the motorist is entering a shared road and could encounter pedestrians as well as cyclists. The rumble strip or ramp shall be constructed in accordance with the BFC Standard Details. The adjoining road footways shall extend beyond the rumble strips or ramp to provide access for pedestrians and wheelchair users. The type and location shall be agreed with the LHA.
- 2.3.3 No separate footways shall be provided as the areas are for shared pedestrian and vehicular use, but a continuous hydraulically pressed exposed aggregate edging shall mark the compulsory 2m verges around shared surface roads.
- 2.3.4 The finish to shared surface roads shall be of a contrasting colour. Usually concrete block paving or, red Asphalt Concrete surface course if approved by the LPA and LHA.
- 2.3.5 The road shall be edged with hydraulically pressed exposed aggregate kerbs laid so as to provide a 125mm minimum finished kerb face. Driveways shall be formed using 2m radius kerbs. Pedestrian access points to properties shall be formed using quadrants. In some circumstances it may be appropriate to use block paving for the “carriageway” and asphaltic concrete for the driveways or pedestrian accesses (or vice versa), in these cases a channel block would be used to provide restraint to the two types of surfacing material.
- 2.3.6 Highway verges will normally be planted with low maintenance shrubs, or with grass when approved by the LHA. Any adoption would include an extended maintenance period for the plants and the possible payment of commuted sums for their maintenance following adoption.

Mews

- 2.3.7 Mews require careful design to ensure that they function adequately as public highway. In general design terms, the street will have properties and garages fronting directly onto the shared surface. The shared surface must accommodate many competing elements within its overall width: space is needed for pedestrians, cyclists, vehicles, services, drainage and landscaping. Parking for vehicles must be sufficient to ensure that access can be maintained for access, deliveries, emergency vehicles, etc;

- 2.3.8 In general, Mews will be surfaced using concrete block paving. Standard PCC kerbs are not usually used. In order to provide resilience to surface water flooding and to denote the nominal “running surface”, a concrete block kerb can be utilised together with dished central drainage.
- 2.3.9 Driveways are not usually provided, so the adoptable section of the street will need to have a minimum width of 6m to provide access to garages. This minimum width will also allow for a single adoptable sewer (3m easement/access on either side of the sewer line). In addition to the 6m width, structures should be set back 0.5m from the adoptable highway boundary to allow for doors and windows to open, downpipes, overhanging porches, sills, etc;
- 2.3.10 The minimum 6m width of adoptable highway would have a running surface for vehicles of 4.8m with two 0.6m wide margins at either side. These margins may be raised above the central area to denote service margins, provide space for lighting columns, chambers for services, etc; The margins will be paved in a different colour block to the running surface, or may have a different laying pattern or block size instead.
- 2.3.11 The 0.6m margins are unique to a Mews and cannot be used on other designs of street. However, if two adoptable sewers are to be laid in the Mews, a width of 7.5m would usually be required for two sewers, i.e. a 1.5m separation between the sewers to allow for the construction of manholes, and two 3m easements on either side for future access. The Sewerage Undertaker may allow services to encroach into their easement and the utility companies may allow their services to be laid in the private frontage, this would allow for a narrower running surface. Early discussions must be held with the LHA, Sewage Undertaker and Utility companies if this approach is proposed.
- 2.3.12 Any increase in the overall adoptable surface will be the subject of approval by the LHA, to ensure that the additional width does not become an area used for parking, to the detriment of the overall streetscene, access for road users, deliveries, etc;
- 2.3.13 If the Mews is not a through route the maximum length of adoptable carriageway shall be 20m unless an adoptable turning facility is provided.
- 2.3.14 As the Mews is a shared surface, an entry feature will be required if access is gained from a carriageway. This will usually be in the form of a rumble strip or a change in surfacing material. The adjoining road footways shall extend beyond the rumble strip to provide access for pedestrians and wheelchair users. The type and location shall be agreed with the LHA.

2.4 GENERAL DESIGN AND CONSTRUCTION

- 2.4.1 Sight-lines that would only include small areas outside of the 2m margin, should have such areas included within the adjacent verge or footway as appropriate.
- 2.4.2 Individual garage drives from roads shall provide for a minimum width of four dropped kerbs (3.6m) for a single drive and seven (6.3m) for a double. Where drives are close together dropped kerbs shall be continued along the whole length if there is insufficient width to provide two kerbs (1.8m) between the tops of ramped kerbs.
- 2.4.3 Parking courts and assigned spaces will not be adopted. Up to 10% of the proposed visitor parking provision may be adopted as part of the highway depending upon the proposed layout.
- 2.4.4 Whilst kerbs, edgings and brickwork should be laid in accordance with the approved longitudinal sections, it may be necessary to introduce a "roll-over or roll-under" to avoid sharp peaks or dips. Such changes should be agreed on site with the Inspector prior to laying such materials.
- 2.4.5 Surface water run-off from private property should not be allowed to drain onto the adoptable highway. Suitable means of intercepting such run-off will be required. (Section 163, Highways Act 1980).
- 2.4.6 When required by the LHA, manhole covers and if necessary, brick shafts, are not to bedded or constructed until after the road base material has been laid.
- 2.4.7 Unless the surface course is to be laid as part of the same operation of laying the binder course, then all ironwork is to be laid flush with the binder course, or roadbase for block paved roads. The ironwork shall be raised to final level just prior to final surfacing.
- 2.4.8 If the carriageway is to be constructed using block paving, and the blocks are not to be laid immediately following the laying of the roadbase, there will be a large disparity between the finished levels of the carriageway and the interim level of the sub-base. This level difference can lead to drainage problems and damage to kerbing, etc; in such circumstances either temporary drainage works or a sacrificial layer of temporary material will be required before the blocks are laid.
- 2.4.9 In-situ CBR tests will be required (at the Developer's expense) to be carried out on site at the proposed formation levels, in order to determine the amount of capping layer/sub base material required. The LHA shall be given adequate notice and shall be present when testing takes place.

Dropped Kerbs

- 2.4.10 The upstand of dropped kerbs used for driveways should be a maximum of 25mm. At other locations dropped kerbs should be laid flush with no upstand. Where the dropped kerb is on the main pedestrian desire line, tactile paving will be required. However, where a dropped kerb can be off-set from a junction it is Council policy that tactile paving will not normally be required.

Crossfalls and Gradients

- 2.4.11 Carriageways - The standard crossfall is 2.5%. This would normally be applied from the crown. It may be necessary to consider removing adverse camber on bends on roads, although, provided speeds are maintained at a maximum of 20mph, this should not normally be needed. The maximum gradient should not be steeper than 5% (to allow for pedestrian access).
- 2.4.12 Footways & Cycleways - Shall usually have a crossfall of 2.5% and a gradient not exceeding 5%.
- 2.4.13 Verges - The standard crossfall of verges shall be level when planted and 2.5% when grassed. Cutting slopes and embankment slopes exceeding 2 metres in height are to be geotechnically designed to ensure their long term stability. For heights less than 2 metres, cutting slopes shall be 33% and embankment slopes a maximum 50% unless there are other design or environmental considerations, for example; if the embankment is planted or the material proposed is unsuitable to be used at such gradients.

Clearance from the highway

- 2.4.14 Horizontal - The clearance between the edge of the carriageway and any structure, sign or any other obstruction, should normally be a minimum of 450mm.
Vertical - The minimum headroom below bridges and buildings on all purpose roads is 5.3m. The minimum headroom under footbridges and gantries is 5.7m. The clearance for road signs above footways and footpaths shall be 2.1m and 2.4m on cycle routes.
- 2.4.15 Any proposal to build over an existing or proposed highway should be discussed at early stage with the LHA.

Sight lines

- 2.4.16 See Streetscene SPD for residential streets and Appendix E for other areas.

Bus routes

- 2.4.17 Usually BS PCC BN kerbs 305 x 150mm are used with a kerbface of 150mm. It should be noted that the range of kerbs to the relevant British Standard is limited, in particular, the range does not include taper, dropped or internal radius kerbs. If the design should require the use of such kerbs the equivalent BS PCC BN 250 x 125mm kerb should be used.
- 2.4.18 In some circumstances paved areas and/or bus shelters will be required at bus stops. The design and siting of such facilities should be discussed with the LHA. In addition, raised kerbs for bus stops may be required, i.e. "Kassel" type kerbs.
- 2.4.19 If a bus gate is to be installed, the developer should seek early discussions with the LHA on such proposals. Any mechanical bus gate installation will need to be supported by a maintenance contract, covering the first five years of use following adoption by the Council.

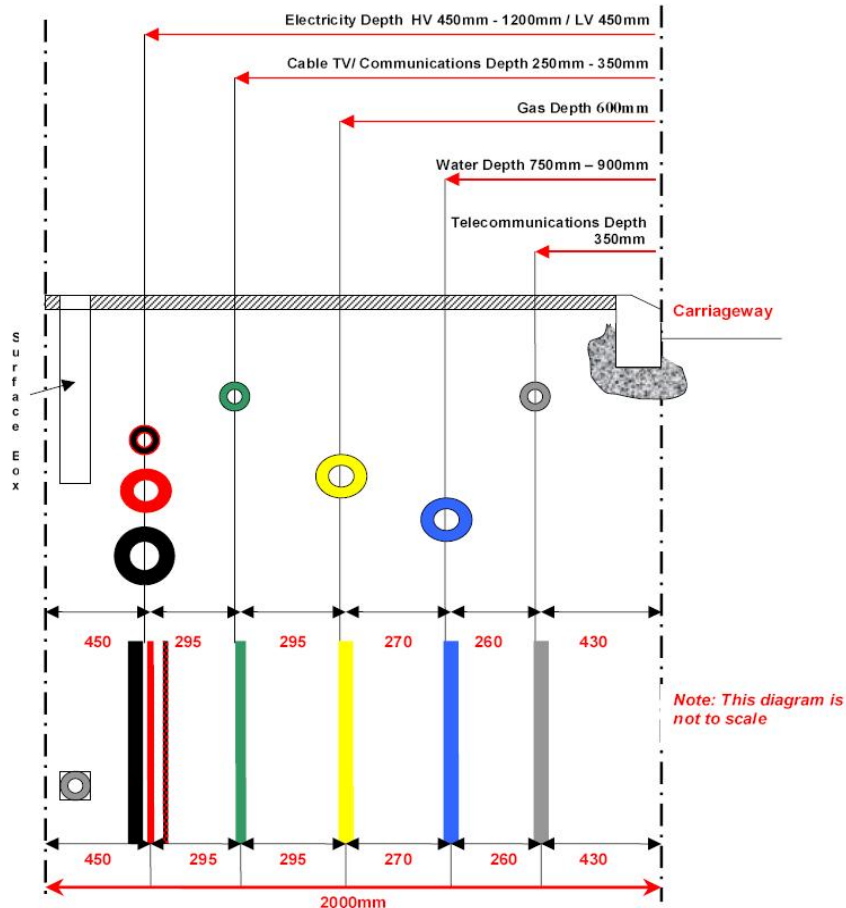
Reinstatement and Final surfacing

- 2.4.20 If any section of adoptable highway is to be completed with its final surface, an inspection shall be arranged prior to any such work.
- 2.4.21 Any defects in the kerbs, edgings, binder course, basecourse, etc; shall be made good prior to any works being carried out.
- 2.4.22 All street lighting and electrical connections, mains service connections, etc; shall be installed prior to any works being carried out.
- 2.4.23 Any reinstatement of defective material, service trenches, etc; will require the re-laying of a minimum length of 5m of material in respect of roadbase or binder course, and 15m in respect of surface course materials, for the full width of the highway.

2.5 SERVICES – UTILITIES AND PUBLIC SEWERS

General

- 2.5.1 The depths for services shown in the NJUG standard cross section should be considered a minimum to allow for installation of crossovers, overlaying materials, maintenance etc.



- 2.5.2 In addition to the services shown above, the LHA may have its own electricity or signal cables within the service margin. They will usually be laid within orange coloured ducts and occupy the same general area as LV electric cables.
- 2.5.3 Banks and mounds in landscaped areas can cause special problems since the Undertakers prefer their mains to be at a constant depth. Therefore verges should ideally be level with the adjacent kerb in such cases.
- 2.5.4 It is essential that only ground cover plants with limited root systems or grass (when permitted) are planted on top of mains routes and that trees are located so that their roots will not damage mains, nor be damaged themselves during the maintenance of such mains. Root protection barrier systems will be requested when trees are close to or in the adoptable highway.

- 2.5.5 Particular attention must be paid to the location of manhole covers, boxes, gullies, etc., so that they accord with the overall design, particularly at junctions where tactile paving may be used, or in block paved roads and footways, in which case either; purpose made infill covers, or covers with a 150mm deep flange will be appropriate. Each Statutory Undertaker has special requirements which should be considered in the initial design.
- 2.5.6 Sufficient ducts or road crossings should be provided before any flexible bituminous surfacing is laid to an adoptable carriageway. If ducts or crossings are omitted, or the route of a service is changed it will not be permissible to excavate within the newly laid road surface. “No dig” methods of main laying should be employed instead.
- 2.5.7 If the adopted highway or public open space is insufficient for the Undertakers’ apparatus the Developer must provide mains routes with satisfactory easements.

Sewers

- 2.5.8 The Sewerage Undertaker, Thames Water Utilities Limited (TWUL) will require the provision of easements for any sewers proposed for adoption unless they are laid under highway. The details of easements required can be found within the current edition of “Sewers for Adoption” published by WRc (currently 1.5m separation between sewers with an additional 3m on either side of the sewers).
- 2.5.9 No building should be erected within 3m of an adopted or potentially adoptable sewer without the approval of TWUL.
- 2.5.10 There is a presumption against the planting of trees and shrubs within the easement or within 3m of sewers laid under the highway. TWUL should be consulted, together with the LHA, if it is proposed to place services close to the proposed alignment of adoptable sewers.

Electricity

- 2.5.11 On large estates a sub station is likely to be required which must be conveniently sited for access and for cable location. Planning permission is usually required for any structures proposed to house equipment.

Gas

- 2.5.12 It is desirable for a ‘soft area at least 1.8m wide to be provided between the highway and the dwelling to permit the venting of any escaping gas but it is recognised that this will not always be possible. It is therefore essential that Developers should have early discussion with the Gas Undertaker to ascertain their requirements.

Telecommunications

- 2.5.13 It is important that future residents have the ability to access broadband and telecommunication services from more than one provider, as outlined in “Digital Britain – The Final Report – June 2009”. Developers should therefore provide, as a minimum, ducting for both Virgin Media cable and British Telecom services.

Water

- 2.5.14 It is desirable for water mains to be linked to avoid dead ends which can cause discolouration of the water and produce problems in the event of pipe fracture, if the supply is only fed from one direction. Most new development will provide connected streets, however where cul-de-sacs occur, this problem can be solved by laying the mains under footpaths linking cul-de-sacs or as circuits in the footways or verges around cul-de-sacs.
- 2.5.15 Stop taps are required for each dwelling and should preferably be located in a hard surface for ease of location. Where it is necessary to locate several stop taps in close proximity, for example to serve a block of flats, these should be placed together in one inspection chamber.

2.6 LANDSCAPING AND VERGES

- 2.6.1 Adopted verges in addition to footways are not encouraged. No section of highway should be constructed under the canopy of, or within the root zone of, any existing trees unless otherwise agreed by the LHA. Open spaces other than verges and sight-lines will not usually be adopted as highway, but may be taken over by other sections within the Council. Application should be made in the first instance to the LHA.
- 2.6.2 Verges which abut private gardens and which the LHA agrees to adopt will require special attention to ensure that the rights of the LHA and Statutory Undertakers are fully understood by the purchaser of adjacent property. The limits of this verge must be indicated by a continuous marker.
- 2.6.3 Where the verge is grassed, the Developer must ensure that purchasers are made aware that trees, shrubs, walls and fences must not be placed in the verge.
- 2.6.4 If any planting within adoptable highway is allowed it shall be designed and laid generally in accordance with the requirements of Manual of Contract Documents for Highway Works, Volume 1 Specification for Highway Works, Series 3000 (05/01) Landscape and Ecology. Any adoption would include an extended maintenance period for the plants and the payment of commuted sums for their maintenance following adoption.
- 2.6.5 Small areas of planting between accesses (pedestrian or vehicular), shall be omitted and the area surfaced.
- 2.6.6 Triangular or narrow strips of planting should be avoided as the concrete backing to kerbs and edgings stops plants from becoming established. Where such areas cannot be avoided the triangular or narrow strip the area shall be hard surfaced in an appropriate material.
- 2.6.7 Trees located within the adoptable highway (by prior approval of the LHA) shall be:
- A species which is suitable for the proposed location
 - Planted within an approved tree pit or have a suitable root protection system
 - The subject of a Commuted Sum for future maintenance
 - Located in an area free from services which has sufficient space for the tree to grow, without damaging the surrounding highway, services, sewers, etc; A minimum size of 1.8m x 1.8m dependent on species shall be required.
- Trees located in private areas adjacent to the adoptable highway shall have an approved root barrier system installed to prevent damage to the surrounding highway, services, sewers, etc;
- 2.6.8 There is an approved list of plants for use in the adopted highway in appendix B.

2.7 HIGHWAY DRAINAGE

General

- 2.7.1 It is the responsibility of the Developer to make adequate and satisfactory outfall arrangements for the project, it must not be assumed that permission will automatically be granted by the LHA to make connections to the existing highway drainage system in adjacent maintained roads.
- 2.7.2 The LHA will not consider any road for adoption if an adequate highway drainage system to a suitable piped outfall or watercourse cannot be provided. Soakaways will not normally be accepted as a suitable outfall for highway drainage.
- 2.7.3 When the roads in a development are adopted the LHA will be responsible only for those drains carrying surface water from these roads. If roof water, or water from any other sources is introduced, the drain will become a sewer by legal definition and as such will come under the jurisdiction of Thames Water Utilities Limited (TWUL).
- 2.7.4 In such circumstances the Developer must enter into a separate agreement with TWUL to secure the adoption of the sewer(s) in order that it may become a public sewer(s). Adoption of the roads will not take place until this procedure has been completed and the sewer(s) vested with TWUL.

Drainage System Design Criteria

- 2.7.5 The highway drainage system shall be designed to:
1. cater for the runoff from a 1 in 30 year event, without any surcharging of the piped system.
 2. a 1 in 100 year event + 20% climate change without any flooding posing a threat to life or property.
- 2.7.6 In areas of a development where houses are situated at a level below that of the highway surface, adequate precautions need to be taken to ensure that houses are not flooded by water from the highway.
- 2.7.7 The Developer must provide calculations in relation to gully spacing, manhole spacing, pipe sizes and velocity/capacity of pipes to demonstrate the adequacy of the drainage system.

Gully Spacing

- 2.7.8 This is governed by the nature and gradients of the area to be drained but as a general guide line one gully per 200m² of drainage area may be sufficient. Double gullies with independent connections must be provided at all low points and gullies at tangent points on junctions.

Manholes

- 2.7.9 Catchpit manholes shall be provided at all changes in direction, gradient or diameter and at all connection to other pipes, existing or new. Spacing for manholes shall not exceed 90.0m for pipe diameters up to 300mm or 100.0m for pipes larger than this.

Pipe Sizes

- 2.7.10 Pipe sizes shall accord with design calculations but in no case shall they be less than 150mm diameter for connections and 225mm diameter for carrier drains and gradients shall be such as to obtain velocities which lead to self cleansing of the system and will not lead to scouring of the pipework.

Kerb Channels

- 2.7.11 Kerb Channels are recommended when the longitudinal fall on the carriageway is less than 0.67%. Where the longitudinal fall along the kerb channel is less than 0.5% the Developer shall provide 'false' falls to facilitate the passage of water to the gullies. Where false falls are to be provided the kerb face shall not exceed 125 +/- 25mm or 150 +/- 25mm as appropriate.

Gully Connections

- 2.7.12 All gullies shall be connected with individual connections directly to manholes or catchpits wherever possible. If agreed with the LHA that a connection can be made directly to a sewer, then purpose made junctions shall be used. Saddle connections will not be permitted.

2.7.13 **Flood and Water Management Act**

With the introduction of the Act, the design, installation and adoption of highway drainage is subject to change. Revised guidance will be issued in due course.

2.8 STREET LIGHTING

General

2.8.1 The general policy of the LHA is to light developments for safety and security reasons. It is usually a condition of any planning permission for a scheme of external lighting to be submitted for approval by the LPA before development commences.

Design

2.8.2 The LHA does not design the street lighting aspects of a scheme. Developers will therefore need to arrange for an adoptable street lighting scheme to be designed in accordance with the appropriate requirements of BS5489 and in accordance with “Well Lit Highways” – Code of Practice for Highway Lighting Management.

2.8.3 The design should take into account any trees which are existing or are proposed as part of the development. The designer should therefore be supplied with a copy of the landscape design which has been approved by the LPA.

2.8.4 The scheme may need to include a Mayflower monitoring system, with transmitters installed within columns and the addition of a sub-master unit on large developments.

2.8.5 Adoption of lanterns fixed to buildings – see Streetscene SPD.

2.8.6 If the Developer proposes the use of columns and lanterns which do not meet the LHA standard specification, they will be required (subject to LHA approval of the proposal) to pay commuted sums for the future maintenance of the equipment.

2.8.7 Any lighting scheme design submitted should incorporate two copies of:

- a) A plan based upon the approved planning layout showing the position of proposed columns, the orientation of lanterns, specification and position of any existing or proposed trees (to be shown with the full spread of the tree canopy at maturity)
- b) Calculations using an ‘industry standard’ software package such as: Lighting Reality.

Adoption and Inspections

2.8.8 For Section 38 Agreements, all street lights are to have the lamps renewed immediately prior to final adoption. The date of the changeover should be clearly marked within the canopy of the light. If columns have been energised for a period exceeding 2 years in respect of Section 278 Agreements, the lamps shall be renewed as above.

2.8.9 The Developer shall provide all suitable equipment necessary to enable the street lighting installation to be inspected at the maintenance and final adoption inspections.

2.8.10 SPECIFICATION FOR ADOPTABLE LIGHTING COLUMNS

BFC LHA Standard Adoptable Street Lighting	
Residential street	<p>Column: 5m & 6m steel, hot dip galvanised, Corus 'Ash' or similar approved column to BS EN 40-5 2002. 5m & 6m aluminium, Aluminium Lighting Company or similar approved column to BS EN 40-6 2002.</p> <p>Lantern: To BS4533 with polycarbonate bowl, integral gear and NEMA socket (Philips Iridium SGS 252 or similar approved). Asymmetric lantern to be post top mounted with a 5 degree inclination to the horizontal.</p> <p>Lamp: 50 Watt SON-TPP.</p> <p>Lighting Control: Mayflower monitoring node with Nema plug/socket or Oasis 1000 photocell (as required).</p> <p>Isolation Unit: Charles Manufacturing Limited LSI 02 or similar approved.</p>
Remote footpath/cycle track	<p>Column: 5m & 6m steel, hot dip galvanised, 'Abacus' folding/drop down or similar approved column to BS EN 40-5 2002. 5m & 6m aluminium, Aluminium Lighting Company or similar approved folding column to BS EN 40-6 2002.</p> <p>Lantern: To BS4533 with polycarbonate bowl, integral gear and NEMA socket (Philips Iridium SGS 252 or similar approved). Asymmetric lantern to be post top mounted with a 5 degree inclination to the horizontal.</p> <p>Lamp: 50 Watt SON-TPP.</p> <p>Lighting Control: Mayflower monitoring node with Nema plug/socket or Oasis 1000 photocell as required.</p> <p>Isolation Unit: Charles Manufacturing Limited LSI 02 or similar approved.</p>
Residential Areas (Only to be used with specific prior approval of the LHA)	<p>Bollard: D. W. Windsor 'RIGA' with Anodised Louvre no backshield</p> <p>Lamp: 42W PL-T</p> <p>Lighting Control: As determined by the LHA.</p> <p>Isolation Unit: Charles Manufacturing Limited LSI 02 or similar approved.</p> <p>Colour: PAN 7621</p> <p>Reference: RIB A 042P 81 N</p>

2.9 SUBMISSION OF DRAWINGS AND CALCULATIONS

- 2.9.1 Where a Developer wishes to a) have the highways within a development adopted as publicly maintained they will need to enter an Agreement under Section 38 of the Highways Act 1980 or, b) carry out works to the existing highway they will need to enter an Agreement under Section 278 of the Highways Act 1980.
- 2.9.2 The drawings for use in an Agreement should be based upon the approved planning drawings and incorporate all of the elements which will affect the highway, including the approved landscaping.
- 2.9.3 A submission will need to be made for technical approval of the design. Two copies each of the following should be submitted, together with PDF copies on disc or by email :-
- a) layout plan to a scale of 1/500 showing the proposed buildings, roads and sewers for which adoption is being sought. Highway Drainage (*and any potentially adoptable, foul & surface water drainage*) should also be shown. (If the application is for part of a larger estate, a smaller scale plan showing the proposed site within the whole development should also be submitted)
 - b) longitudinal sections of the roads at scales of 1/500 horizontal and 1/100 vertical, showing existing ground levels, proposed finished levels and all gradients and vertical curves. The highway drainage should also be shown with pipe sizes, invert levels and gradients. All levels should be reduced to Ordnance Datum
 - c) cross-sections of the roads at suitable intervals. Cross sections will need to show cutting and embankment levels, and slopes, all of which shall be to the approval of the LHA
 - d) construction details for any elements not contained within the BFC standard detail drawings
 - e) layout drawing showing surface treatments, kerb type, landscape design, street lighting, road signs and markings, etc;
 - f) design calculations for the highway drainage, street lighting and any structures
 - g) Stage 2 RSA together with any designer's comments on the safety auditor's report.
- 2.9.4 Construction detail drawings will not normally be required as all such information is given in this Design Guide and Standard Detail drawings which will be referred to as part of the Agreement (the LHA will however, check construction drawings for compliance with the relevant documents if requested to do so). In some cases, for example works to the existing highway, specific construction details will need to be submitted for approval to cover non-standard methods of construction.
- 2.9.5 In order to determine how the proposed highway elements fit within the development house slab, garage floor and driveway levels should be shown.
- 2.9.6 In addition, where it is proposed to drain the highway to an adoptable sewer, the Water Act Section 104 plan showing highway drainage connections together with the approval letter from TWUL should also be enclosed (if approval has not been received, technical approval for the highway design will not be given until such a plan and letter are forwarded).

- 2.9.7 Before the submission is examined, the drawings and calculations will be checked to see if there is sufficient information provided, then a request will be made for a deposit to be made against the cost of approving the design, together with any additional information deemed necessary. The deposit is currently £1500.00.
- 2.9.8 If planning permission has been granted, the proposals will be considered for adoption. LHA guidance should be sought for the provision of street nameplates, road signing & marking. N.B. proposals will not usually be considered prior to them receiving planning permission, as the layout, etc; may be altered resulting in abortive work for the LHA.

2.10 TECHNICAL APPROVAL

- 2.10.1 When all the submitted drawings and calculations are acceptable, technical approval will be given. An application form will then be sent to the Developer or his nominated Agent together with details of the required surety, fees, drawing numbers, etc;
Upon receipt of the formal application, the Council's solicitor will be instructed to draw up the appropriate Adoption Agreement.
- 2.10.2 It is most important that no work is commenced until the formal Agreement has been signed, all inspection fees paid in full and all Notice Periods under the Traffic Management Act have been served (for work on the existing highway).
- 2.10.3 At least seven days written notice must be given of the proposed start on roads or highway drainage. The Inspection regime should be followed for all other notices.
- 2.10.4 Please note that the Developer under the Agreement shall be responsible for ensuring that works are constructed to an adoptable standard and in accordance with the approved drawings. Such responsibility cannot be passed onto a contractor unless the LHA has been informed that they act as Agent for the Developer.
- 2.10.5 The LHA will not enter into any correspondence with the Developer's contractor, unless they have been informed that they act as Agent for the Developer.

2.11 INSPECTION AND ADOPTION PROCESS

Inspections

- 2.11.1 Certain critical operations must be inspected, and the Inspector requires two working days notice (i.e. Monday to Friday) in order to arrange his routine. He will not be "on call".
- 2.11.2 The levels of fees restrict inspections to a finite number depending on the size of the project, and therefore extra visits necessitated by the following, will incur additional charges.
- a) Abortive visits
 - b) Re-inspections due to failures of materials
 - c) Re-inspections due to defective workmanship
 - d) Changes in design.
- 2.11.3 Attention is drawn to the appointment of an Agent for the Developer to be constantly on the site. Inspections cannot be carried out unless such representative is available to be advised by, and receive instructions from, the Inspector.
- 2.11.4 If the Developer is not carrying out the construction, 7 days notification will be required giving details of proposed contractors, to enable references to be taken up where necessary.
- 2.11.5 Operations of which you should advise the LHA's staff by two working days notice are: -
- a) Excavation
 - b) CBR tests on proposed formations
 - c) Kerb lines, concrete and/or granite setts, edgings during the course of work and upon completion
 - d) Highway drainage
 - e) Carriageway & Accessway
 - preparation of formation
 - laying of sub-base
 - laying of ducts
 - laying of road base
 - laying of binder course
 - laying of surface course
 - f) Footway, footpath and cycletrack
 - preparation of formation
 - laying of sub-base
 - laying of binder course
 - laying of surface course
 - g) Rumble strips and ramps
 - notice of intention to commence construction upon completion and, before surfacing
 - h) Verges
 - preparation of formation
 - laying and preparation of topsoil
 - laying of grass seed or turves, or planting of shrubs

- i) Trees
Installation of root barrier protection, tree pits and the planting of trees within or adjacent to the highway
- j) Installation of street lighting, road signs, road markings, street nameplates and any other approved street furniture

2.11.6 It is essential that the binder course is laid on completion of the road base, immediately following completion of works to ironwork (manhole/gully covers/frames, etc) where necessary, but it is advisable not to lay the surface course until the whole development is completed. The Inspector will therefore require due notice that the road base course has been cleaned and prepared to receive the binder course and subsequently that the binder course has been cleaned and prepared to receive the surface course. The binder course and the surface course must not be laid without the Inspectors prior approval.

2.11.7 The need for two working days notice must be stressed. No work shall be carried out at weekends without the LHAs prior approval and if such work requires inspection, extra fees will be payable. If any work that the LHA requires to have inspected is covered up without such inspection, the LHA reserves the right to call for the work to be broken out at the Developer's expense to enable inspections to be made and for the work to be relaid if necessary.

Sampling

2.11.8 When required by the Inspector, samples shall be taken of materials to be used for the works and tests undertaken by an independent laboratory to ensure compliance with the relevant specification. The Developer at his own expense shall arrange this and the results sent directly to the LHA.

Works on Existing Highway

2.11.9 Works on the existing public highway shall only be carried out after any Agreements or licences have been obtained/entered into requisite notices served and traffic management measures agreed.

2.11.10 The Council is particularly conscious of environmental issues affecting the residents of the Borough and will take such action as is necessary to afford protection. Care should therefore be taken by the Developer to see that works on and off the site cause the minimum of inconvenience to others. Contamination of existing roads by mud and other detritus should be especially avoided.

Final Inspections

2.11.11 When the works covered by the Section 38 and/or Section 278 Agreements have been completed, together with any other works which the LHA has agreed to adopt, a formal inspection shall take place. Drawings will be requested showing the Works "as constructed". The drawings will also include all of the materials used giving details of the manufacturer, reference numbers, colours, etc;

2.11.12 At pre-Certificate formal inspections, the Developer should be present with labour and plant to lift any drainage covers, gullies, etc and to facilitate examination of the street lighting installations. Failure will result in the meeting being declared abortive and the cost recharged to the Developer.

2.11.13 Whilst every care is taken at the design check stage it is not always possible to foresee all highway requirements at the pre-Agreement stage. The Agreement therefore includes provision for the LHA to require additional works to be carried out any time up to final adoption, but limited in value to 5% of the Bond estimate.

Stage 3 Road Safety Audits

2.11.14 Prior to the works being offered for maintenance and a Provisional Certificate of Completion (P.C.C.) being issued, an independent Stage 3 Safety Audit shall be carried out. If required by the LHA, works shall be carried out to rectify any deficiencies or changes highlighted by the Audit.

Provisional Certificate of Completion for Section 38 Works

2.11.15 When the Section 38 works are completed satisfactorily and approved drawings received, a P.C.C. will be issued. The LHA may declare that the highways are public when the certificate is issued, but maintenance will remain the responsibility of the Developer until the Final Certificate of Completion (F.C.C.) is issued.

Provisional Certificate of Completion for Section 278 Works

2.11.16 When the Section 278 works are completed satisfactorily and approved drawings received, a formal inspection shall take place, together with a CCTV survey of any highway drainage carrier drains. When any works identified are satisfactorily completed and any additional fees paid (to cover additional inspections for abortive work, etc) a Provisional Certificate of Completion (P.C.C.) will be issued. The LHA will declare that the highways are public when the certificate is issued. Routine maintenance will pass to the LHA (having been paid for by a commuted sum payable by the developer). The developer will be responsible for the structure of the works during the maintenance period.

Stage 4 Road Safety Audit

2.11.17 Prior to the works being offered for adoption and a Final Certificate of Completion being issued, an independent Stage 4 Safety Audit shall be carried out. If required by the LHA, works shall be carried out to rectify any deficiencies or changes highlighted by the Audit.

Final Certificate of Completion

2.11.18 At the end of the maintenance period and following adoption of any sewers to which the highway may drain, a formal inspection shall take place, together with a CCTV survey of any highway drainage carrier drains for S.38 works. When any works identified are satisfactorily completed and any additional fees paid (to cover additional inspections for abortive work, etc) a F.C.C. will be issued and the Works will be declared to be Adopted and become maintainable at the public expense (unless carried out at the P.C.C. stage, the declaration will also dedicate the roads to the Public).

2.11.19 When the F.C.C. is issued the Surety will be informed and any Bond required under the Agreement will be released.

SECTION THREE

APPENDICES

Appendix A

Minimum Widths of Adoptable Residential Roads

Table 2 (minimum widths of adoptable residential roads)

Type of Highway	Minimum width of carriageway	Minimum width of footway	Minimum width of verge
Road likely to be used as a bus route	6m	2 x 2m	-
Main residential road	5.5m	2 x 2m	-
Shared surface road	4.8m	-	2 x 2m

Minimum Widths of Adoptable Footway and Cycleway

Table 3 (minimum widths of adoptable footway and cycleway)

Type of Highway	Minimum width of footway/footpath *	Minimum width of cycleway/cyclepath **
Segregated footway/cycleway	2m	2m
Cycleway	-	3m
Shared cycleway/footway	-	3m
Footway/footpath	2m	-

* For trunk footpaths or footways/footpaths serving areas with high pedestrian flows such as schools, shops, etc; the minimum width shall be 3m.

** For cycle facilities alongside roads with a speed limit exceeding 30 mph, a safety margin shall be required which will increase the overall minimum width.

Appendix B

List of plants (when allowed within the adoptable highway)

Planting for highway verges.

Requirements:

- Plants should have a naturally low growing habit (below 600mm) in visibility splays and close to carriageway, footpaths, signs, access to underground services.
- Planting should provide quick establishment of groundcover to minimise bare soil and therefore reduce maintenance.
- Related to above are planting density and size of nursery stock planted. Smaller plants should be planted at higher densities.
- Planting should have year-round benefits. Generally plants should be evergreen or semi-evergreen, or at least with a persistent dense woody structure. Plants that die back to soil level in winter are not suitable.
- Shrubby species and tough evergreen perennials
- A proportion should have value to wildlife, such as sources of pollen, berries, cover, and a contribution to forming wildlife corridors. Not necessarily native, but of recognised value to wildlife, eg, lists of plants approved for BREEAM assessments
- Longevity to avoid replacement costs
- Salt and drought tolerant
- Selected to meet landscape/ecology objectives for each particular location, soil conditions, local landscape character, BFBC landscape strategies
- Readily available nursery stock for initial planting and subsequent replacement if needed due to damage, disease, over-maturity, etc.
- Plant species need to be tolerant of basic pruning techniques

List A

Informal, low level planted in large drifts of one species:

Berberis media 'Parkjuweel'	Barberry
Berberis thunbergii 'Darts Red Lady'	Barberry
Berberis thunbergii 'Green Carpet'	Barberry
Bergenia cordifolia (in moderation)	Elephant's ears
Cotoneaster dammeri and cultivars, 'Skogholm'	Cotoneaster suecicus
Calluna vulgaris native	Ling, acid heath areas only,
Erica cinerea only, native	Heather, acid heath areas
Euonymus fortunei and cultivars	evergreen Spindle, numerous cultivars
Genista Lydia	Broom, low growing
Hebe rakiensis, albicans, pinguifolia	Hebe, numerous low cultivars
Hedera helix 'Hibernica'	groundcover Ivy
Hypericum x moserianum rust)	(H.calycinum susceptible to

Hypericum androsaemum	Tutsan - native St John's Wort
Lonicera pileata	shrubby Honeysuckle
Luzula sylvatica	Greater Woodrush
Pernettya mucronata	acid heath areas only
Prunus laurocerasus 'Low 'n' Green', cvs	groundcover Cherry Laurel
Rubus tricolour	evergreen creeping bramble relative
Stachys lanata 'Silver Carpet'	Lambs Ears
Vinca minor and V. major	Periwinkle

On any one scheme, or phase of a scheme, only a limited selection of species should be used, in large drifts or blocks, typically of 15 to 45 plants of one species. Planting density dependant on species and size of stock, but generally 5 to 9 plants per square metre.

Grass verges particularly apply where the land beyond the back edge of the adoptable verge is grass, and visually it does not make sense to have a strip of planting with grass behind.

Appendix C**FEES & CHARGES (2010/2011)****Requests for Information & Technical Advice (all engineering topics)**

Information & Technical Advice	£75/hour
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Highway Agreements

Fees for Schemes up to £15,000 – minimum charge	£1500
Fees for Schemes over £15,000	10% of value
Initial deposit to process schemes over £15,000	£1500
Surety deposit (cash element of total surety value)	£3000
Formal declarations (outside Section 38)	£1000
Re-inspection rate per hour – minimum charge	£75

Bond Value: 100% of total BFC estimated cost of works

Surety Value: Bond value (less deposit of £3000)

Traffic Regulation Orders

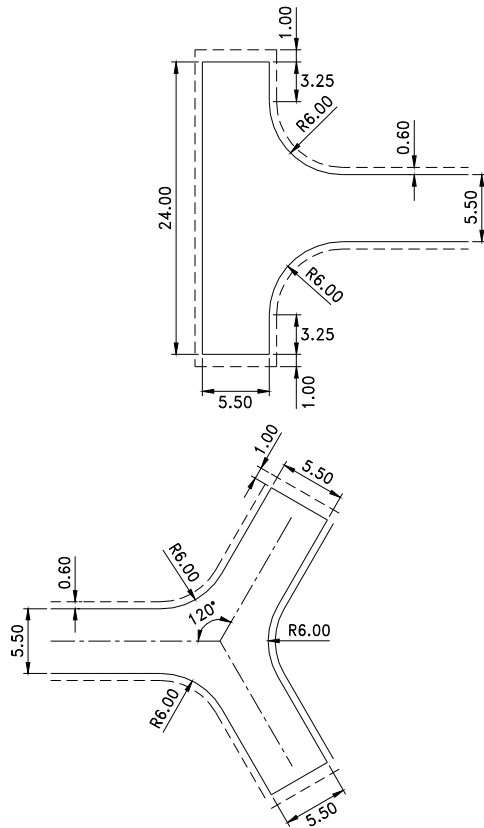
Cost of advertisements + 15%

Commuted Sums

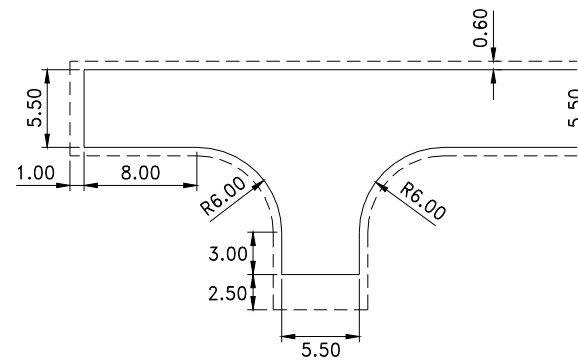
See: Streetscene SPD

Appendix D

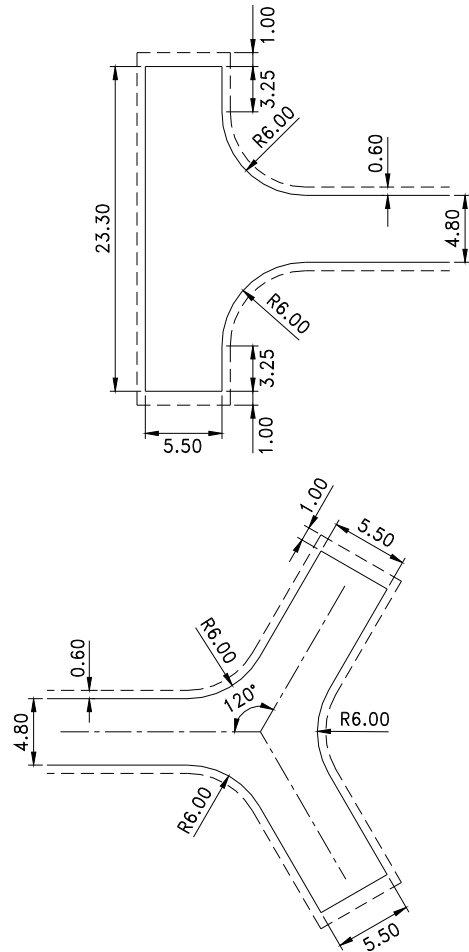
Turning Head Diagrams
Residential Developments



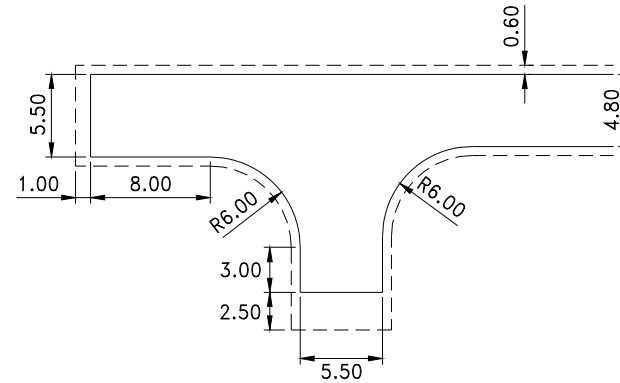
Minimum turning head
Dimensions for 5.5m
Carriageway.



Residential Developments



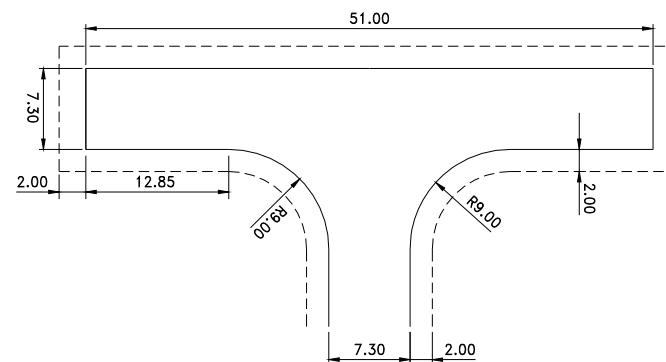
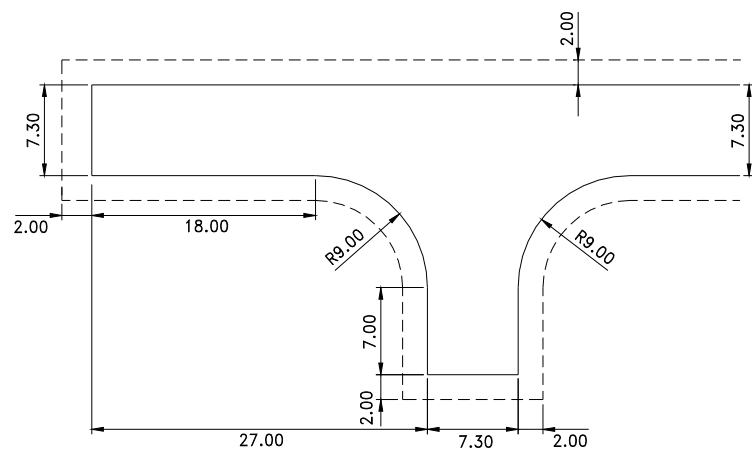
Minimum turning head
Dimensions for 4.8m
Carriageway.



Industrial, Commercial and Retail Developments

In industrial, commercial and retail premises cul-de-sac access should be avoided. Where this cannot be done, turning heads must be provided at the end of each cul-de-sac. The size of the turning head will depend on the type of vehicle likely to use the turning provision on a regular basis.

The minimum dimensions are shown below:



Appendix E

Sight Lines and Junction Designs for Industrial, Commercial and Retail Developments

Table 4 (Industrial, Commercial and Retail access and service road design parameters)

Road Type	Maximum number of units served	Nominal design speed		Carriage-way width m	Footway width m	Horizontal alignment		Vertical alignment			'T' junctions along road type				
		kph	mph			Minimum centre line radius R m	Minimum Sight Distance (forward) m	Minimum curve length (1) m	Maximum Gradient %	Minimum gradient %	Minimum spacing		Kerb radii m	X distance m	Y distance m
											Adjacent m	Opposite m			
Access road	250 commercial vehicle trips/day	50	30	7.3	2.0	90	Refer to MfS2	10K 30	6	0.67	90	40	15 With tapers	3	Refer to MfS2
Service road	50 commercial trips/day	40	25	6.0	2.0	60	Refer to MfS2	6K 30	7	0.67	50	30	12.5	3	Refer to MfS2

Notes: (1) Vertical alignment – 'K' is the algebraic difference between gradients expressed as a percentage

Appendix F

Horizontal & Vertical Alignment and SSD for residential Developments

Road Type	Maximum number of units served	Nominal design speed		Carriage-way width (running surface) m	Margin width m	Horizontal alignment (4)		Vertical alignment			'T' junctions along road type			
		kph	mph			Minimum centre line radius m	Minimum Sight Distance (forward) m	Minimum curve length m	Maximum Gradient %	Minimum gradient %	Minimum spacing		Kerb radii m	X distance m
											Adjacent m	Opposite m		
Major access road	-	48	30	5.5 (2)	2 x 2.0	40	40	30	5	0.67	30	15	7.5	2.4
Minor access road	-	32	20	5.5	2 x 2.0	10	22	30	5	0.67	Scheme by scheme basis following discussion with the LHA		6.0	2.4
Shared surface road	25-50 (1)	32	20	4.8	2 x 2.0	10	22	30	5	0.67			6.0	2.4
Shared surface Mews	25	32	20	4.8 (3)	2 x 0.6	10	22	30	5	0.67			6.0	2.4
Shared drive	5	-	-	4.1	2 x 0.6	-	-	-	8	0.67			2.0	2.0
Individual drive	1	-	-	3.0	-	-	-	-	8	0.67			2.0	2.0

- Notes:
- (1) 25 units for a cul-de-sac, 50 units for a through road
 - (2) 6.0m where the road is likely to be used as a route for bus services
 - (3) Width to allow for a single adoptable sewer (see Section 2.3.10)
 - (4) For roads carrying buses, HGVs, etc; the forward visibility will need to be adjusted

Appendix G

Standard materials adopted by the LHA (Table 1) n.b. Materials shown in brackets will require prior approval of the LHA

BFC LHA Standard Adoptable Materials			
Location or Usage	Material	Location or Usage	Material
Footway, footpath, cycletrack surface	Asphalt concrete (Concrete block paving – grey, buff, brindle where carriageway is block paved)	Kerbing and edgings – Shared Surfaces	Pre Cast Concrete – BS 7263 Exposed aggregate finish (Block kerb or Granite)
Carriageway – Main road	Asphalt concrete	Bollards	Glasdon - Neapolitan - Mini Ensign for cycletrack signage Woodscape timber bollards - Type SG 'R'
Carriageway – Shared surfaces	Concrete block paving – grey, buff, brindle (Red Asphaltic concrete)	Fencing	Timber fencing
Traffic calming features	Concrete block paving – grey, buff, brindle	Railings	Galvanised steel (Powder coated)
Verge	Groundcover planting Appendix B - List A (Grass)	Headwalls	Brick Concrete bagwork
Kerbing and edgings – Main road	Pre Cast Concrete – BS 7263	Tactile paving	Concrete block Buff uncontrolled crossings Red controlled crossings

Standard materials adopted by the LHA (Table 2)

BFC LHA Standard Adoptable Materials for Feature Squares	
Location or usage	Material
Footway/footpath	Concrete blocks or slabs – grey, buff, brindle Individual bands of concrete setts Natural stone Flag paving stones No asphalt
Carriageway	Co-ordinated surfaces with the above materials. Concrete blocks – colour co-ordinated - grey, buff, brindle
Verge	Soft or hard landscaped
Kerbing	As for Table 1
Street furniture	Co-ordinated schemes of furniture, railings and fencing which are easily sourced.

Any queries arising from the use of this Guide should be directed to:

Engineering Projects and Highway Adoptions
Environment, Culture and Communities
Bracknell Forest Council
Time Square
Market Street
Bracknell
RG12 1JD

01344 352000