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North East
Lincolnshire

Highway Design Guide

Designing Safe,
Sustainable &
Inclusive Highways



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1 INTRODUCTION

1.1 Purpose of this Guide

1.1.1 This residential street Design Guide for North East Lincolnshire Council (NELC) is a key element to delivering high quality residential and mixed development environments in the area and should be used in context of other national and local planning or design guidance. The Guide aims to reflect the approach to design as set out in the current 'Manual for Streets' guidance documents and provides specific local guidance to supplement existing national guidance.

1.1.2 The publication is designed to meet the following requirements:

- (a) The definition of highway standards for residential developments covering North East Lincolnshire, including Agency areas; and
- (b) The recommendation from the Department of the Environment that residential road standards should be made generally available to Developers and the general public.

1.1.3 The Design Guide is intended to cover the layout and geometric design for roads in new residential areas and provide guidance on the approach to be adopted where additional residential development is introduced into existing road layouts.

1.1.4 This Design Guide is intended to apply solely to the design and construction of residential road developments. Along with the Manual for Streets (MfS1 & MfS2) it is designed to fill the gap where the Design Manual for Roads and Bridges (DMRB) is not appropriate. Standards for other Improvement Schemes are covered by the DMRB documents. It should be noted that specific local standards are defined, having regard to ongoing monitoring of recent development sites including lessons learned to ensure developments are fit for purpose for future generations, and to minimise potential impact on future maintenance operations.

1.2 Philosophy

1.2.1 The Highway Authority recognise that road types vary in nature according to their use. On Distributor Roads, where movement of traffic takes priority, vehicles are dominant, and pedestrians should be segregated. In contrast, on the roads where we live, the pedestrian and cyclist should be dominant, and the motorist should act accordingly.

1.3 Objectives

1.3.1 The fundamental objective of this document is to help to create a better living environment. The Highway Authority is keen to ensure a seamless approach between highways, planning and place making. The main facets of this objective which concern the Highway Authority are identified as follows:

- To minimise the danger from vehicles to all road users but especially to pedestrians and cyclists. To this end, it is recognised that a residential street is also used for social activities.
- To minimise the environmental impact of the highway in residential areas, i.e., reduction of traffic noise and speed and the visual intrusion of the motor vehicle.
- To ensure that roads, footways and cycleways are in keeping with, and properly integrated into, the overall design of the site.
- To provide for the efficient operation of public transport.
- To provide for the efficient operation of refuse services.
- To ensure that adequate provision is made for emergency service facilities.
- To meet the needs of the public utilities — gas, water, electricity, telephone, and drainage.
- To secure the adoption of all new roads and footpaths except in limited locations where private roads may be acceptable.
- Economic Construction.
- Realistic maintenance liability for the Highway Authority after adoption.
- Shorter negotiations between developers and local authorities.

1.4 Safety

1.4.1 Studies have shown that accidents on residential developments are relatively rare, especially in a cul-de-sac.

1.4.2 Achievement of the safety objective will be met by:

- imposing a road hierarchy.
- limiting the number of homes served by the various categories of roads.
- establishing standards for layout, road widths, junction design, parking arrangements and footway layout.
- prohibiting direct vehicular or pedestrian access from individual dwellings to Local Distributor Roads; and
- aiming to influence driver awareness and consequently the speed at which they drive, by the characteristics built into each type of road.
- Safety audit requirements – a council approved accredited organisation may be required to undertake independent Safety Audits. The timing and need for audits should be discussed with the Council at an early stage. Safety audits are required for all S278 works in accordance with design standards and with GG119 – Road Safety Audit.

1.5 Flexibility

1.5.1 The standards embodied in this document enable a designer to make fuller use of the whole site. Thus, existing site features such as trees and awkward corners can be more readily incorporated into layouts.

1.5.2 The overall size and hence the dominance of roads is reduced, thereby minimizing land requirements and resulting in construction economies.

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- 1.5.3 It must be pointed out that these economies are offset to some extent by additional design costs plus more expensive road materials, service provision and landscaping.
- 1.5.4 A good designer will use this flexibility to enable him to create building groups and forms which will enhance the living environment. This can also result in additional economy of land utilisation.
- 1.5.5 It is recognised that there cannot be a single rigid standard for the layout and construction of all residential roads. In considering the suitability of any development, the Highway Authority's datum can be expressed simply as 'safety to all users of the road and acceptable maintenance costs'.
- 1.5.6 The standards in this Design Guide envisage small groups of dwellings round a cul-de-sac or a Shared Access Way where the status of motorists is subordinated to the needs of pedestrians and cyclists. Traffic emerges from these small groups on to a larger residential road and thence to the Distributor Road where the vehicle is dominant.

2 THE ROAD HIERARCHY

2.1 Distributor Roads

- 2.1.1 The Highway Authority recognise the importance of a designated hierarchy of roads as a means of diverting the longer movements of vehicles onto the roads best fitted to accommodate them and to exclude non-access traffic. The first distinction made in the hierarchy is between 'Distributor' Roads which should be primarily designed to meet the needs of the moving vehicle and 'Access' Roads where the aim should be to give the pedestrian and cyclist much greater freedom of movement and safety and to encourage the development of quiet areas free from through or non-access traffic.
- 2.1.2 The Highway Authority has adopted the three-tier system of Distributor Roads in large urban areas; Primary, District and Local Distributor Roads. This is detailed

below in 2.1.3. The approach must be used with flexibility, particularly in existing towns and villages where the connection of new Access Roads to existing Primary and District Distributor Roads may be difficult to avoid. See section 4.8 on sight distances.

2.1.3 Three categories of Local Distributor Road have been identified covering a variety of conditions.

Table 1 – Categories of Local Distributor Road

	Traffic Flow (Vehicles /day)	30 mph Speed Limit
D.1	-	No
D.2	2000 or more	Yes
D.3	Less than 2000	Yes

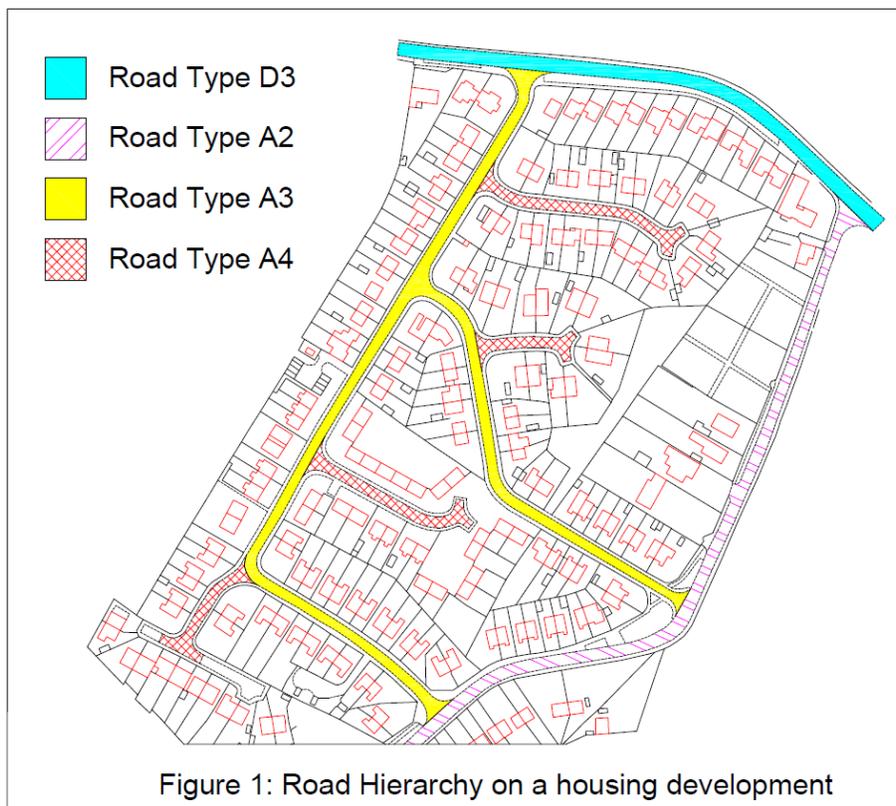
2.1.4 It is unlikely that Developers will be involved in Local Distributor Road construction except in very large-scale developments involving over 500 dwellings. The technical content of this Design Guide has therefore been restricted to Residential Access Roads only and in the case of Local Distributor Roads, the Highway Authority will provide specialist advice in each case. In all such cases, direct access from individual dwellings to the Local Distributor Road is not permitted.

2.1.5 Although there is no clearly defined threshold level of traffic flow which can be regarded as a unique environmental limit, Residential Access Roads should be planned so that traffic flows are restricted to a reasonable minimum. Accordingly, the number of dwellings served by conventional Residential Access Roads is limited to an absolute maximum of 500, subject to the availability of adequate off-street parking facilities and the capacity of the junctions of such Access Roads with the Distributor Road network.

2.2 Residential Access Roads

2.2.1 The layout of Access Roads requires careful design so that the safety and convenience of pedestrians predominate wherever possible over the needs of the moving vehicle. In particular, the layout should be arranged so that the operating speeds of vehicles described in paragraph 2.9 are within the limits set out in the Data Sheets and are never greater than 50 kph (30 m.p.h.). In addition, the network of Access Roads must be designed to discourage non-access traffic. This requirement can be met principally by the avoidance of long, straight sections of road but different solutions will be required depending upon site topography, arrangement of Distributor Roads and the disposition of various land uses.

2.2.2 In view of the variation in traffic generation produced by residential development layouts and the need to provide flexibility in the scale of Access Roads for different housing layouts, various categories of Access Road have been defined, and these are set out below. The hierarchy of the various types of roads is shown diagrammatically in Figure 1.



2.2.3 The limits on the numbers of dwellings should not be regarded as rigid constraints. It has been shown that residential developments generate approximately four vehicle movements per dwelling per 12-hour day, dependent on the characteristics of the development. Accordingly, higher values are permissible on developments which have a low traffic generation such as Local Authority housing sites. Thus, when considering the number of dwellings on A.3 Minor Access Roads and A.4 Shared Access Ways, due account should be taken of the parking requirements appropriate to the type of dwelling. See Chapter 4. However, in all cases, the Highways Authority recognise that vehicle movements should be minimised in residential areas.

3 DATA SHEETS FOR DEFINED LAYOUTS

Technical data on layout standards have been tabulated as data sheets for each category of Access Road, and these should be read in conjunction with the following notes and information printed opposite the data sheets.

Operating speeds have been quoted as a general indication and are not the same as conventional design speeds.

Where ranges of dimensions are given in data sheets, the use of lower limits is intended to assist in the promotion of good planning and architectural standards. Flexibility in standards must not be applied merely to reduce road construction costs.

3.1 Industrial Access Road & D3 Distributor Roads

3.1.1 Industrial Access Roads will by their nature be more intensively focused on vehicular movements than residential areas, given the volume and type of traffic expected to use these streets. It will still be required to assess the likely needs of other street users, and every situation will still be assessed on its own merit. Consideration will be required regarding HGV / cyclist interaction. Direct, safe and

convenient pedestrian / cycle routes should be provided to public transport stops having regard to HGV frequency on industrial roads.

Table 2 – Data Sheet – Industrial Access Road & D3 Distributor roads

Standard	Requirement	Notes
Design speed	25mph	
Carriageway width	7.3m	Widening maybe required on bends or accommodating right turning movements
Footway width	2.0m	Both sides
Minimum forward visibility	33m absolute minimum	
Minimum centre line radius	35m	

FIGURE 2

3.2 Major Access Road A2

3.2.1 Conventional Residential Access Road linked to Local Distributor or other Major Access Road. Include normal footpath provision. Subject to the provision of emergency links as required by the Highway Authority, adequate off-street parking facilities and sufficient capacity being available at the junction with the Local Distributor Road, the maximum number of dwellings served shall not exceed:

1. Through roads – 500 dwellings
2. Cul-de-sac – 250 dwellings

3.2.2 North East Lincolnshire Council Highway Authority accepts up to 150 dwellings from a single access point. Any number of dwellings above this will require a secondary access point.

- 150 – 250 dwellings - An emergency access link will be required.
- Over 250 dwellings - A secondary access will be required.

The cumulative impact of developments served by a single access point, be that on the existing highway network or proposed, will be considered having regard to the dwelling numbers detailed above.

The Highway Authority requires emergency and secondary access points to ensure access to properties can be maintained when a closure of the main access road is required. This may be due to repair of statutory undertakers' underground apparatus, road traffic collision, general highway maintenance, or in the event of an emergency.

One of the main principles promoted by Manual for Streets (MfS) is to create networks of streets that provide permeability and connectivity to main destinations with a choice of routes. The principle is to ensure that new developments enhance the existing movement framework of an area rather than disrupting or severing it. MfS suggests that internal permeability is important but that the area also needs to be properly connected with adjacent street networks because developments with poor links to the surrounding area create enclaves which encourage movement to and from them by car rather than by other modes. MfS recommends that pedestrians and cyclists should share streets with motor traffic as this generally provides a more secure environment than connecting pathways as streets can more easily be designed to be overlooked with active frontages. Connected or permeable networks also lead to a more even spread of motor traffic throughout an area and so avoid the need for distributor roads with no frontage development. Furthermore, the avoidance of cul-de-sacs reduces the concentration of traffic on a smaller number of dwellings, negates the need for turning heads which are wasteful in land terms and lead to additional vehicle travel and emissions, particularly by service vehicles.

3.2.3 The design of the junction between the Major Access Road and the Local Distributor Road providing access to the site will be dependent upon a variety of factors including through flows on the Local Distributor Road, the number of accesses to the site and the likely traffic generation factors particular to the site. It may well be necessary to provide for a greater junction capacity than a simple

'T' junction and Developers will be responsible for this provision. It is anticipated that a simple 'T' junction will normally be sufficient to serve a cul-de-sac development.

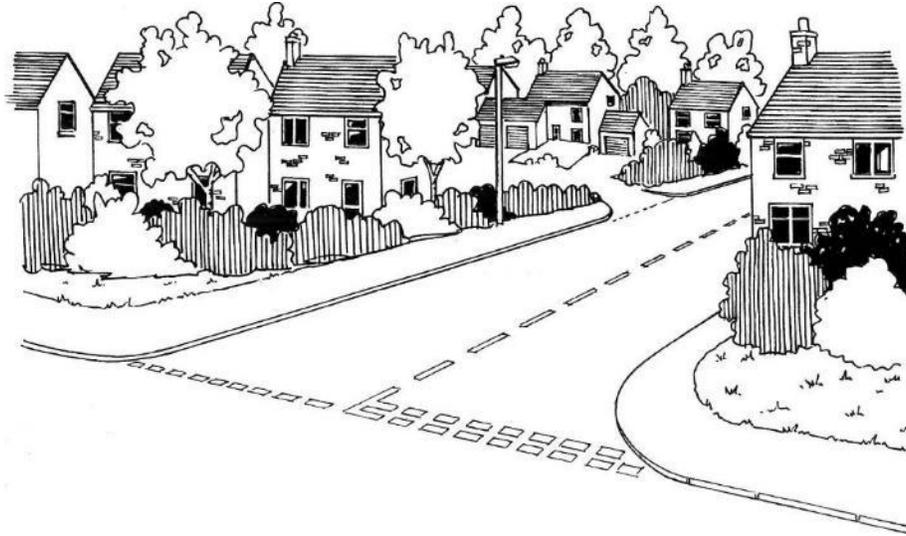


Figure 3 – Sketch showing Major Access Road layout

Table 3 – Data Sheet – A2 Major Access Road

Conventional residential access road through road maximum 500 dwellings, cul-de-sac maximum 250 dwellings. Over 150 dwellings at least 2 access points must be provided.

Standard	Requirements	Notes
Design speed	25mph	Some locations such as near schools will require 20mph
Carriageway width	6.0m Normal crossfall is 1 in 40 (2.5%) Maximum crossfall is 1 in 25 (4%)	Widening maybe required on bends or to accommodate right turning movements. On curves less than 60m width is 6.5m. On bus routes the width is 6.75m.
Vertical alignment	Minimum K value is 6.5 Minimum length of vertical curve is 30m Desirable maximum long section gradient is 1 in 20 (5%)	If not achievable the specific circumstances should be discussed with the Council.
Minimum forward visibility	25m	
Minimum centre line radius	35m	
Footways	2.0m width Normal crossfall is 3%	Both sides
Verges	2.0m width Normal crossfall is 5%	
Minimum clearance to carriageway	0.6m	
Direct vehicular access		Acceptable only if it can be demonstrated that it would not cause a highway problem. Normally it is only allowed if vehicles do not need to reverse into the carriageway.

FIGURE 4

3.3 Minor Access Road A3

3.3.1 Conventional residential cul-de-sac normally linked to a Distributor Road or Major Access Road. Footpath provision required.

3.3.2 Maximum number of dwellings is 150 with frontage access.

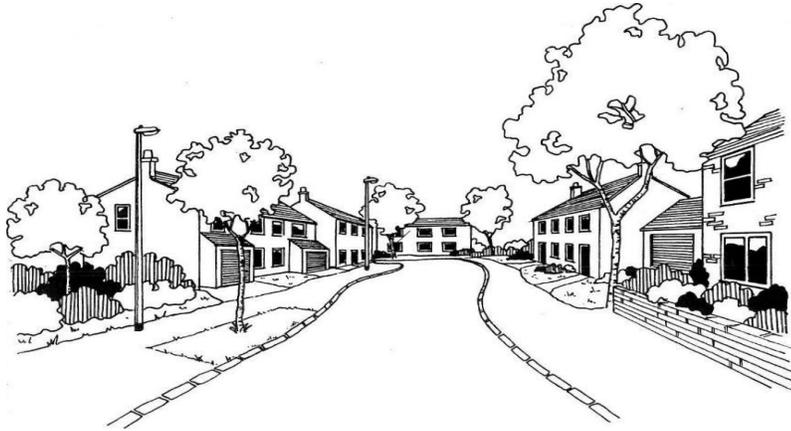


Figure 5 – sketch showing minor access road layout

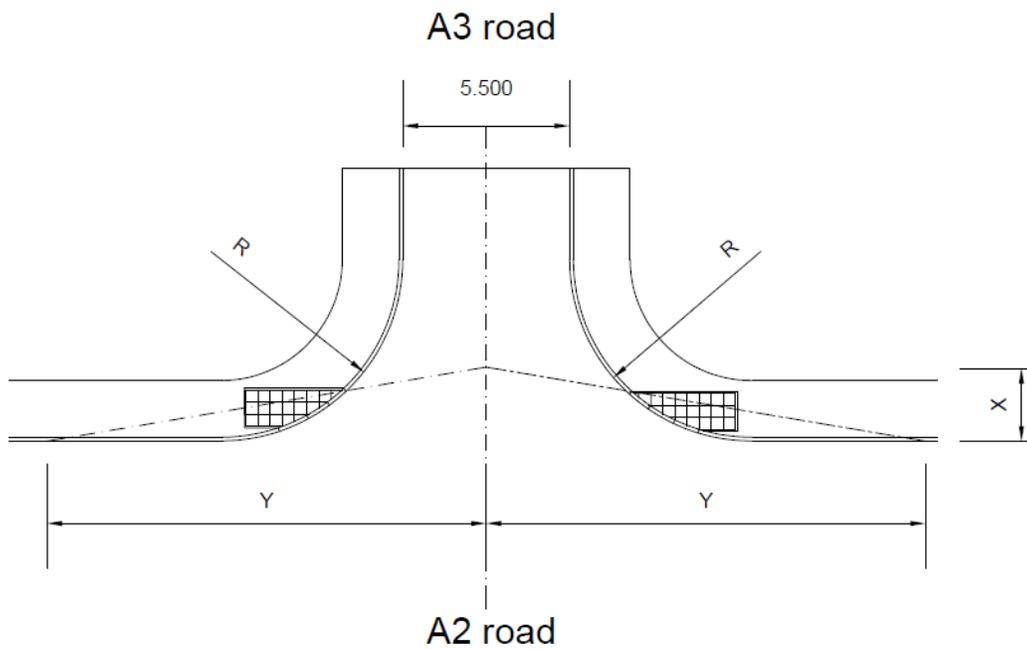


Figure 6: minor access road typical junction layout

Table 4 – Data Sheet – A3 Minor Access Road

Small conventional access road, maximum 250 dwellings. Cul-de-sacs should be avoided where possible.

Standard	Requirements	Notes
Design speed	20mph	
Carriageway width	5.5m Normal crossfall is 1 in 40 (2.5%) Maximum crossfall is 1 in 25 (4%)	Widening maybe required on bends or to accommodate right turning movements. On curves less than 30m width is 6.0m.
Vertical alignment	Minimum K value is 3. Minimum length of vertical curve is 20m Desirable maximum long section gradient is 1 in 20 (5%)	If not achievable the specific circumstances should be discussed with the Council.
Minimum forward visibility	25m	
Minimum centerline radius	20m	
Footways	2.0m width Normal crossfall is 3%	Both sides
Verges	2.0m width Normal crossfall is 5%	
Minimum clearance to carriageway	0.6m	
Direct vehicular access	Allowed	

FIGURE 7

Note on road widths:

The identified road widths are required having regard to local circumstances to ensure footways and verges within new developments are not impacted by indiscriminate on street parking.

North East Lincolnshire has high car use due to limited public transport infrastructure and general segregation of employment zones and shopping areas from areas of housing development. The highway authority requires these road widths to ensure on street parking can be fully accommodated within the carriageway without the requirement for vehicles to obstruct a footway or park on a verge which creates a road safety issue for pedestrians and motability users and can lead to ongoing maintenance issues.

The Highway Authority will consider accepting reduced road widths where developers are able to evidence local circumstances may differ from the above, (e.g., town centre locations), or where additional off-street parking is provided having regard to dwelling size.

For a no through road or roads, with a limited number of dwellings, a reduction in radii to 11m can be considered.

3.4 Shared Access Ways A4

3.4.1 This heading covers all those layouts where there is a joint surface for pedestrians and vehicles. Linked to Major or Minor Access Roads. No footways. Maximum number of dwellings 30. They fall into two sub-categories: A4A Access Ways and A4B Mews Courts.

3.4.2 Shared Access Ways have been included to cover those situations where the needs of the pedestrian and the requirements of good architectural layout should be subject to minimum constraint by the needs of the motor vehicle. Shared Access Ways embody the use of hard surfaces by pedestrians and vehicles, and footways are omitted.

3.4.3 Shared Access Ways present opportunities to provide a wide variety of unusual housing layouts ranging from formal Mews Courts of traditional design to informal 'open plan' layouts. Standard layouts do not, therefore, exist.

3.4.4 The importance of designing for minimum vehicle speeds should be stressed and the provision of special junctions including ramps is essential on the entrances to Shared Access Ways. In addition, low speeds on Shared Access Ways will be encouraged if they are not connected directly to the Distributor Road system. However, the road pattern in existing towns and villages and the existence of numbers of awkwardly shaped residential sites demands a flexible approach and the layout standards set out in Data Sheets 4A and 48 permit the connection of these Shared Access Ways to the Distributor Road system in such cases. Where Shared Access Ways are provided off Distributor Roads, attention is drawn to the need to set back the ramp in order to minimise the risk of accidents to vehicles on the major road. In the case of Distributor Roads, an intervening length (minimum 15m) of A3 Minor Access Road is required.



Figure 8 – Photograph showing shared access way layout.

3.4.5 It is essential that the road surfacing material differs in colour and/or texture to that of the conventional road from which the A4 Shared Access Way derives access.

3.4.6 Edges to all A4 Shared Access Ways should be defined by kerbs, setts, edgings, all showing a minimum 25mm upstand. A minimum 100mm upstand is required to verges. Parking areas should be marked with a contrasting material. Such parking areas for visitors will be adopted provided they are clearly an integral part of the Shared Access Way.

Table 5 – Data Sheet – A4 Shared Access Road

Small unconventional layout, maximum 30 dwellings. No separate footways, joint use by vehicles and pedestrians.

Standard	Requirements	Notes
Design speed	15mph	
Carriageway width	4.5m to 5.5m Normal crossfall is 1 in 40 (2.5%) Maximum crossfall is 1 in 25 (4%)	More than 10 properties minimum width is 5.5m or off a D1-3 road
Vertical alignment	Minimum K value is 1. Minimum length of vertical curve is 15m Desirable maximum long section gradient is 1 in 20 (5%)	If not achievable the specific circumstances should be discussed with the Council.
Minimum forward visibility	23m	
Minimum centre line radius	11m	
Vehicle access	Block paved	Red Brindle
Verges	2.0m width Normal crossfall is 5%	Verge both sides were more than 10 properties. Edging demarcation to rear.
Minimum clearance to carriageway	0.6m	Charcoal Hard strip Where lighting columns are present 0.675 is required to give a minimum clearance
Direct vehicular access	Allowed	

FIGURE 9

A4A ACCESS WAY

A shared surface cul-de-sac to serve the needs of traditional house types, which generally have open-plan front gardens with private parking facilities within each curtilage for two cars. An Access Way can serve up to 30 dwellings.

Key Characteristics of A4A Access Way

1. Ramp at entrance. Where Access Way joins A2 or A3 Access Road, the ramp may be set contiguous with the channel of the access road. Where Access Way joins a D3 Local Distributor Road the ramp is set back to the inner tangent point.
2. Surfacing material such as concrete blocks to contrast in colour and texture to the approach road. This is an essential safety feature.
3. 2m wide verges contiguous with gardens, to accommodate public utilities. These verges will be adopted, subject to special arrangements for maintenance.
4. Width varies between 4.5m and 5.5m in a series of gentle curves. 'Pinch points', 3.5m wide, or planted 'islands' within the shared surface are permitted.
5. Non-standard kerb materials must be used.
6. Kerbs do not run parallel but have a constant minimum 25mm upstand (i.e., no drop kerbs required for Private Drives). Alternatively, Private Drives may have small bell mouths (1m-2m radius) off Access Way. Edges to all A4 Shared Access Ways should be defined by kerbs, setts, edgings, etc., all showing a minimum 25mm upstand. A minimum 100mm upstand is required to verges. Parking areas should be marked with a contrasting material. Such parking areas for visitors will be adopted provided they are clearly an integral part of the Shared Access Way.
7. Minimum kerb radius of 4m gives flexibility round existing trees.

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8. 4.5m kerb radius at bell mouth with A3 Minor Access Road. (See Table on Data Sheet 48 for radius at junction with D3 Local Distributor Road and A2 Major Access Road).
 9. Amorphous turning head to encompass standard turning head.
 10. Centre line drainage option incorporating suitable channel.
 11. Footpath terminates 2m beyond top of ramp.

A4B MEWS COURT

A shared surface cul-de-sac of more formal design, more suited to the higher densities of development associated with the centre of towns and large villages. As such there tends to be little soft landscaping fronting the dwellings. Mews Courts should provide private parking for two cars, normally within the private curtilage of the dwellings. Mews Courts can serve up to 30 dwellings.

Key Characteristics of A4B Access Way

1. Ramp at entrance. Where Mews Court joins an A2 or A3 Access Road, the ramp may be set contiguous with the channel of the Access Road. Where Mews Court joins a D3 Local Distributor Road the ramp is set back to the inner tangent point.
2. Surfacing material such as concrete blocks to contrast in colour and texture to the approach road. This is an essential safety feature.
3. Public Utilities may require special provisions when laid under shared surface.
4. 4.5m clear core area.
5. Non-standard kerb materials must be used.

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6. Adopted area defined by kerb upstand minimum 25mm.
 7. 0.6m clearance strip between kerb and walls; this space may be hard paved or planted.
 8. 4.5m kerb radius at bell mouth with A3 Minor Access Road. (See Table on Data Sheet 48 for radius at junction with D3 Local Distributor Road and A2 Major Access Road).
 9. Core area must encompass turning head.
 10. Narrow entrance neck may be formed by buildings and landscaping.
 11. Footpath terminates 2m beyond ramp.
 12. Communal visitor parking may be within adoption limit but should have different finish to core area. Each vehicle parking space 5.5m x 2.5m; 6m maneuvering space to opposite kerb.
 13. Private parking spaces for two cars outside adoption limit. Minimum space required for each off-street parking space is 5m deep x 2.5m wide measured square to the adoption boundary.
 14. Garage Courts (A5) may open off the Mews Court. Garage Court must be convenient to discourage parking within the Mews Court.

4 GENERAL GUIDANCE

4.1 Footways and Cycleways

4.1.1 The Highway Authority recognise the importance to pedestrian safety of providing separate arterial footpaths in residential developments, together with ancillary footpaths linking the arterials with groups of buildings and/or footways adjacent to highways. All such footpaths will be eligible for adoption by the Highway Authority. To prevent danger and nuisance from cyclists and motorcyclists on footpaths or footways, the Highway Authority may require the provision of intersecting barriers at any time up to Adoption. See the Residential Road Construction Guide.

4.1.2 Footways adjacent to carriageways will normally be required on all conventional Access Roads but not on A4 Shared Access Ways, Car Ways, Housing Squares and A5 Secondary Access Roads. In some layouts, it may be possible to omit footways adjacent to the carriageways of the A2 and A3 Access Roads, where a separate means of pedestrian access is provided. The design of a footpath network on a housing layout, following pedestrian desire lines, is of primary importance. This is especially true where the footpaths are separated from carriageways if pedestrians are not to be tempted to use carriageways. 'Tactile' crossings will be required wherever footways intersect with roads.

4.1.3 Many development sites are affected by public rights-of-way in the form of highways, public footpaths and bridleways, and the Developer should be informed of them when planning permission is granted. The policy of the Highway Authority is that:

- a) New developments should, wherever possible, take account of public rights-of-way over the land in question.
- b) Headland paths which run on the perimeter of development sites should be preserved wherever possible and where circumstances permit; and

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- c) Paths which now cross open land should be accommodated within the proposed site layout without diversion whenever practicable to do so.

Developers are reminded that, where it is necessary for rights-of-way to be diverted or closed, the requisite procedures under the Town and Country Planning Act, 1990 and Highways Act 1980 must be completed before works commence.

4.1.4 In view of the importance of cycling in North East Lincolnshire, the Highway Authority wishes to promote the provision of cycle routes. The Highway Authority advises that Active Travel England are engaged and consulted from an early point of any planning application to ensure their requirements are factored into any development.

4.2 Road Junctions

4.2.1 One of the important objectives in any layout is to minimise road accidents. The basic principles to be considered in junction design are:

- a) The type of junction to be adequate for safety and vehicle maneuverability.
- b) Proper control over spacing of junctions and access restriction on Distributor Roads.
- c) Proper definition of right of way at priority junctions.
- d) Adequate visibility should be provided, and
- e) Adequate provision for pedestrian and cycle movements — Details can be found in the Residential Roads Construction Guide.

4.2.2 Careful control of access is essential on Local Distributor Roads and a junction spacing of approximately 90 metres will be appropriate in such cases. Away from the Distributor Road network rigorous control over access is not appropriate and, indeed, can lead to misuse of land resources. Junction spacing in such cases should normally be dictated by the need to achieve economical housing layouts, subject to a minimum spacing of 25 metres.

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- 4.2.3 Within most residential road layouts, the problem of providing adequate traffic capacity is not critical and road safety requirements will normally dictate the type of junction. Simple 'T' junctions are usually appropriate.
 - 4.2.4 Square junctions are preferable to skew junctions, and such situations should be amended in order to provide a square approach to the major road.
 - 4.2.5 The provision of direct crossroads should be avoided and deliberate stagger in the minor road introduced. The minimum amount of stagger is one carriageway width, and the right/left stagger is preferable to eliminate the possibility of large commercial vehicles 'hooking' and impeding movements on the major road.
 - 4.2.6 No drive access is permitted within 10m of a junction, within the radius section of the carriageway where visibility may be compromised, or within the transition area of an A4 shared access road.

4.3 Public Transport Facilities

- 4.3.1 Careful planning will be required at an early stage in consultation with 'bus operators and the Highway Authority to ensure that a network of 'bus routes can be accommodated by proposed road layouts. In general, the use of Access Roads by stage carriage operations is not desirable but it is recognised that in certain cases, local buses should be allowed to penetrate on to Access Roads if this makes a significant improvement to public transport operations. In addition, if considerable savings in vehicle mileage and increased 'bus patronage' can be shown, the Highway Authority will consider the adoption of 'bus gateways' linking together Access Roads.
- 4.3.2 Residential developments should be designed so that in general, the walking distance along the footway system to 'bus stops' should be spaced on average at two or three per kilometer. Staggered stops should be 45 metres apart and 'out-going' and consideration should be given on major routes to the provision of bus shelters.

4.4 Vehicle Parking

4.4.1 Parking requirements for residential developments are included in this Design Guide in view of the close link between the provision of space for the moving vehicle and the provision of terminal facilities which will be needed, including short- and long-term parking space, and space for service vehicles and fire appliances, etc. The Highway Authority is conscious of the need to ensure that adequate and convenient provision has been made for vehicle parking, as the consequences of indiscriminate on-street parking, particularly when associated with narrow roads, could have serious consequences both in terms of accidents involving young children masked by stationary vehicles, and for access for emergency vehicles.

Note:

- a) Please refer to the key characteristics earlier in this Design Guide for parking provision on Access Ways, Mews Court and Housing Squares.
- b) Communal parking spaces are intended to cater for visitors to a development and may be provided within the limits of the publicly maintainable highway subject to being positioned clear of the carriageway or, in the case of Access Ways and Mews Courts, the core area. In Housing Squares visitor provision is included in the normal parking provision. It is not normally adoptable.
- c) Local Authority developments must make ultimate provision to meet these standards in full with the initial on-site provision being at least 40% of these requirements, equally proportioned between the ultimate levels of private and communal spaces, the exception being retired persons single-bedroom accommodation where 100% provision must be provided at the outset.
- d) Conventional houses with garages must have one free standing car space between the garage door and the Highway Boundary.
- e) In Mews Courts where no parking space is provided in front of the garage it is permissible for the dimension from the garage to the Highway Boundary to be reduced to 1.5 metres to enable the garage door to open clear of the Highway. In these circumstances the additional parking space may be located alongside the garage.

-
- f) All parking spaces for private cars shall be a minimum 5.0 metres deep by 2.5 metres wide, perpendicular to the highway, with the depth measured from the highway boundary.

4.5 Public Utilities

- 4.5.1 In addition to providing for pedestrian and vehicular movement, roads, footways and verges in residential areas have an important function in providing routes for statutory undertakers underground apparatus, and other underground services. These services are an essential and integral part of the layout and the arrangements for the installation and future maintenance of service apparatus must be considered in the initial design of a residential development. Developers should consult the National Joint Utilities Group Publications, numbers 2, 5 and 6 (10). The location of mains in footways, reproduced from NJUG publication No. 2, is shown in Figure 11 below.
- 4.5.2 Developers are also reminded of the responsibilities to consult with and meet the costs of any works required in respect of Statutory Undertakers' plant which may be affected by the development. Non-statutory plant must not be laid within the prospectively maintainable highways until a license has been issued by the Highway Authority under Section 181 of the Highways Act 1980. Developers are advised not to sanction or grant easements for such plant prior to receiving clearance in writing from the Highway Authority.
- 4.5.3 To minimise costs of future maintenance, installation, repair, and reinstatement services should be laid outside the carriageways and preferably in verges but there will be some situations where the use of carriageways cannot be avoided. Provision of underground services in 'A4 Shared Access Ways' presents certain problems and it is particularly important in these cases for developers to consult the Statutory Undertakers at the earliest stage. Services should be within the 2m service strip wherever possible. With open-plan layouts on A4 Access Ways, the Highway Authority will adopt 2m wide strips adjacent to the hard surface to provide space for and access to services. Service strips are regarded as part of open-plan garden layouts and are expected to be maintained by householders.

However, householders should be made aware of the legal position and the restrictions on the building of walls and planting of hedges in service strips. The Highway Authority encourages planting with shallow rooting ground cover plants as an alternative to grass. Suitable plants are listed in the Residential Roads Construction Guide. Licenses under Section 142 of the Highways Act 1980 permit the cultivation of the service strips, and the adoption of such layouts is conditional on Section 142 Licenses being in force. The Highways Authority's Section 38 Agreement embodies license arrangements under Section 142.

4.5.4 Unitary and County Councils are Lead Local Flood Authorities who are responsible for the management of surface water, groundwater and land drainage. It will be necessary, therefore, for Developers to consult Councils at the earliest opportunity on matters of drainage and flood risk.

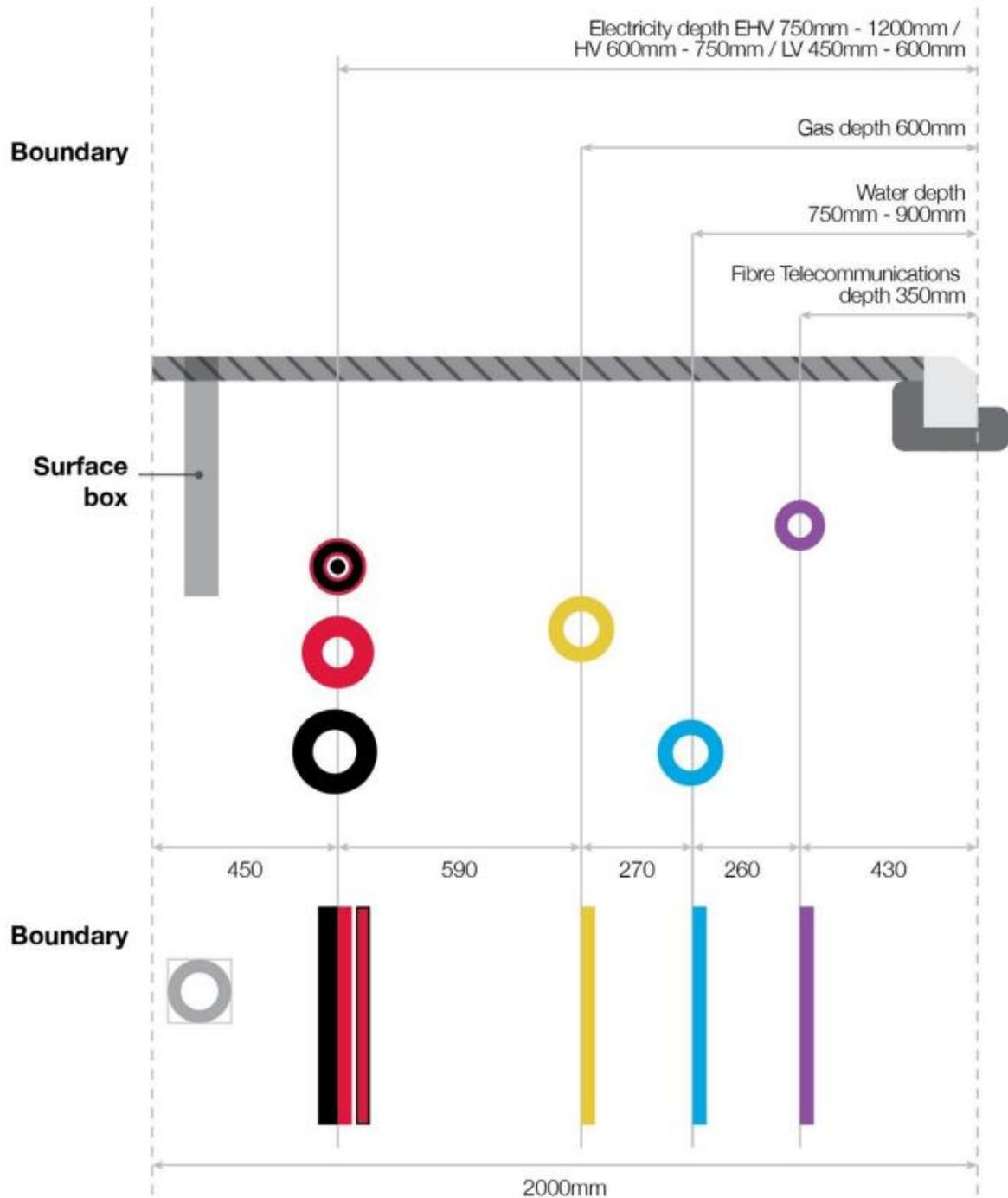


Figure 11: Recommended positioning of utility apparatus in a 2-metre footway

Notes: -

1. The layout of mains is generally in accordance with the "Report of Joint Committee on Location of Underground Services" published by the Institution of Civil Engineers.

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2. The dimensions shown represent the preferred arrangement in straight routes on residential developments. Variations may be necessary at curves and changes of gradient.
 3. The space allocated is considered to be the absolute minimum and in certain circumstances e.g., where both HV and LV cables are laid, the LV cable will be laid in the alternative position, and additional width may be required.
 4. Where services are to be connected to Gas mains, a minimum distance of 2.0m is required between the building line and the centre line of the main.

4.6 Turning Areas

- 4.6.1 Turning areas should be provided on all cul-de-sacs, except on very short A4A Access Ways, A4B Mews Courts and A4C Housing Squares forming junctions with A3 Minor Access Roads, where the standard turning heads may be omitted at the discretion of the Highway Authority. In these cases, provision must be made to accommodate turning manoeuvres within the junction areas. Also, provision should be made for cars to turn at the end of the Access Way Mews Court or Housing Square. It is recommended that a width of 9m will be needed to accommodate this requirement.
- 4.6.2 Where turning facilities are not being provided on any cul-de-sac, developers are advised to consult the Authority to ensure that the layout will comply with local requirements regarding length of carry for refuse collection purposes, normally 20m.
- 4.6.3 The turning areas have been designed to cater for refuse collection vehicles in accordance with the latest NELC requirements. The designs are a compromise between the need to avoid large, paved areas on small developments and the need to cater for the movement of regular service vehicles.

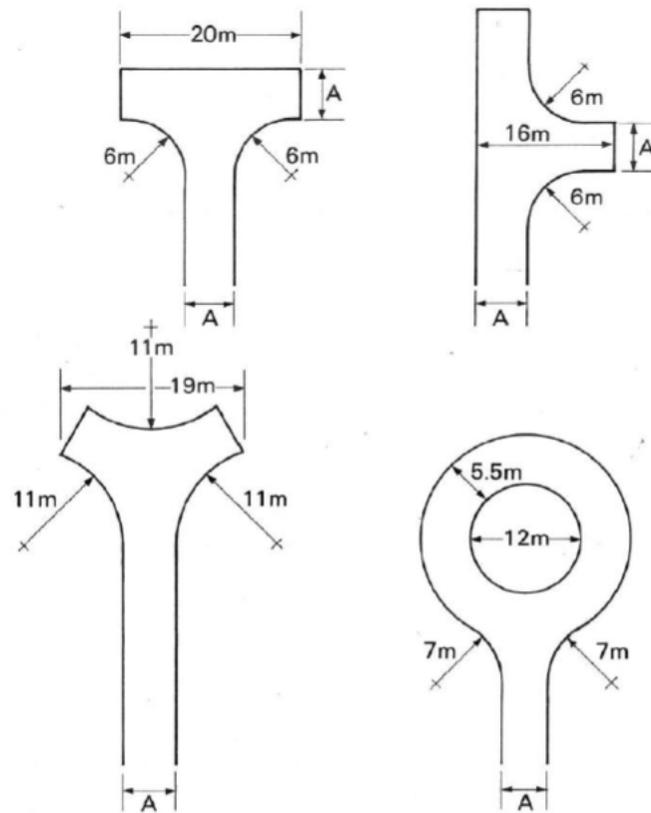


Figure 12: Sketch of typical turning areas

4.7 Horizontal And Vertical Alignment

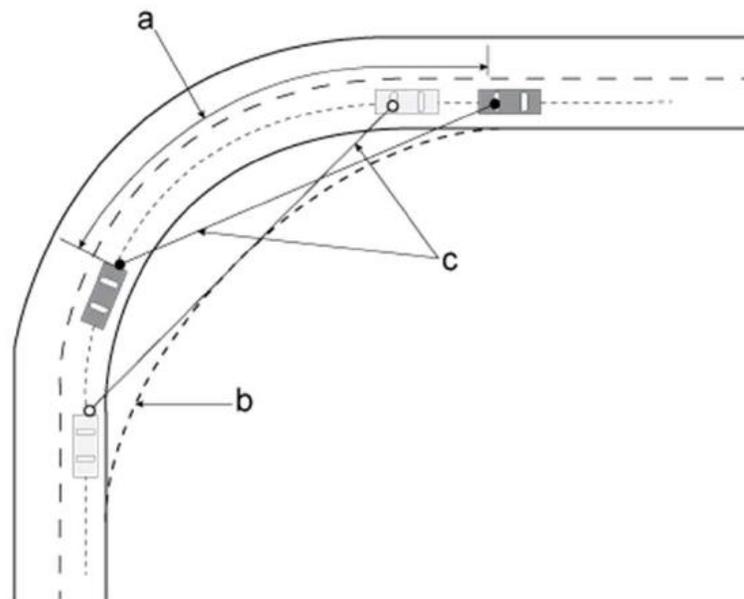
4.7.1 Curve radii under 'Horizontal' and 'Vertical' Alignment relate to the centre lines of Access Roads.

4.7.2 Minimum gradients are for flexible carriageways without channel blocks or false falls. Flatter gradients may be acceptable in certain conditions. See Residential Roads Construction Guide. The desirable maximum carriageway longitudinal section gradient is 1 in 20 (5%). If this is not achievable the specific circumstances should be discussed with the Authority.

4.7.3 Vertical Curves should be provided at all changes of gradient to ensure reasonable standards of comfort, safety and appearance. Consideration should be given to minimum drainage requirements at tangent points of curve changes.

4.7.4 Adequate forward visibility must be provided on bends, commensurate with the estimated speed and stopping distance of vehicles as shown in the visibility splay diagram, reproduced from the Manual for Streets document.

4.7.5 Tracking details are required at all key locations such as bends, junctions and turning heads. The current authority standard is a Dennis Eagle Elite 6 refuse vehicle. On A2 & A3 roads the refuse vehicle must be able to safely negotiate bends without crossing onto opposing lanes or overhanging the kerb.



- a - Forward visibility measured along the centre line of inner lane**
- b - Visibility splay envelope**
- c - Visibility splays**

Figure 13: Forward Visibility on bends Diagram

4.8 Sight Distances

- 4.8.1 Adequate Sight Distances must be provided for drivers and pedestrians along Access Roads both in the horizontal and vertical plane. Dimensions in the Data Sheets relate to a driver eye-height of 1.05m above carriageway. For internal junctions and Horizontal Curves within the layout the operative height for visibility shall be 600mm above the carriageway, to take account of child pedestrians. Horizontal sight distances are to be measured along the centre line of that Access Road. Junction Visibility Splays are to be constructed generally in accordance with the diagram below.
- 4.8.2 Visibility should not be restricted by trees, bridge piers, structures, boundary walls, fences, street furniture, etc. However, it is not intended to adopt a totally rigid standard and care should be exercised to retain single healthy mature trees even if their retention does contravene minimum standards. However, this flexible attitude should not be taken to include retaining complete groups of trees within the Visibility Splay. In all cases, full visibility must be provided for a minimum 'X' dimension of 2.4m.
- 4.8.3 The table below provides a variety of standards for Sight Distances at junctions for a 50kph major road. In cases where the major road is a lightly trafficked D3 Local Distributor Road, the Sight Distance appropriate to an A2 Major Access Road may be used at the discretion of the Highway Authority.
- 4.8.4 Reference to the Design Manual for Roads and Bridges covers standards for distributor and major access roads, this is further detailed in Road Layout Design CD123 for visibility and priority junctions. CD109 covers Stopping Sight Distances. Reference Manual for Streets for Minor access roads and shared access roads. The table below is for use on 30mph roads only.

MAJOR Road	MINOR Road	Maximum dwellings	X (metres)	Y (metres)	R (metres)
D3	A3	200	4.5	70	10
D3	A3	50	2.4	70	10
D3	A4	25	As above but A3 stub road also required		
A2	A3	200	4.5	70	10
A2	A3	50	2.4	43	6
A2	A4	25	2.4	43	6

Figure 14: Visibility requirements at 30mph road junctions

4.8.5 Visibility splays other than at private drives must be incorporated into the Highway maintainable at public expense. Developers will, therefore, be required to set out such splays and clear the area of fences, shrubs, bushes, etc. prior to the development commencing. This will be a condition of the Planning Permission.

4.8.6 An additional area of visibility may be required in instances such as curved roads. For further guidance refer to DMRB document CD123 and Manual for Streets.

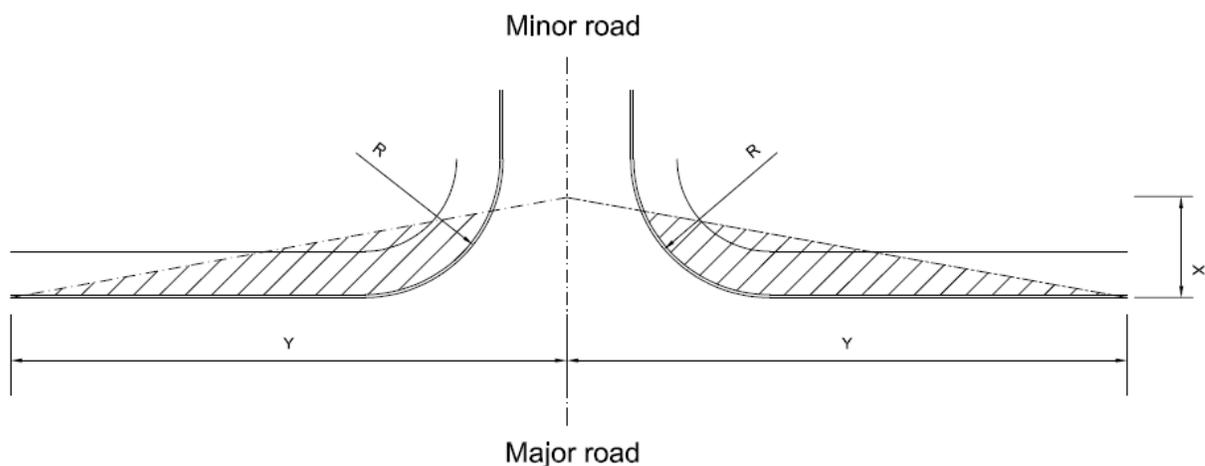


Figure 15: Typical visibility splays required at a minor / major road junction, showing minimum clear sight distances.

4.9 Shared Private Drive

- 4.9.1 Shared private drives can serve a maximum number of 5 dwellings and will not be adopted by the Local Highway Authority. All shared private drives should include turning facilities to allow access and egress in a forward-facing gear.
- 4.9.2 The driveway should be surfaced with bound materials. No loose surfacing material of any type will be acceptable within 10 metres of the public highway to negate the possibility of the material being transferred onto the adopted highway. The construction specification should be similar to that for a footway vehicular crossing.
- 4.9.3 All shared private drives should be set out at 90 degrees to the road of which they access from, with the first 6 metres being a straight section of carriageway.
- 4.9.4 2m x 2m pedestrian visibility splays will be required at the rear of the footway as well as vehicular access visibility splays.
- 4.9.5 Typically, NELC refuse collection teams will not enter private drives. Any dwellings which are not accessed directly from the public highway will require a bin-collection point, of hard bound material, directly adjacent to the adopted highway boundary as well as dropped kerbs to assist wheelie bin collection.
- 4.9.6 Ideally shared private drives will allow for 2-way traffic and be a minimum of 4.1 metres wide as set out in the Manual for Streets to allow a car to pass another car (shown in Figure 16 below). A minimum of 5 metres width for the first 10 metres from the rear of the highway is required to accommodate vehicle tracking.



FIGURE 16 - Manual for Streets - 7.2 Street Dimensions

4.9.7 Where 2-way movement is not possible, single lane shared private drives may be accepted if:

- A minimum of 5 metres is provided within the first 10 metres from the entrance to allow vehicles to pull safely off the highway without being impeded (noted that the standard vehicle varies between 4.4 & 4.8m in length).
- Passing places are installed at acceptable intervals or where the drive is greater than 18 metres in length. Passing places width can be a minimum of 4.1 metres.
- The characteristic of the street in which the drive accesses from allows (e.g., classification, speed, volume of vehicular/pedestrian traffic, visibility).

5 LANDSCAPING

5.1 Verges

5.1.1 Verges are a desirable feature on most Access Roads as follows:

- a) When located as a 'buffer' strip between footway and carriageway they can improve pedestrian safety.
- b) They offer a good opportunity for landscaping; and
- c) They provide space for locating Public Utilities apparatus.

5.1.2 However, the inclusion of verges in all layouts should not be regarded as a rigid requirement. Subject to making adequate provision for services, verges may be omitted, particularly on A3 Minor Access Roads. Furthermore, a variable width verge is preferred as an alternative to conventional fixed width arrangements which can be monotonous.

5.1.3 It is stressed that the cost savings which can accrue in well-designed layouts should enable a developer to give proper consideration to good landscaping.

5.1.4 The desirable minimum width of a verge is 2.0m. Verges wider than 2m may be needed where it is considered necessary to locate all main drains outside the limits of concrete carriageways.

5.1.5 More attention should be paid to the use of alternative materials which both reduce maintenance costs and improve the quality of the visual environment.

5.2 Trees

5.2.1 STREET TREES

The benefits of trees have long been acknowledged. Trees provide one of the most cost-effective ways to improve the environmental quality of a town, delivering physical, social and economic well-being as well as mitigating climate change, improving storm water management, air quality, biodiversity, and visual amenity to name but a few. The Council must ensure that our tree canopy cover is not only maintained but increased to a level which allows us to mitigate the effects of climate change living within the built-up environment. Planning for the future is key to having resilient towns which are sustainable places to live in.

The Ministry of Housing, Communities and Local Government, National Planning Policy Framework (NPPF) states, P39 [131], Planning policies and decisions should ensure that new streets are tree-lined.'

This residential street Design Guide for NELC is a key element to delivering high quality residential and mixed development environments. Any design proposals brought forward should closely align with the recommendations and guidance of the Council's emerging Tree Strategy and associated guidance documents.

In accordance with the Council's Natural Assets Plan and Net Zero Road Map and the National Planning Policy Framework, the policy decision is to retain and plant trees.

Planning to incorporate existing trees and new trees can be particularly challenging. It is essential that there is a coordinated effort, and all interested parties are involved from the beginning of any concept proposal in order to explore the practical challenges and solutions for integrating trees within the urban environment.

Starting from the point where the policy decision to retain or plant trees has been made, the key building blocks to success are:

1. Collaborative Process
2. From project initiation to maintenance and monitoring, when, how and with whom joined up working needs to happen.
3. Designing with Trees
4. Practical strategies to ensure trees best contribute to the delivery of the design objectives of a project.
5. Technical Design Solutions
6. The available technical below-ground solutions to achieve lasting overall success.
7. Species Selection Criteria
8. The frame of reference to use as a basis for tree selection.

Trees should be designed as an integral part of a street scene with consideration to their location given from the outset in the early stages of the design process to ensure that other highway requirements such as drainage, utilities and street lighting do not prevent the introduction of trees. The provision of enough quality soil for the tree roots is a critical factor in tree health and longevity. It is crucial that the target soil volume for the tree species can be established so to ensure trees grow quickly into healthy specimens. Opportunities for tree planting solutions within our built urban environment should be explored in order to secure the optimum conditions for healthy tree growth. For tree pit designs, proven planting methods and techniques and best practice will be adopted. Designers should carefully consider any conflicts with existing and proposed utilities.

5.2.2 LOCATION OF TREES

A 'Right Tree, Right Place' approach should be followed by considering the constraints and opportunities of planting sites, the features of proposed trees and their environmental needs.

Trees should also be suitably located so as not to encroach onto essential pedestrian space. Trees must be planted sufficiently far from the edge of carriageway to accommodate growth to maturity.

5.2.3 TREES AND LIGHTING

Tree and lighting locations should be considered together from the early stages of the design process with consultation between the relevant specialist consultants to ensure tree patterns are integrated into the streetscape that achieve:

- a reasonable distance (minimum 8m) from lighting columns so trees do not interfere with lighting or the column.
- a clearly visible lantern of the lighting column when standing at the mid-point between columns; and
- street lighting schemes which are not dependent on the trimming of trees or landscaping.

5.2.4 TYPE OF TREE

The design, size, species, and placement of trees provided as part of the landscape treatment will be expected to take opportunities to reduce or mitigate the runoff and flood risk associated with the proposed development, provide shade and shelter, and create a framework of street trees. The spread of the tree must be considered in these circumstances, as tree canopies could spread over the carriageway when planted in footways. The selection of tree species therefore needs to consider the canopy spread and eventual height to ensure that it is appropriate to the street type. For example, larger trees may be more suitable for mixed-use primary streets, and smaller trees better placed in smaller residential streets to allow for traffic movement and sightlines within a more constrained street geometry. This can be achieved with the selection of suitable species with sufficient clear stem when planted, with crown lifting over time (where this is considered suitable and sustainable), or the choice of a fastigate tree species to

avoid encroachment onto the carriageway. The development of SUDS schemes provide opportunities for tree planting within the areas of soft landscape created.

5.2.5 CONSTRUCTION

For tree pit designs, proven planting methods and techniques and best practice will be adopted. The target soil volume for the tree species must be reached.

Development should be located outside of any proposed or existing tree canopy to prevent damage to the new construction.

During construction, the protection of landscape features, such as trees and hedges is essential. The British Standard 5837:2012 provides detailed guidance on the protection of trees on development sites and in the highway. Developers must not remove or carry out work to existing or planted trees, shrubs, hedges, and other vegetation during the bird nesting season. This is generally considered to be from March to August each year, but may cover a longer period. A suitably experienced ecologist should check for the presence of nesting birds outside that period.

Developers should check for the presence of active nests outside that period.

5.2.6 PROCESS

It is essential that a suitably qualified arboriculturist / landscape architect is consulted for professional advice on all landscaping matters relating to trees in a new development. A tree survey and related survey information should be submitted along with an application for planning submission and be in accordance with BS 5837:2012. Any loss of trees or hedges due to development must be compensated. The number of trees required to compensate for loss of existing trees depends upon the size and category of the trees lost and must be agreed by NELC Tree Officers.

For developments with areas expected to be managed by an independent management company, a long-term landscape management plan should be submitted along with an application for planning submission.

Following satisfactory implementation of the landscape scheme and period placed on maintenance, trees that will be adopted for management by NELC should be handed over in a healthy state.

5.2.7 SOFT LANDSCAPING AND GREEN INFRASTRUCTURE

Development proposals are expected to incorporate quality landscape elements to enhance the street scene. A comprehensive planting schedule for all proposed planting within or adjacent to the highway should be submitted for checking and approval. For larger scale developments, a strategic landscape strategy for the entire site will be sought that sets out an integrated vision for the development.

5.2.8 SITING

When selecting an appropriate palette of materials regarding soft landscaping, from a transport perspective the positioning must take into consideration:

- Structures
- Underground Utilities
- Lighting columns, signs
- Visibility splays
- Vehicle tracking

Where planting takes place adjacent to the highway, vegetation should not encroach onto the carriageways or footways, as this can affect visibility, maintenance, and accessibility. Planting must not obstruct visibility or passage for any highway user.

5.2.9 MAINTENANCE & ADOPTION

Landscape proposals can be incorporated within private boundaries or within managed areas where a management company is responsible for overall maintenance.

Smaller, discrete pockets of landscaping / grassed areas would not be adopted due to the long-term maintenance liabilities involved. Details of the ownership and management of a development site should be provided as part of a planning submission.

5.2.10 UTILITIES & SERVICE STRIPS

Utility companies prefer their equipment to be within the adopted highway. To ensure adequate access to utilities, service strips should be of a nature that is easy to maintain (e.g., mechanically mown grass areas and shrubs). Considering good landscaping and long-term management, the desirable minimum width of a grass verge is 2.0m.

5.2.11 CONSTRUCTION & EFFECTS ON EXISTING LANDSCAPING

During construction, the protection of existing landscape features, such as trees and hedges is essential. BS 5837:2012 provides detailed guidance on the protection of trees on development sites and in the highway. A tree survey, implications assessment and method statement should be submitted along with an application for planning submission and be in accordance with BS 5837:2012.

5.3 General Landscaping

- 5.3.1 Existing mature planting should be maintained wherever possible. A mix of existing and new landscaping can add variety to the landscape and reduce the visual impact of the development.
- 5.3.2 Clear landscape plans should be produced for approval at a suitable scale including a full list of species, sizes, and number.
- 5.3.3 On completion an as-built layout is to be provided with details and dates of planting.

6 STREET LIGHTING

All new lighting shall conform to BS EN 13201 - 2: 2015, designed to minimize the effects of obtrusive light at night and reduce its visual impact during daylight. The design criteria to be agreed by the lighting engineer. The level of provision and any amendments to the Specification will be determined by the Highway Authority.

Refer to the latest NELC street lighting design specifications for full details, but in general:

- Major roads - LED
- Minor Roads - LED

It should be noted that the Authority will require a combined lighting and landscape plan as part of all technical assessments.

6.1 Equipment And Process

6.1.1 Lighting Columns

Wide based tubular steel post top columns designed to EN90, hot dipped galvanised with Thermal plastic coating finish Ral 6009

Raise and lowering columns to be of a manufacture, type and finish to be agreed by the NELC lighting engineer.

6.1.2 Luminaires

Urbis Axia 2.1 / 2.2 / 3.1 /3.2 /3.3 L.E.D. lanterns are to be used and mounted post top on the columns (Bracket arms considered upon request).

All lanterns shall be constructed with a die cast aluminum body, stove painted finish (RAL 7040) which will withstand the standard cross-cut tests as defined in BS EN ISO 2409 and BS3900. The optical compartment shall be protected to a minimum of IP65.

Full cut off light distribution is preferred although semi cut off could be permitted after consultation with the lighting engineer.

Lanterns to be fitted with 7 pin Nema, Zodion SS6 – 35/18, 20/20 or 10/10 Lux photocell (non-dimming).

The lantern protector shall be guaranteed against the effects of daylight UV degradation and weathering.

Manufacturer, model and light source to be approved by the NELC lighting engineer.

6.1.3 Switchgear

All street lighting columns shall be fitted with Tofco double pole isolation using units as those specified on standard drawing SL/CD/025 or SL/CD/026.

6.1.4 Cables & Wiring

Underground supply cables will be installed by the local electricity distribution company and terminated in their cut out in the base compartment of each column.

Private supply cables will be via 3 core PVCSWAPVC cables installed in orange PVC ducting, marked with “street lighting” All wiring shall comply with current I.E.E. Wiring Regulations (BS 7671).

6.1.5 Completion Certificate

A completion certificate shall be supplied by the developer if the works are not undertaken by the Highway Authority.

6.1.6 Commissioning

Copies of erection notices should be forwarded to NELC street lighting department.

The Highway Authority will not accept responsibility for the energy costs for the new road lighting installation until such time as the installation has been inspected and approved by the Authority’s Street lighting engineer prior to adoption.

6.2 General Requirements

6.2.1 It is important that in historic towns and Conservation Areas, particular attention should be paid to the aesthetic quality of the Street Lighting columns, lanterns, and light sources. The publication 'Street Furniture' published by the Design Council gives a range of Street Lighting equipment as well as useful guidance on alternative outdoor lighting in other situations.

6.2.2 The Council will consider alternatives to this specification in exceptional circumstances, such as heritage areas where decorative lighting is considered a requirement by the planning department or by agreement to trial innovative equipment.

6.2.3 The installation of Street Lighting should be related closely to the occupation of dwellings and must not be left until the development is nearing completion. This practice will be a condition of the Planning Permission.

6.2.4 Lighting columns should be located within the limits of the highway, normally at the back edge of the footpath, verge, or service strip.

6.2.5 The Developer must liaise with the Highway Authority to ensure that Street Lighting design complies with Highway Authority standards.

6.2.6 If required the Highway Authority will provide and install Street Lighting equipment on Developer's instructions.

6.2.7 Where the Developer makes his own arrangements for the installation of street lighting the Developer must: -

- Contact the Highway Authority before installation commences.
- Ensure all street lighting contractors are members of the HEA and sector scheme (NHSS8).
- Be NICEIC registered.
- Membership of Construction Line

All street lighting contractors should be approved by NELC before commencing work on any adoptable street lighting installation. The Electricity Board will require prior payment of connection costs before they program connection work.

6.2.8 The developer must ensure they use a lighting column and lantern that meets North East Lincolnshire specifications, and this information must be shown on any final drawings. The developer would also need to mark each column position out (prior to installation) as per the approved lighting design, ensuring that the columns are set back away from the kerb front to the back edge of the footways (within the proposed adopted footways) and approximately 1.5/2 meters into any service strips. Any column identified as requiring a reposition (prior to installation

taking place) would have to be notified back to the designer to ensure the design still complies with the lighting standard. Upon adoption inspection, any column that is installed in a position that is not acceptable to NELC would need to be relocated, and the cost of this would have to be borne by the developer.

6.2.9 It is the developer's responsibility to obtain a Meter Point Administration Number (Mpan) from Northern Power Grid or Independent Distribution Network Operator. When requesting underground services for the lighting installation from the electricity company. The developer will then be charged for the energy consumed by the street lighting installation from the date of connection up to and including the date of the final adoption certificate.

6.2.10 The developer must notify the Local Authority that they intend to use an IDNO company as opposed to the majority DNO power supplies. This option must be decided at the design stage of the lighting proposals. Power supply drawings for the development should be made available to the lighting designer so that the column positions can be optimised to reduce costs at the outset.

IDNO's will utilise 'Waveform' CNE mains cables with a CNE service cable terminated into a street lighting clear cut-out offering a PME earth terminal where possible. IDNOs will endeavor to meet the requirements of adopting local authority regarding their requirements for looped services, agreement should be from the IDNO prior to the installation of such services.

Secondary double pole isolation should be provided above the independent distribution network operator's clear cut-out and the owner of the street lighting equipment in accordance with the local authority's specification.

The IDNO/DNO will terminate the cable into the IDNO/DNO clear cut-out and energise the short tails to the column by insertion of a fuse into the clear cut-out after completing the necessary insulation resistance, polarity and earth loop impedance checks, but will leave the fuse withdrawn from the secondary isolation.

Upon completion of any IDNO connections to lampposts and adoption of the lighting, the developer must provide all contact information of the IDNO company to the Local Authority so that in the event of power failures or Road traffic collisions at the columns they are able to report the faults.

6.3 Legislation, Regulations, And Specifications

6.3.1 All materials used and work done shall comply with all relevant Acts and current Statutory and other Regulations (including those of the Department for Transport), Codes of Practice, British Standards Specifications and European Standard Specifications and particularly the Institution of Electrical Engineers “Regulations for Electrical Installations”, The New Roads and Street Works Act 1991, the Traffic Signs Regulations and General Directions 2016, the Safety at Street Works and Road Works Code of Practice, Chapter 8 of the Traffic Signs Manual and all successive or amending legislation or regulation.

6.3.2 All public lighting systems installed and maintained should fully comply with the following Legislation and Regulations or ones that supersede them:

- Highways Act 1980.
- Consumer Rights Act 2015
- The Local Government Contract Act 1997.
- The Management of Health and Safety at Work Regulations 1999.
- Electricity at Work Regulations 1989 (in force 1990).
- Traffic Signs Regulations and General Directions 2016.
- Equality Act 2010
- Road Humps Regulations 1999.
- New Roads and Street Works Act 1991.
- BS 7671: Regulations for Electrical Installations.
- BS 5489: Parts 1 – 10 ‘Code of Practice for Road Lighting’.
- BS EN 60529: ‘Specification for Clarification of Degrees of Protection provided by Enclosures’.
- BS EN 60598 – 2-3: 1994, Luminaires for Road and Street Lighting.
- BS5649: ‘Lighting Columns’.
- BS EN 40-1;1992 Lighting Columns. Definitions and Terms.

- BS EN.40-2: 2004 Lighting Columns. General Requirements.
- BS EN 40-1:191, EN 1990, EN 1991-1-4-2005 & 40-3-1-2000 Design and Verification for characteristic loads.
- BS.EN 40-3-2:2013 Lighting Columns. Designs and Verification.
- Verification by Testing.
- BS 40-3-3:2013 Lighting Columns. Design by Verification. Verification by Calculation.
- BS 40-5-2002 Lighting Columns. Requirements for Steel Columns.
- BS 40-6:2002 Lighting Columns. Requirements for Aluminum lighting columns.
- BS 5469-5:1982, EN 40-5:1982 Lighting Columns. Specification for base compartments and cableways.
- BS.6547:2004+A1:2009 Guidance for the use of BS 40-3-1 and BSEN 4-3-3.
- BS EN 12697-40:2012 Bituminous Mixtures. Test methods for hot mix asphalt. In situ drainability.
- BS EN 12767 Passively Safe Street Lighting and Signposts.
- Department of Environment, Transport, and the Regions departmental Standard BS26/99 – ‘Design of Lighting Columns’.
- The Wildlife & Countryside Act (1981) (as amended).
- The Conservation (Natural Habitats, etc.) Regulations 1994 (as amended).
- Department of Environment, Transport, and the Regions Advice Note TA 49/07 – ‘Appraisal of New and Replacement Lighting on Trunk Roads and Trunk Road Motorways’.
- Passively Safe Road BS EN12767 and Institution of Lighting Professionals Technical Report TR30, and North East Lincolnshire Council Street Lighting Policy.

6.3.3 “Not Adopted” Signs to be erected

On all lighting units and lit signs erected as part of the development (whether Onsite or Off-site), the developer shall attach, via non-metallic cable ties, one “Not Adopted” sign with owner contact information. These signs shall be attached to the lamp columns on erection and remain up until such a time until the highway authority adopts the equipment. The signs shall generally face the

carriageway. The pattern and legend of the signs shall be approved by NELC, but the purpose is to advise residents to whom they should refer any lighting defect or any other enquiry.

On a large development (consisting of more than one new road) NELC would advise the developer to erect an informative sign at the entrance to the site advising residents of contact details for all maintenance purposes. It is essential that the sign have accurate contact information for the developer or his agent.

It should be noted that any advert may require planning permission and the relevant process should be followed.

7 DRAINAGE

7.1 General Design

- 7.1.1 It will be the developer's responsibility to provide full engineering details of the proposed drainage infrastructure and the justification for proposing the submitted scheme. It is possible that the Council may seek commuted sum payments in cases where the agreed solution could lead to increased maintenance costs, but these will be examined on a one-off basis and the details / costs agreed prior to the acceptance of the proposed scheme.
- 7.1.2 Flooding is becoming an increasing common occurrence throughout the country due to the impacts of climate change. Sustainable Drainage (SuDS) is the term given to the range of drainage features which help to mimic natural drainage characteristics, rather than the traditional piped drainage systems.
- 7.1.3 SuDS help to slow down the flow of water, and provide storage to help prevent flooding, but also provide water quality improvements by filtering out pollutants. SuDS can also provide habitat for local flora and fauna.
- 7.1.4 There are a wide range of various different SuDS features which can be used on any one site, and what works well on one development may not be suitable for

another. It is the developer's responsibility to come up with an appropriate drainage design, incorporating a variety of SuDS features that maximise the benefits available.

7.2 Site Assessment

7.2.1 The drainage characteristics of the site should be assessed to see where the water flows naturally. It can be more cost effective to manage surface water along existing flow paths, incorporating storage such as ponds in existing low spots, rather than to try and force the water elsewhere by pumping or excessively deep pipework.

7.2.2 However, sometimes this will not be appropriate for the site, and ground levels may need to be altered to accommodate the site layout along with the drainage design. If there are proposed alterations to ground levels, the developer should assess the impacts on raising levels on the existing overland flow routes. i.e., will raising levels prevent an adjacent site upstream from draining or will it concentrate flows downstream putting existing properties at risk?

7.2.3 The site assessment should include investigating ground conditions to check how well or not the soils infiltrate. Although the majority of North East Lincolnshire has heavy clay soils, there are sandy lenses throughout the borough in which infiltration can be very effective. Site investigations should always be carried out, and desktop studies should not be the sole reason for discounting the use of infiltration on a site.

7.3 Surface Water Discharge

7.3.1 All sites, both greenfield and brownfield, should be aiming towards having a surface water discharge rate to be as close to greenfield rates as possible. In certain circumstances this may not be viable, and higher discharge rates can be agreed although the minimum betterment required is a 40% reduction in peak flows, to offset climate change.

7.3.2 When calculating existing runoff from brownfield sites, it is important not just to assume the theoretical maximum discharge for the site. Instead, site investigations should take place to see what existing drainage infrastructure is in place, as the size, gradient and condition of the pipework will determine actual discharge rates from the site.

7.3.3 Ideally, sites will discharge surface water to ground by infiltration, although this will not be suitable in a lot of cases. Any watercourse adjacent to the site would be presumed to be under riparian ownership, and the development would have rights to discharge into the watercourse, although only at the approved discharge rate.

7.3.4 Any modifications to a watercourse will need to have consent prior to any works taking place. If the watercourse is a main river, this consent will be provided by the Environment Agency. For all other 'ordinary watercourses', the consent will either come from NELC, or one of the Internal Drainage Boards if the site is within their district. The two IDB's within North East Lincolnshire are North East Lindsey Drainage Board, and Lindsey Marsh Drainage Board.

7.3.5 If the development site does not have rights to connect to a watercourse, a surface water sewer would be the next appropriate connection point, followed by combined sewers. It is not appropriate for surface water to be connected into foul sewers. Consent from Anglian Water will be required for connections to the public sewer.

7.4 Climate Change Allowance

7.4.1 Current guidance is to allow for a 40% climate change allowance within the drainage design.

7.5 Site Layout

- 7.5.1 A high quality SuDS drainage design will make use of a variety of features, and source/ site/ regional controls as necessary.
- 7.5.2 Source control tries to manage surface water as close to where it lands as possible, be it an individual property, a single road etc. At the property level we would expect to see source controls such as water butts, rain gardens and permeable driveways being used. The water butt allows for rainwater to be harvested for re-use in the garden, helping to reduce the total volume of water discharged from the site.
- 7.5.3 Rain gardens are shallow areas of ground which receives surface water run-off from roofs and other hard surfaces. They are planted with plants that can stand waterlogging for up to 48 hours. Their use slows down surface water flow rates and can reduce flow volumes, as well as improving water quality.
- 7.5.4 The use of permeable paving not only reduces the site's overall impermeable footprint, it can also provide some storage capacity at the source, as well as improving water quality. It should be noted, however, that North East Lincolnshire Council will not look to adopt permeable paving as part of the adopted highway.
- 7.5.5 On some roads, it will be possible to replace the footpath on one side and replace it with a swale. Swales provide conveyance of flows, and storage capacity, with some improvements to water quality. Keeping water flowing on the surface, rather than in pipes underground, allows for the invert levels of the drainage network to be higher, reducing the need for excessively deep ponds or having to discharge surface water via a pump.
- 7.5.6 Opportunities to make multi-functional SuDS features should be explored at every instance. Grass verges could be made into rain gardens and if trees are to be used within the streets, tree pits could be incorporated into the drainage design etc.

7.5.7 Flood storage areas which are designed only to fill in a 1:100-year storm could double up as amenity space for the majority of the time when the area will be dry.

7.5.8 Having several smaller storage features throughout a site, rather than one large pond downstream can allow for the site drainage to be incorporated into the site layout much more effectively. Linking several features helps improve water quality as more time is given for silts to settle, or heavy metals to be filtered out.

7.6 Exceedance Routes

7.6.1 Given that the drainage will only be designed to cope with rainfall events up to 1:100 year with climate change allowance, the site should be assessed as to what would happen in an event over and above the design criteria.

7.6.2 The exceedance flow paths should be checked to ensure that, for instance, if a pond was to overflow, the flows are not directed into any new or existing property on, or adjacent to the site.

7.6.3 In these extreme events, it is permissible for some roads, car parks etc. to flood, but exceedance flows should be managed on the site to ensure that no homes are at risk. If, however, there is only a single entrance into the development, it is critical that the main access/ egress route from the site is not cut off during an emergency situation.

7.6.4 It is possible in some urban areas that the existing surface water public sewers may be capable of accepting the highway run off and the developer should first enquire of the Water Company as to the acceptability of this solution. Written evidence confirming acceptability or non-acceptability should be submitted as part of the technical submission for highway approval of the scheme.

8 TRAFFIC SIGNALS

8.1.1 All signal equipment shall be fully type-approved by the Department for Transport (DfT) or be TOPAS Registered and shall comply with the current versions of the

DfT specifications (MCR and TR series) and British Standards Institution (BS) documents. Any reference within this document to the TR2500 suite of documentation shall also be taken as referring to the corresponding TOPAS 2500 suite of documentation <http://www.topasgroup.org.uk/shop/specifications.htm>.

Where revisions to the documents occur, the developer shall seek written authority from the Authority before modifying the equipment to comply with the new requirements.

All signal works to be installed to the latest NELC specification.

- 8.1.2 The contractor shall include for the supply and delivery of all equipment detailed within this contract, which will include the erection and wiring, together with the testing of the installation and leaving it in working order to the satisfaction of the Engineer. The contractor shall also include for any materials and work which may not be expressly specified but which are implied and necessary for the satisfactory completion of the installation.
- 8.1.3 The contractor is deemed to have inspected the site prior to tendering of the works and is to notify the Engineer of any problems that would affect installation of the traffic signal equipment prior to submitting their tender. The contractor must also make provision in the tender for providing such facilities as may be required by the Electrical Authority to carry out such inspection and tests as they may require.
- 8.1.4 Where an approved list for a particular type of equipment is incorporated in the technical specification for the individual scheme, only equipment on that list shall be supplied, subject to the requirements of the general specification. Tenders shall be submitted on the basis that approved equipment will be used throughout. Alternative equipment may be submitted for the inclusion in the approved lists and alternative quotations may be provided assuming use of that equipment.

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- 8.1.5 Traffic signal controllers shall comply with TR 2500A “Specification for the Traffic Signal Controller”. All controllers shall comply with appropriate sections of this General Specification as required by the site-specific technical specification. Clause numbers that refer to TR 2500A are underlined throughout this General Specification. All optional facilities identified in the TR 2500A shall be available for use in appropriate combinations, at the discretion of the Engineer.
- 8.1.6 The contractor shall ensure that all works conform with all Regulations, Acts and Specifications appropriate to the works and that all sub-contractors and suppliers are fully approved to work on the highway and accredited to the ISO 9000.
- 8.1.7 The contractor shall comply in all respects with the Highway Electrical Industry Scheme for the Registration of the Authorised Persons – Highway Electrical, Highway Electronic, Associated Highway Works. In particular, employees carrying out work on site (work is defined as opening a door or access compartment or more on an item of street furniture) shall be registered to the Highway Electrical Industry Scheme for the Registration of Authorised Persons – Highway Electrical, Highway Electronic, Associated Highway works under the appropriate occupational title as defined therein.
- 8.1.8 Any subcontractors or other contractors appointed by the contractor, other than those solely carrying out excavation and/or reinstatement works, the supply of electricity or acting as or on behalf of the Electricity Supply Company in respect of the supply, repair, replacement or cessation of electricity connections, shall also comply in all respects with the Highway Electrical Industry Scheme for the Registration of Authorised Persons – Highway Electrical, Highway Electronic, Associated Highway Works.
- 8.1.9 The installation works shall be carried out with minimum disruption to the pedestrian and vehicular traffic. Measures should be taken to ensure the safety of the contractor’s staff and the public during the works. Adequate working space, warning signs, means of access and lighting must be provided.

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- 8.1.10 The installation works shall conform to the Construction (Design & Management) Regulations and TA 84/01 "Code of Practice for Traffic Control and Information systems for All-Purpose Roads".
- 8.1.11 The contractor shall ensure that all construction works and activities on the highway conform to the New Roads and Street Works Act 1991, Chapter 8 of the Traffic Signs Manual and all relevant health and safety regulations and acts.
- 8.1.12 Precautions shall be taken against the possible presence of gas in the controller cabinet, at the top of signal poles, cable draw pits and ducts. If any gas is suspected anywhere in the ducting system, then the National Gas Emergency Service should be contacted immediately on 0800 111 999.
- 8.1.13 Stand- alone Pelican, Puffin and Toucan crossings are referred to as mid-block crossings throughout this specification. The requirements for mid-block crossings will also apply to equestrian crossings unless specified otherwise.
- 8.1.14 All pedestrian facilities shall comply with Best Value Performance Indicator (BVPI) 165 "Percentage of pedestrian crossings with facilities for disabled people".
- 8.1.15 Where reference is made to the Authority's Traffic Signal Maintenance Contractor, this at present shall mean 'SWARCO UK & Ireland Ltd, Unit E, Boothroyd's Way, Green Lane Industrial Estate, Featherstone, WF7 6TA, UK'. This may have changed since this document was written and should be checked before any reliance is made on this information.
- 8.1.16 The contractor is required to carry out various tests on the installation as a whole including the subsurface and above ground detection revalidation and meet the requirements of the latest IEE Wiring Regulations in all matters to do with this equipment and that connected to an unmetered electrical power supply.

8.1.17 Please note on award of the traffic signal contract a meeting between the contractor and authority's traffic signal engineer will be required before any works commence, including ordering of materials etc.

9 PLANNING AND HIGHWAY AUTHORITY APPROVAL

9.1.1 Applications for planning permission for development involving residential roads should be made to NELC. At this stage, the Planning and Highway Authorities will need to be satisfied that the following aspects of the development are in accordance with current requirements, namely those details set out in this Design Guide and including but not limited to:

- The geometric layout of the proposed new streets, including visibility splays at the junctions with existing highways;
- The surfacing materials and kerbing details that can be utilised as part of works within the public highway;
- The surface water drainage, and,
- The positioning of Statutory Undertakers' plant and any associated ducts under the maintainable highway.

The Condition placed on all relevant planning applications, that must be discharged prior to construction, is as follows:

CON001 Highway Construction Details

Development shall not begin until the following details have been submitted to and approved in writing by the Local Planning Authority.

- (I) Detailed plans to a scale of at least 1/500 showing: -
- (a) the proposed layout of the carriageways and footways on the development;
 - (b) the wearing course materials proposed for the carriageways and footways;

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- (c) cross sections;
 - (d) the highway drainage system;
 - (e) the proposed locations of street lighting columns, all services and ducts for services, within the carriageways and footways;
 - (f) the number, location and layout of the vehicle garaging and/or parking facilities within the site to serve the proposed development;

(g) management arrangements for any carriageways, footways and/or landscaped areas not to be adopted by the local authority;

(h) swept path analysis demonstrating turning manoeuvres for emergency vehicles on all carriageways (adopted and private), and refuse vehicles on all adopted carriageways;

(ii) A Stage 1 and 2 Road Safety Audit (RSA) must be provided. The RSA should take into consideration and The Road Safety Audit must be undertaken by a fully qualified independent Road Safety Auditor.

REASON

To ensure that the proposed access roads are made up as soon as possible and in the interests of public safety.

9.1.2 In order to speed up this process, it is important that applicants ensure that the drawings submitted with their application include these details and are consistent with the standards laid out in this Design Guide and the Residential Roads Construction Guide.

9.1.3 A detailed specification for the adoptable elements of the development will need to be produced after the planning process and this will be the subject of direct negotiations between the Developer and the Highway Authority. No work may commence on site before full details have been agreed by the Highway Authority.

9.1.4 A S38 application form must be submitted to NELC to include the details in section 9.1.5 below. It should be noted that any works commenced on site prior to all Technical Approvals and Legal agreements being in place are done so entirely at

the developers risk and may result in costly intrusive works to demonstrate the construction is to the required highway authority standard.

9.1.5 The Highway Authority's specifications are set out in the Residential Roads Construction Guide, but the following drawings will be required:

- An accurate site survey plan with levels related to Ordnance Datum at Newlyn;
- A site layout plan of the entire scheme at 1:2500 or 1:1250 scale, including details of the existing external highway network;
- 1:500 scale* layout plans showing
- comprehensive highway details
- comprehensive highway drainage details and means of disposal of highway water
- Longitudinal sections, to a horizontal scale of 1:500 and appropriate vertical scale showing:
 - existing and proposed highway levels,
 - highway drainage details.
- A typical cross section drawn to a natural scale of 1:20 showing the proposed road construction.
- Drawings and calculations required for retaining walls and other structures.
- Details of Statutory Undertakers' mains and ducts.
- Approved street lighting layout including ducting and any additional electrical works to illuminated signs and bollards (if required)
- Details of road markings and signage (including sign schedules)
- Layout plans to be suitably coloured and keyed as below-

➤ Limit of Section 38 Works	Edged Red
➤ Vehicular asphalt surfaces	Light Grey
➤ Vehicular shared surfaces	Light brown (hatch pattern for blocks)
➤ Pedestrian only surfaces	Pastel Yellow
➤ Soft landscape (shrubs)	Green
➤ Soft landscape (grass)	Light Pastel Green
➤ Gullies and highway drain	Blue
➤ Street Lighting	Red

9.1.6 The scales used in the above drawings are to be approved metric scales. e.g. 1:500; 1:200; 1:100; 1:50.

* In the case of Shared Access Ways, 1:200 scale is preferred.

9.1.7 Unless alternative details are agreed with the Highway Authority, the construction will be one of the described in the Construction Guide, and for which standard drawings will be available from the Highway Authority.

10 COMMUTED SUMS

10.1 All highway infrastructure including roads, footways, drainage and verges will generally be adopted on satisfactory completion of the maintenance period without charge.

10.2 Certain aspects of the highway layout will however only be adopted by the Council provided a commuted sum covering maintenance costs over and above those which may normally be encountered. These will be determined on an individual basis but will generally cover the following categories: -

- Any culvert, bridge, retaining wall or other structure.
- Any soft landscaping in excess of the areas of grass verge specified
- Unusual drainage systems including on-line storage, hydro breaks, pumping stations, open watercourses, SUDS and deep bore soakaways.
- Additional areas of carriageway or footway over and above the minimum requirements specified in this Guide.
- The use of surfacing materials which, whilst being approved, will result in higher maintenance or replacement costs.
- The installation of specialist or non-standard street lighting equipment.
- The installation of all traffic signal equipment
- Any street furniture not required for road safety purposes.

10.3 The Highway Authority will advise the developer at the time of the issue of the Construction Approval Notice which parts of the development, if any, that will

incur a commuted sum payment prior to adoption. The value of the sum will be the subject of a separate discussion and written acceptance of the terms of payment will be required prior to the commencement of any work on the site.

11 LEGAL REQUIREMENTS

- 11.1 The Highway Authority will require a guarantee under the provisions of the Highways Act, 1980 (8) that residential roads and footways will be completed to these approved standards. Before construction begins, the Developer will therefore be required either:
- to secure the payment of the estimated cost of highway works, under the Advance Payments Code provisions as set out in Section 219 of the Act, or
 - To make an agreement with the Highway Authority under Section 38 of the Act and provide a Bond of Surety. Please note cash bonds will not be accepted.
- 11.2 The Highway Authority operates a detailed policy regarding Advance Payments Code and Section 38 Agreements and Developers should consult the Highway Authority at the earliest opportunity to avoid the risk that new roads will not be adopted as public highway. Developers are advised that until such time as there exists a deposit under the Advance Payment Code or an agreement under Section 38, Local Land Charge Searches will disclose the omission to prospective purchasers.
- 11.3 The Highway Authority additionally operates a policy regarding Section 278 Agreements. All developers with affected developments will be required to enter in to a legal agreement, along with the relevant bondsman, prior to commencing any works within the highway maintainable at public expense. It will be at the Highway Authority discretion as to when these works will be programmed in to take place and all developers are required to give a minimum of six months' notice to ensure coordination with any other works taking place on the highway network.

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- 11.4 The Highway Authority also operates the provisions of Section 184 of the Highways Act 1980 (8), as far as they affect the construction of those parts of the Access Road(s) which are located within the boundaries of existing publicly maintainable highways. Under normal circumstances, the Highway Authority will authorise the Developer to carry out such works in accordance with the approved plans and specifications.
- 11.5 Where it is proposed to construct a building over the highway, a licence under Section 177 of the Highways Act 1980 (8) is required from the Highway Authority.

12 HIGHWAY ADOPTION STANDARDS

- 12.1 The Highway Authority will adopt roads, footways, and verges/ service margins as highway maintainable at public expense subject to the following conditions:
- 12.2 All layouts, materials and specification of works must comply with this Design Guide and the NELC Construction Guide.
- 12.3 Any verges and planted areas adjacent to the carriageway will be adopted on the basis of an aggregate area of such verge or planted area not exceeding 4 square metres per metre run of carriageway (excluding visibility splays at junctions). For this purpose, verges and planted areas may be concentrated alongside certain carriageways in a development subject to the total area not exceeding the above aggregate, but inevitably this will mean that verges and planted areas cannot be provided on all roads within that particular development.
- 12.4 All other verges and planted areas which are not immediately adjacent to carriageway will be regarded as amenity areas and will not be adopted as highway maintainable at public expense, and Developers will have to make alternative arrangements for maintenance. It is intended that the amalgamation of verges and planted areas into larger more informal areas as

envisaged by this clause will allow greater scope for the development of attractive landscaped and planted areas within the highway.

- 12.5 Footways adjacent to carriageways, spine footways linking into residential areas, will be eligible for adoption, as will footpaths which provide the principal means of pedestrian access to the curtilages of dwellings. Footways may, of course be segregated from carriageways subject to the provisions set out in sub-paragraph (b) above for the adoption of grass verges. All other footpaths will be considered for adoption on their merits and will not be adopted purely because they are provided.
- 12.6 Parking areas will not be adopted except for communal parking by visitors adjacent to A2 and A3 Access Roads, A4A Access Ways, and to the core areas of A4B Mews Courts.
- 12.7 A5 Secondary Access Roads serving garage blocks only, will not be adopted.
- 12.8 Splays to A6 Private Drives at the back of the Highway Boundary will not be adopted.
- 12.9 All new roads must be constructed to a layout and specification which will render them suitable for adoption as highways maintainable at the public expense in accordance with guidance. Private Drives constructed to a lesser standard than the requirements of this Design Guide will only be permitted where the number of dwellings served is 5 or less.
- 12.10 In exceptional circumstances the Highway Authority may resolve that a particular development be granted exemption from the Advance Payments Code provisions but, in any such cases, the development will still be required to comply with the criteria set out in this Design Guide in respect of junction standards, road widths and parking and turning facilities.
- 12.11 The type of traffic signs and road markings required, and their location will be advised by the Highway Authority. Their provision and installation is the

responsibility of the Developer. The Highway Authority is, however, prepared to carry out this work on behalf of the Developer, subject to the receipt of an official order.

12.12 NELC will not issue Section 38 Technical Approval until we have received proof of Section 104 Foul and Surface Water Approval.

12.13 In order to ensure that construction is carried out in accordance with the approved drawings and specifications, all developments will be inspected by representatives of the Highway Authority and every facility must be given for these purposes otherwise it may prejudice adoption. Detailed requirements are set out in the NELC highways specification, road construction notes and standard details. and failure to comply with these requirements could result in the Developer facing additional costs for any necessary investigation work and remedial works in respect of sub-standard materials or workmanship.

12.14 Following satisfactory completion of roads and footways, the work will be placed on maintenance for a period of 12 months and a Provisional Certificate (maintenance certificate) issued. At the end of the maintenance period and subject to a further satisfactory inspection, adoption will take place and a Final (Completion) Certificate will be issued.