

***Aurora***

Working in partnership with   
**Sunderland**  
**City Council**

**Specification for Street Lighting  
Works on Private Developments**  
(Rev. 5 – June 2014)

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A **Balfour Beatty** Company

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## **STREET LIGHTING**

### **GENERAL SPECIFICATION**

#### **SECTION 1 – GENERAL**

##### **1.1 Design**

The Street Lighting scheme shall be designed in accordance with the current editions of the British Standard for Road Lighting BS EN 13201 and the Code of Practice for the Design of Road Lighting BS 5489-1, and this specification.

The minimum design parameters shall generally be:

Distributor Roads	ME3b / S2
Residential Roads / Footpaths	S4

Aurora Street Lighting Ltd offer a design and build service for all street lighting on Private Developments, and can be contacted on the details listed below.

##### **1.2 Standard**

Before design has commenced, the Developer shall consult with Aurora Street Lighting Ltd, who are responsible for the Street Lighting and Highway Signs in the Sunderland City Council Area, as to the particular requirements for their development, i.e. lighting levels, column heights, lamp sources and type of equipment to be used. The contact details are as follows:

Aurora Street Lighting Ltd  
Unit 14, Brooklands Way  
Baldon Business Park  
Baldon Colliery  
Tyne and Wear  
NE35 9LZ

Tel: 0191 519 6060      Fax: 0191 519 6080

##### **1.3 Approval**

Assuming the Developer prepares the design, it shall be submitted to either the Authority or Aurora Street Lighting Ltd for approval. The first submission is free, but subsequent submissions do attract a charge. A table of costs relating to the approval process is available on request. The design submission must include the following information; otherwise the design may be rejected:

- (i) A plan (1:500 scale or larger) showing:
  - a) The positions and type of any immediately adjacent lighting columns either existing or proposed, on other roads, phases or adjoining developments.
  - b) The positions of roads, shared surfaces, footways, footpaths, houses, boundaries and driveways.
  - c) The positions, types and heights of the proposed street lighting columns and bracket arm lengths.
  - d) The lantern and lamp types and wattages.
  - e) Where a Northern Powergrid service is to be installed into a column, the plan shall clearly show the route of Northern Powergrid's low voltage cable network in the vicinity of the column.
  - f) Where the Developer is to install his own underground cables, the plan shall clearly show the route of all cables and ducts, together with the types and sizes of cables used.
- (ii) Lighting design calculations showing, according to the category of the road, the luminance, uniformities, threshold increment, surround ratio, average illuminance and minimum illuminance, in accordance with the method required by the above standards listed in para 1.1 Design.
- (iii) Any other relevant information that the Developer wishes to provide to support his design.

#### **1.4 Quality of Labour**

Installation of lighting columns and control equipment within lighting columns, feeder pillars, etc., shall be carried out by competent persons with respect to the type of work they are engaged on and shall, where applicable, be certified in accordance with the requirements of the HEA, with the appropriate registration card.

## **SECTION 2 – EQUIPMENT**

### **2.1 Lighting Columns (Tubular Steel)**

All lighting columns shall be manufactured by Mallatite or equivalent in accordance with BS EN 40 for Lighting Columns, complete with a 30 year warranty from the column manufacturer, and the particular requirements as follows:

- (i) All 5/6m lighting columns shall be designed to meet the requirements of Terrain Category III. All 8/10/12m lighting columns shall be designed to meet the Terrain Category suitable for the area of installation, as directed by the column manufacturer. As a minimum Terrain Category II.
- (ii) All lighting columns shall be designed to have a 10 minute mean wind velocity of 27.35m/s adjusted for a mean return period of 50 years and further adjusted for an altitude above sea level of 85m.
- (iii) Design of lighting columns to facilitate Attachments shall be as specified in Appendix A.
- (iv) Fatigue calculations shall be in accordance with BD 26/99, and shall be applied to columns over 8m in height and the design life shall be taken as 50 years for the purposes of this calculation.
- (v) All columns before leaving the factory are to be protected in accordance with BS 5493 as follows:
  - (a) Hot dip galvanizing with zinc in accordance with BS 729 with an average minimum coating of not less than 610g/m<sup>2</sup> on both internal and external surfaces.
  - (b) The galvanised surface to be degreased.
  - (c) External surfaces overall and internal to 250mm above finished ground level including bracket arm and door internal/external to receive Abcite Coating. Colour as following:  
  
BS 4800 Black (00 E 53)

### **2.2 Lighting Columns (Tubular Steel Raise and Lower)**

When required, raise and lower columns shall be installed at such locations where vehicular access is limited or where the presence of a maintenance vehicle may impede the free flow of traffic, in full accordance with the following.

All tubular steel raise and lower columns shall comply with the requirements of para 2.1 Lighting Columns (Tubular Steel).

All columns shall be erected in accordance with the manufacturer's instructions and the oiling point provided for the lubrication of the hinged cam shall be attended to during erection.

Any special equipment required to raise and lower columns, shall be provided by the Developer, and used in full accordance with the manufacturer's instructions.

### **2.3 Lanterns**

All Lanterns shall have an LED light source. As Sunderland City Council are currently looking to select a preferred supplier then, a lantern should only be selected following consultation with SCC's PFI provider; Aurora Street Lighting Ltd.

All lanterns shall be provided with a 12 year warranty from the lantern manufacturer, which can be transferred to Aurora Street Lighting Ltd.

### **2.4 Traffic Signs**

Traffic Signs will be provided to the recommendation of PREN 12899-1 Road equipment Fixed vertical road traffic signs Part 1.

The proposed manufacturers for traffic sign luminaires is Simmonsigns Ltd or Signature Traffic Ltd. The lantern shall consist of a die-cast aluminium body incorporating outreach bracket finished in polyester powder coating to 80 um min. with 3mm polycarbonate lens. Mounting can be either post top or clip fixing. Unit shall be sealed to a minimum IP54. Lighting unit to be LED with integral driver and PECu. Light output to BS 873 Part 5.

Traffic Sign faces to be of aluminium construction with Retro Reflective Micro Prismatic sign faces to Traffic Sign Regulations and General Directions 2002. Fixing will be by standard sign fixing channel clips.

Traffic signposts will be manufactured to similar standard and quality finish to the lighting columns.

Sign Pole Colour BS 4800 Black (00 E 53)

### **2.5 Bollards**

Illuminated Bollards shall be a Signature LED Solar TrueFlex type, Non illuminated bollards shall be a Signature TrueFlex where appropriate.

### **2.6 Photo Electric Cell Control Units**

Photo electric cell control units shall conform to BS 5972 and be of one piece construction, either plug-in or miniature supplied by Royce Thompson or Selc.

The unit shall be factory calibrated to provide a switch on level of 35 lux +/- 10% with a ratio of 1; 0.5, resulting in a switch off setting of 18 lux. The manufacturer shall provide a certificate of calibration and compliance.

## **2.7 Fuse Junction Units**

Except for those fuse junction units which are the property of Northern Powergrid all fuse junction units in street lighting installations shall be as manufactured by Tofco-SMK Limited or approved equivalent.

The fuse junction units shall be rated at a minimum of 32 amps and be of the double pole switched isolator type complete with integral fuse carrier(s) suitable for cartridge type fuses to BS 88 as Lawson type MD or equivalent. The switched isolators shall comply with, and be approved to BS 5419, and shall be provided with an interlocking facility such that the fuses cannot be removed until the isolator is in the 'off' position which shall be clearly indicated.

The fuse junction units shall be provided with a locking off facility capable of accepting a padlock to facilitate safe electrical/mechanical maintenance.

Fuse junction units shall be provided with a pre-wired internal earthing system from top to bottom of the unit. The units shall also be provided with cast brass gland plates to suit the termination requirements complete with suitable terminals and brass nuts/lock washers for bonding to the column earth terminal. Where gland plates have unused cable entries these shall be securely blanked with purpose made plugs to maintain electrical safety. Where wire armoured cables are to be terminated at a gland plate the steel wire armour shall be securely fixed with stainless steel armour clamps of the 'Jubilee' type.

The fuse junction units shall be as follows dependent on the type of installation involved:

- (i) Columns with Northern Powergrid service and street lighting loop out:  
to be fitted with a DPI enclosure system complete with 32amp double pole isolator, two BS 88 fuse carriers for lantern and spurring and two way extension box, one way being fitted with a stuffing gland for interconnecting 'tails' and one way for looping out with wire armoured cables.
- (ii) Street lighting looped columns:  
to be fitted with a DPI enclosure system complete with 32amp double pole isolator, single BS 88 fuse carrier for lantern and two way extension box for looping steel wire armoured cables.

Dependent on the installation type involved fuses in compliance with BS 88 shall be provided as follows:

- Fuses used in street lighting units shall be of the cartridge type (as Lawson MD)
- Fuses used in Northern Powergrid units shall be of the LST type

## **2.8 Cables**

Underground cables shall consist of standard copper conductors, XLPE insulated, XLPE extruded bedding, a concentric layer of steel wire armour overall XLPE sheathing suitable for operation in an earthed system and of rated voltage 600/1000 volts at 50Hz, all in accordance with BS 6346 for metric cable, and BASEC approved.



All cores of the cable shall be of equal cross sectional area and shall be of such size that the volt drop at the terminals in lamp columns shall not exceed 4% of the voltage at the supply point.

The minimum size of cables shall be 6 sq. mm.

## **2.9 Cable Identification**

All cables entering columns shall be fitted with proprietary manufactured identification tags, or cable markers, fixed in an approved manner.

The identification tags shall incorporate water proof covers.

Identifying descriptions on the tags shall be made in indelible ink.

Descriptions shall state:

- (i) IF the cable belongs to Northern Powergrid; or
- (ii) IF the cable belongs to the Local Authority together with its source, i.e. the identification number of the column to which it is connected.

## **2.10 Plastic Tape for Cable Marking**

Plastic tape shall be laid above all cable runs, and shall be at least 150mm wide yellow self-coloured PVC or polyethylene not less than 0.1mm thick printed 'STREET LIGHTING CABLE' along its full length. The wording shall occur at least at 1m intervals and shall occupy not less than 75% of the available length.

## **2.11 Service Connections**

The service connections shall be to the requirements of Northern Powergrid and Integrated Utility Services.

## **2.12 Terminations and Joints**

Joints shall not be allowed, all cables shall terminate in a cable cut out in the base of the column.

Earthing of the cable armouring shall be in accordance with para 3.7.

## **2.13 Wiring**

Wiring within the lighting column between the terminal block in the lantern and the components in the base unit shall be PVC insulated and sheathed, two core and earth cable 600/1,000 volt grade having copper conductors of cross sectional area not less than 2.5 sq. mm. All cores shall be correctly colour coded in accordance with the current

edition of the ILE 'Code of Practice for Electrical Safety in Public Lighting Operations'. Unsupported lengths of wiring shall be kept to a minimum and not be allowed to come into contact with components by their freedom of movement.

Circuit protective wiring shall have copper conductors and green/yellow PVC insulation or green/yellow PVC insulation sleeving, 600 volt grade conforming to BS 6004. Except for twin core and earth cable, as detailed above, and bonding to column doors as detailed in para 3.8 all circuit protective conducts shall have a cross sectional area not less than 4 sq. mm.

Any other wiring in the column except 'tails' as detailed in para 2.5, shall have copper conductors of cross sectional area not less than 2.5 sq. mm and be PVC insulated single core cable 600 volt grade conforming to BS 6004.

All wiring within the lighting column shall be terminated with insulated crimp terminals as appropriate.

#### **2.14 Specification for Column Handling / On-Site Painting**

The contractor shall take stringent precautions to protect galvanised, painted and coated surfaces from damage during off-loading, storage and erection.

Columns shall be stored well clear of the ground. Suitable packing shall be placed between columns to prevent damage to all coated surfaces.

Particular attention shall be made to the protection of the column root and no column shall be erected until damage to this area has been made good to the satisfaction of Balfour Beatty Living Places, and in strict accordance with manufacturer's instructions.

#### **2.15 Column Identification**

Columns shall be identified by letters/numbers in accordance with a schedule which shall be provided by Aurora Street Lighting Ltd.

The appliance numbers shall be attached to columns at a height of 1.8M from ground level, by the use of self adhesive labels, utilising a black background and white numbers / letters / symbols. The size of the characters shall be as follows:

- Numbering System A – feeder pillars, lighting columns of 8m and above and wall brackets or structure mounted lighting units on classified roads – 75mm in height.
- Numbering System B – Lighting columns of below 8m, illuminated traffic signposts and wall brackets or structure mounted lighting units on unclassified roads – 50mm in height.

Where an existing column is to have its number changed or re-applied, the number on the column shall be obliterated before applying the new number.

If the column/unit contains:

- (i) A live Northern Powergrid Service, the appliance number shall be suffixed with a diamond (40 x 25mm).

or

- (ii) A live public lighting service, the appliance number shall be suffixed with a circle (50mm dia).

NB: Columns/units with dusk to dawn services have no suffix.

The letters/numbers shall read down the column unit, beginning with the area prefix and attached to the column/unit such that it faces into the highway.

Double arm lighting columns shall have the appliance number applied to the column twice, such that they face oncoming traffic at an angle of 45°. One appliance number shall be suffixed with an 'A' and the other 'B', this refers to each lantern. If not already on the column, a schedule will be provided by Aurora Street Lighting Ltd.

## **SECTION 3 – INSTALLATION**

Aurora Street Lighting Ltd and Sunderland City Council insist upon monitoring, via a Clerk of Works service, all street lighting installations on Private Developments which are to be submitted for future adoption.

The costs associated with this service can be obtained from the following address:

Aurora Street Lighting Ltd  
Unit 14, Brooklands Way  
Boldon Business Park  
Boldon Colliery  
Tyne and Wear  
NE35 9LZ

Tel: 0191 519 6060 Fax: 0191 519 6080

### **3.1 Excavation of Cable Trenches**

Trenches shall be to the full depth, straight, cleanly cut and free from loose soil or stones before the cable bed is laid. The depth of cover shall be measured from the level of the finished surface to the top of the cable duct. Excavation taken out to a greater depth than necessary shall be filled in to the required level with suitable excavated material rammed in 150mm layers to provide firm bedding.

Trenches shall be of sufficient width to allow the cable duct to be properly laid. The bottom of the trench shall be levelled and, where instructed, rammed. In rocky or stony soils, suitable excavated material shall be spread over the bottom of the trench and rammed.

Excavation in solid rock shall mean excavation in rock found in ledges or masses in its original position which would normally have to be loosened either by blasting or by pneumatic tools or if excavated by hand, by wedges and sledge hammers. All solid boulders or detached pieces of rock exceeding 0.1 cu. m in size of trenches shall be regarded as solid rock.

Common excavation shall mean excavation in any materials which are not solid rock as defined above and shall include rock fill embankments, sub-base and gravel filter material, etc. which shall be carefully timbered against to prevent runs.

Suitable excavated material shall mean soil free from undecayed vegetation and hard materials such as flints, stones and solid rock, etc.

Particular care shall be taken not to damage or dislodge any adjacent pipes or ducts and the Contractor shall satisfy himself of the ground conditions and the presence of underground service pipes, etc. for any damage to which during or in consequence of excavation he will be held responsible.

Where public utility services are situated under any footway/footpath under construction all work on laying the services, providing connections, etc. must be completed prior to the final surfacing being laid.

### **3.2 Rock Cutting in Trenches**

Where rock as previously defined, is met with in trenches, it shall be cut out to a depth of 150mm below the intended level of the cable duct.

### **3.3 Cable Ducts**

Cables shall be installed in ducts under all circumstances; carriageways, vehicular crossings, private drives, footpaths, verge and planted areas incorporating shrubs, bushes, trees, etc.

Cable ducts shall have an internal diameter of not less than 50mm and a minimum wall thickness of 5mm and be manufactured from polythene.

Cable ducts across carriageways, vehicular crossings or other areas subject to use by heavy vehicles shall have an internal diameter of not less than 100mm and a mean wall thickness of 2.5mm and be manufactured from UPVC.

All ducts used for the installation of public lighting cables shall be through-coloured orange and have the legend 'STREET LIGHTING' printed or embossed along its length at intervals not greater than 1m.

Where more than one duct is to be installed in a trench the clearance between ducts shall be as the manufacturer's recommendation.

Where ducts are required under any footway/footpath or carriageway under construction all work on laying the duct and installing such public utility services as may be required must be completed prior to the final surfacing being laid.

Where 100mm cross road ducts and 50mm ducts across private drives (footway ducts), are installed they shall extend 600mm beyond each kerb face, and either side of the drive respectively. A suitable draw wire shall be installed and each duct shall be stoppered until the cables are drawn in.

The position of 100mm cross road ducts shall be indicated with permanent markers set in the kerb backings immediately over the centre line of the duct on each side of the carriageway under which they are constructed. The markers shall be identified with the distinguishing letter 'L'.

The procedure for laying 50mm ducts shall be as follows:

- (a) Excavate trench to a 575mm minimum and prepare bedding as Clause 3.1.
- (b) Place a 75mm bed of sand at the bottom of the prepared trench and lay the duct on the bed so that the final cover to the duct will be 450mm.

- (c) Surround the duct with sand to a minimum thickness of 75mm to form the duct bedding and backfill with Type 1 sub-base material up to formation level and compact in 100mm layers.

Where the duct is to be laid through planted areas incorporating shrubs, bushes, trees, etc. suitable excavated material as specified in Clause 3.1 may be used in the place of Type 1 sub-base material.

- (d) Lay a yellow marker tape as specified in para 2.8 along the line of the duct.

Where the duct is located in a footway/footpath the tape shall be laid below the formation level and 150-250mm below the final surface level. Where ducts are located in planted areas the tape shall be laid directly above the sand bedding.

- (e) Remove surplus to tip.

The procedure for laying 100mm (cross road) ducts shall be as follows:

- (a) Excavate trench to a minimum depth of 950mm and prepare bedding as Clause 3.1
- (b) Place a 150mm bed of Class 22.5/20 concrete on the bottom of the trench and lay duct on the bed so that the final cover to the duct will be 700mm.
- (c) Surround duct with concrete as (b) to a minimum thickness of 150mm.

Refer Clause 3.5 for reinstatement above concrete surround.

### **3.4 Reinstatement**

Refer to the General Specification for the Construction of Roads and Footpaths in new Residential Development for Highway Construction details.

### **3.5 Cable Termination in Fused Termination Units**

All underground cables directly entering fuse termination units in column base compartments shall terminate in the protection chamber and the cable cores made off in the fuse and neutral connector blocks.

Links between independent fuses and the outgoing terminals of Northern Powergrid fused termination units shall be 6 sq. mm PVC insulated cables as specified.

### **3.6 Fixing of the Photo Cell Unit**

The photo cell unit shall be fixed to the lantern and connected according to the manufacturer's instructions.

### **3.7 Earthing**

The Contractor shall liaise with Northern Powergrid regarding the type of earthing system to be utilised on the project, in the event of a PME system being used the Contractor shall comply with Northern Powergrid's instructions.

Northern Powergrid will make a system earth available on the incoming cable armouring at the supply point. This point shall be defined as the EARTH ELECTRODE.

The earthing clamps of the cables entering the column shall be suitably bonded together. The Contractor shall (subject to Northern Powergrid requirements for PME installations) install an EARTHING CONDUCTOR from the EARTH ELECTRODE to the earthing stud on the column. This point shall be defined as the MAIN EARTHING TERMINAL.

The Contractor shall install circuit protective conductors from the main earthing terminal to all items of electrical equipment to provide an equipotential bonding system.

The earthing conductor shall be of size not less than 6 sq. mm csa. The cable armouring shall be secured by means of a non-ferrous sleeve fitted below the armouring and earthing clamp making a positive grip on the armour wires. Earthing clamps shall be of the stainless steel 'jubilee' type or similar approved.

Column doors to be bonded to the column earth terminal with 6 sq. mm (84/0.3) copper yellow/green PVC insulated single core flexible cable of 600 volt grade conforming to BS 6004. The cable shall be of sufficient length to allow the door to be placed on the ground during maintenance, etc.

Bonding of armouring at terminations must be made without significant increase in resistance as compared to that of straight cable run.

Earthing shall be carried out in accordance with British Standard BS 7430 where applicable.

### **3.8 Erection of Columns**

Lighting Columns shall be positioned at the back of, and within the footway/footpath 100mm clear of the rear pin kerbing or footpath edge as applicable. Wherever special features such as verges exist the columns shall be erected 1.4m from the kerb edge as measured to the centre line of the column.

Columns in verges will be set on a 450 x 450mm flagstone and surrounded with concrete up to ground level. Finished concrete surface to be sloped away from column to shed water. Suitable duct(s) to be included for cable(s) entry.

Excavation for columns shall not be by mechanical means unless agreed by Aurora Street Lighting Ltd.

Columns when erected shall have the base compartment door positioned at right angles to the carriageway so that anyone opening the door is facing oncoming traffic.

Any column which is not truly vertical will be taken down and re-erected vertically at the expense of the Contractor.

All brackets will be tightly fitted to the columns according to the manufacturer's instructions.

### **3.9 Work on Northern Powergrid Network Poles**

All work on Northern Powergrid network poles must be carried out by Northern Powergrid or Integrated Utility Services.

### **3.10 Fixing of Lanterns, Lamps and Auxiliaries**

The lanterns, lamps and auxiliaries shall be fitted in accordance with the manufacturer's instructions and to the satisfaction of Aurora Street Lighting Ltd.

All wiring internally shall be installed with cable as specified in a neat and workmanlike manner. Cables shall be cut to proper lengths so as to prevent any loose cables fouling equipment and column doors. Any cable liable to cause fouling when cut to the correct length shall be clipped to the backboard. HRC fuses shall be fitted to the cut outs rated as required.

### **3.11 Operation of Lighting**

It is important that wherever practicable the road lighting old and new should be left in working order each night.

The Contractor shall programme the work so that the new columns are erected and in operation before the existing columns are disconnected.

### **3.12 Testing**

The installation shall be tested in accordance with BS 7671 and this specification. The Contractor shall provide all the necessary instruments for testing of the installation on completion or at any other time when requested to do so, and any extra tests called for in this specification. The Contractor shall ensure that all faults found in preliminary testing shall be made good before final testing, and provide three copies of the test results for approval. The results shall be in a form as required by the above mentioned BS7671.

The works will not be accepted or a certificate of completion issued until such tests have been approved by Aurora Street Lighting Ltd. The Contractor shall produce certificates of the accuracy of the test instruments used.



### **3.13 Record Drawings**

The Contractor immediately upon completion shall provide Sunderland City Council and Aurora Street Lighting Ltd with 'As Fitted' drawings in 1/500 scale for final inspection of the works. These drawings will be in the form of 4no paper prints of the completed installation. Electronic copies of the drawings in the form of Autocad files should also be submitted.

'As Fitted' drawings shall clearly show details of the street lighting installation including:

- (i) Actual column positions.
- (ii) Public lighting cable loops, including the cable size, depth and distance in the horizontal plane from fixed points of reference.
- (iii) Service types and connections to Northern Powergrid mains cables including the origin of supply of installations composed of public lighting cable loops.
- (iv) Actual lighting equipment installed and the manufacturer's reference number of identification mark, e.g.
  - 'All columns' – 5m M Ht tubular steel galvanised with 0.75m projection bracket arm.  
BSC – type 'Larch': 5PT6L + PLS 1190.
  - 'All lanterns' – 70W SON, Post Top with integral control gear, NEMA socket, refractor, clear bowl, large canopy and SONXL-T lamp.  
THORN – Type 'Gamma 6':  
QG6YPNB1070.4 + QC6M + QG6W.
- (v) Cable ducts and their size, depth and location as (ii) above. The inclusion of duct markers for cross road ducts, and any other duct as may be specified shall also be indicated.
- (vi) Any non-standard works as approved by Aurora Street Lighting Ltd prior to the installation, e.g. if columns are flange-mounted; if a crank root is fitted; the direction of fall of a raise and lower column, etc.

### **3.14 Acceptance Criteria for Adoption**

Due to the mechanism that exists between Aurora Street Lighting Ltd and Sunderland City Council for the adoption of street lighting on new developments, there is a strict criteria for adoption over and above that described in 3.13.above. The new street lighting installation will have been undertaken whilst undergoing regular Clerk of Works inspections carried out by Aurora Street Lighting Ltd.

As well as providing the required test results and as-fitted drawings, the Developer must compile and provide a schedule of all installed street lighting and highway signs, in accordance with the data that is required to be collected, as detailed in Appendix B.

## Appendix A – Schedule of Attachments

**Signs and other Attachments to new Lighting Columns** (not required to carry festive and decorative attachments)

Column height	Attachment Type	Attachment area	Attachment position
1. All Lighting Columns	No-waiting plate	0.10m <sup>2</sup>	Symmetrical 2.4m above ground level
2. All Lighting Columns	Neighbourhood Watch sign	0.15m <sup>2</sup>	Symmetrical 2.5m above ground level
3. All Lighting Columns	Litter bin	600mm h x 400mm w	Bottom 900mm above ground level. <b>Do not cover column door enclosure with Litter bin or fastening.</b>
4(a) Lighting Columns up to and including 6m	Other signs and attachments	0.3m <sup>2</sup>	Symmetrical
4(b) Lighting Columns over 6m (the most onerous condition to apply)	Other signs and attachments	0.3m <sup>2</sup> 0.6m <sup>2</sup>	Offset Symmetrical

All attachments shall be secured with standard fixing channel clips where appropriate and Powder Coated tespa banding of appropriate width. The height of all signs except no waiting plates shall be taken as 2.5m above ground level to the centre of the sign. The position of offset signs shall be taken as 300mm from the centre of the shaft to the centre of the Attachment. All Attachment loads shall be taken at the most onerous position in relation to door opening and bracket or luminaire orientation.

## **Appendix B – Criteria for Adoption**

### **1. Street Gazetteer**

1. Road Name
2. Road Number
3. Ward Name
4. Unique Road Identifier
5. Lighting Standard
6. Compliance Certificate date (Date when compliant with 5 above)

### **2. Apparatus Data**

7. Unique Road Identifier
8. Unique Apparatus Identity Number
9. Ordnance Survey Positional Data
10. Unit Type
11. Column / Post Manufacturer
12. Column / Post Cross Section
13. Mounting Height
14. Column / Post Material
15. Protective Coating
16. Column / Post Fixing
17. Root Protection
18. Flange Base
19. Date Commissioned
20. Bracket Type
21. Number of Brackets
22. Bracket Projection
23. Number of Luminaires
24. Luminaire Manufacturer
25. Luminaire Model Reference
26. Luminaire Distribution and Profile
27. Luminaire Setting
28. Luminaire Ingress Protection Rating
29. Lamp Type
30. Lamp Wattage
31. Lamp Control Gear Type
32. Total Circuit Wattage
33. Lamp Charge Code
34. Number of Lamps per Luminaire
35. Control Type
36. Switching Regime Codes
37. Control From

38. Service Owner / Type
39. Supply Point
40. Number of Outgoing Circuits at the Supply Points
41. Controlled / Supplied Apparatus
42. Traffic Sign Diagram Number
43. Traffic Sign Category
44. Attachment Size (if fitted)
45. Number of App. Attachments (if fitted)
46. Type of App. Attachment (if fitted)
47. Illuminated Bollard body manufacturer
48. Illuminated Bollard body material
49. Illuminated Bollard body type
50. Illuminated Bollard base manufacturer
51. Illuminated Bollard base material
52. Illuminated Bollard base type
53. Feeder Pillar body manufacturer
54. Feeder Pillar body material
55. Feeder Pillar body protection
56. Number of phases
57. Isolator rating
58. Number of outgoing circuits
59. Outgoing circuit protection device
60. Feeder pillar Drawing Number

### 3. Risk Assessment Data

61. Ground Conditions
62. Salting of Road
63. Road Environment
64. Environment Situation
65. Wind Exposure
66. Designed for Fatigue
67. Traffic Flow
68. Traffic Speed
69. On a Bridge
70. Traffic Disruption Caused by Failure
71. Pedestrian Density