



# **STREET LIGHTING SPECIFICATION FOR PRIVATE DEVELOPERS**

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# 1 GENERAL

## 1.1 POLICY

The Council aims to create an environment which is attractive, accessible, safe and sustainable. It is determined to ensure that all new street lighting stock is:

- Properly designed, installed, maintained, and certified.
- A Developer's design must show they are avoiding inherently wasteful light, glare, both in disturbance and disability guises.
- Night sky pollution must be considered.
- Daytime aesthetics have to be taken into account in order to minimise environmental impact.
- Consideration must be given to the proposed siting of street lighting equipment in conservation areas, by listed buildings and ancient monuments, areas of special scientific importance, and nature reserves.

## 1.2 SCOPE

This Guide covers the design, installation, testing and commissioning of street lighting on the highway which is to be transferred to Derby City Council as maintainable at public expense and is within the scope of the Council's current PFI project.

The Developer is solely responsible for the procurement, installation of all apparatus and, all site and project management regardless of the involvement of Derby City Council or any Statutory Undertaker in respect to the construction of the project.

## 1.3 PROJECT MANAGEMENT, SUPERVISION & COMPETENCE

It is the Developer's responsibility to ensure their project is properly managed. The works shall be supervised by the Developer to ensure the correct selection and installation of materials, and to ensure that all relevant legislation and guidance is complied with.

The Developer must inform the Council when the installation is complete and ready for inspection. They **MUST** give 5 days advance notice, to enable the Council to check the entire installation upon completion.

The Council's representative on notification by Developer that works have been completed will carry out two inspections as part of this agreement. If however any further inspections are required or requested these may be charged out to the Developer at a reasonable additional cost.

All persons who work on street lighting must be competent to carry out their allotted tasks by virtue of their qualification, training, knowledge and experience. All persons must be fully certified to G39/1 authorisation where appropriate. All persons must possess the required skills relevant to their allotted tasks to work on street lighting to ensure that the planning, design and installation of the system is safe, efficient and compliant. **Derby City Council will seek evidence of compliance with this instruction.**

No works shall be carried out on or affecting council equipment. If the Developer's proposals include any works on or affecting council equipment, the work **MUST** be carried out by the Council on a fully rechargeable basis.

The ability of the Developer to carry out street lighting works safely shall be verified by them being able to assure the competence of their operatives through the Sector Schemes for Quality Management in Highway Works Scheme 8. The sector scheme provides for the accreditation of operatives for the installation and maintenance of highway electrical equipment and road traffic signs as prescribed by the Sector Scheme Advisory Committee for Highway Electrical Works. Competence shall be verified through the Developers operatives holding Registration Cards to confirm they are accredited under the Highway Electrical Registration Scheme (HERS) as competent in respect of the tasks that they undertake.

No work will be permitted until the council has inspected and approved the Developer as complying with the Sector Scheme in all respects.

**Derby City Council is currently establishing an approved framework for Lighting Designers and Lighting Contractors. For further information and advice please contact the Street Lighting Monitoring Team on 01332 641856/641855 or, via e-mail at [streetpride@derby.gov.uk](mailto:streetpride@derby.gov.uk).**

## **1.4 DESIGN AND MAINTENANCE**

All design work undertaken for Derby City Council will comply with BS 5489-1: 2013. This will include the use of the Scotopic/Photopic (SP) ratios for all P class roads and Cycle Tracks unless specifically stated otherwise. SP ratio's are to be provided by lantern manufactures and the lantern type agreed by Derby City Council prior to commencement of design work.

Photometric street lighting design-work shall be carried out by competent Street Lighting Engineers in accordance with the requirements of BS EN 13201 and BS 5489. All photometric designs shall be shown to recognised standard engineering scales and shall include both lighting calculations and isolux diagrams. Electrical design shall be carried out by competent Electrical or Street Lighting Engineers in accordance with BS EN 7671 and all other electrical and safety legislative, technical requirements and recommendations.

Wherever possible, street lighting apparatus (other than traffic bollards) shall be supplied via Distribution Network Operator (DNO) services. Where this is not possible appropriate cable calculations and electrical cable diagrams must be provided.

Lighting design calculations showing the levels achieved from the proposed layout and equipment must accompany the application. Developers must demonstrate how their calculations achieve compliance with BS EN 13201. All designs to P Class shall achieve an overall luminance uniformity of 20% on subsidiary roads and 25% on Cycle Tracks. The Developer shall provide calculations to demonstrate compliance.

The Developer will be required to make arrangements for a connection from an un-metered electrical supply to the street lighting feeder pillar or column where required with the Distribution Network Operator (DNO) or Independent Network Distribution Network Operator (IDNO).

**Where it is intended to use the services of an IDNO, this must be declared to the Council.**

If the Developer carries out installation works, they will be required to make arrangements with an energy supply company in relation to payment for electricity consumed by the street lighting until such time as the road and lighting are formally adopted by the council. Derby City Council retains the right to request documentary evidence of the developer's acquisition of an MPAN (Meter Point Reference Number) for the equipment that is going to be adopted by Derby City Council.

Failure to rectify a reported malfunction or fault to the street lighting within a period of 5 working days may result in the Derby City Council affecting a repair with the costs being invoiced to the Developer. This will not apply to works installed by the council which are guaranteed for the first 12 months.

**Derby City Council is currently establishing an approved framework for Lighting Designers and Lighting Contractors. For further information and advice please contact the Street Lighting Monitoring Team on 01332 641856/641855 or, via e-mail at [streetpride@derby.gov.uk](mailto:streetpride@derby.gov.uk).**

## 1.5 SUPPLEMENTARY DESIGN DATA

Designers will also have to produce other technical data as part of the overall scheme. Examples are given below.

As part of 'good practice' for the specification of highway works within the construction industry all street lighting designs must also be provided in accordance with the Manual of Contract documents for Highway Works (MCDHW), Volume 1:

- Series 1300 Road Lighting Columns and Brackets, CCTV Masts and Cantilever Masts
- Series 1400 Electrical Work for Road Lighting and Traffic Signs

It is the responsibility of the design organisation to complete the relevant data sheets for each Series taken from guidance available on the Department for Transport (DFT) website:

<http://www.dft.gov.uk/ha/standards/mchw/vol1/>

Data to be provided to the supply organisation should be the physical requirements of the column. i.e. height of column, any bracket arm requirement, weight and windage of the lantern/s, and importantly the weight, windage and mounting height of any proposed attachments, the protective finish if any, and the location that the columns are to be installed. This is provided by the Authority in the Street Lighting Specification for Private Developers.

Details of parameters to be used within the structural design calculations such as wind speed data should be determined by the design organisation using the relevant design code documents.

It is imperative that manufacturers or supplier/distribution channels satisfy themselves that the proposed column design are "fit for purpose", and meet the relevant design standards in the location that they are to be installed.

To assist successful adoption of the scheme Derby City Council will require certification that the information given in the Data Sheets has been obtained in accordance with the relevant standards.

## **1.6 ENVIRONMENTAL LIGHTING IMPACT ASSESSMENTS**

The Clean Neighbourhoods and Environment Act 2005 Section 102 which amends section 79 of the Environmental Protection Act 1990 now makes artificial light a statutory nuisance.

The proposed lighting scheme will ensure that the neighbouring residences do not have light spillage onto their property that would be deemed unacceptable. Lighting impact can be minimised by using acceptable methods of light control, essentially limiting illuminance and controlling light trespass.

Under the Town and Country Planning Act 1999, developers should submit an assessment of the impact proposed that the external lighting will have on the environment. While not specifically requiring external lighting schemes to be submitted for approval, it does suggest planning authorities have the right to request information as part of the approval process.

Lighting Impact Assessments should only be undertaken by competent lighting professionals. The educational qualifications, training and experience of those involved in producing the assessment will need to be summarised as part of the Appendix data submitted with the document. Institution of Lighting Professionals (ILP) membership and compliance with the Lighting Professional Development Framework, other qualifications, Engineering Council registration etc all contribute to demonstrate competence in this respect.

No prescriptive limits or rules are set for such assessments, but the following guidance documents should be referred to:

Guidance notes for the reduction of obtrusive light GN01:2011 (ILP)

Professional Lighting Guide 04 – Guidance on undertaking environmental lighting impact assessments (ILP)

Environmental Considerations for Exterior Lighting (2003) (CIBSE)

## **1.7 CONFLICT AREAS ON THE HIGHWAY**

The definition of a conflict area as defined in BS5489-1:2013 is *“Conflict areas are typically junctions, intersections, roundabouts and pedestrian crossings, where significant streams of motorised traffic intersect with each other, or, with other road users such as pedestrians and cyclists.”*

At conflict areas, the visual task is generally more difficult than on straight roads, and a higher luminance or illuminance class may be selected at the conflict area. Conflict areas often present difficulties in the choice of the best positions for the luminaires to reveal both the layout of a junction and the movement of traffic.

Any scheme identified with a conflict area must comply with the current standards and practice and the appropriate class of lighting should be applied. For further information and guidance on the selection of the appropriate class of lighting please refer to:

British Standard BS5489-1:2013 Code of practice for the design of road lighting Part 1: Lighting of roads and public amenity areas.

Professional Lighting Guide 02 – The application of conflict areas on the highways (ILP)

## **1.8 UNDERGROUND SERVICES**

Any information which may be held by the Council in respect of the position of existing mains and services will be made available to the Developer, without any liability on the part of the council or guarantee as to its accuracy. When the Developer carries out installation works, they are not relieved of their obligations, and must make all necessary arrangements with the Statutory Undertakers, to ensure that no existing mains or service are damaged or interrupted.

The requirements of Health & Safety Executive Guidance – HS(G)47 ‘Avoiding Danger From Underground Services’ shall be adhered to. It is the Developer’s responsibility to obtain plans of underground plant and to ensure that the site is marked out to indicate the location of plant.

In addition, Developers must ensure that underground plant location equipment is used when appropriate to minimise the risk of death, injury, or damage and that where there are known services in the vicinity of excavations, the Contractor shall ensure hand digging is carried out with care.

## **1.9 SETTING OUT**

The position that the lighting columns and cables will occupy shall be indicated on the drawings, but the precise position of each column shall be set out on site by the Developer and approval of any amendments shall be submitted in writing to the Council for approval before any work is carried out.

## **1.10 DISCONNECTION OF EXISTING LIGHTING**

The Developer shall not allow any existing street lighting system to be interrupted, until such time as the new street lighting system has been commissioned. Should such disconnection inadvertently occur or supply be interrupted the Developer must restore the system into lighting within 25 business days. Failure to do so by the Developer may result in the Council having to take whatever actions are necessary to restore the existing system into lighting and then recharge all costs incurred back to the Developer.

## **1.11 PROCEDURES**

The Council's contact regarding the provision of information to this guide shall be the Street Lighting Monitoring Team, telephone 01332 641856/641855 or, via e-mail at [streetpride@derby.gov.uk](mailto:streetpride@derby.gov.uk)

As soon as the Developer has decided to proceed with their construction works, they shall contact Derby City Council's Street Lighting Monitoring Team and a project meeting attended by the Developer and the Council's representative will be held. Items to be discussed at meeting should include:

- Dates and lead in times when installation is proposed.
- Dates when street lighting inspection will be required.
- Protocol and timescales for agreeing variations to the Developer's project plan.

The Developer shall provide Derby City Council with the following information:

- 2 No. paper copies of a 1/500 or 1/1250 scale plan and an electronic copy via an e-mail attachment as appropriate for the size of the scheme, clearly showing any existing lighting affected together with the positions and full details of the proposed lighting (this should show individual identification numbers which are obtainable from Derby City Council), cable and duct runs, signage, feeder pillars etc.

- The plan must also clearly indicate limits of adoption. All plans must be available to the Council for full and unrestricted use and the Council must be absolved of any infringement of copyright. All plans shall also be submitted in Autocad 2012 dwg format.
- Full engineering calculations must be provided including isolux overlays and electrical calculations. The calculations must be an integral part of the software design package used. **Photocopied overlays cannot be relied upon due to scaling errors.**
- 2 no. paper copies of a location plan, typically to 1/1250 scale.
- Confirmation if any Agreement under Section 38 of the Highway Act 1980 has been entered into, together with the council's reference number.
- Full contact details of the Developer and their nominated Street lighting contractor including key contact names, address, e-mail address, telephone and fax numbers.
- Confirmation whether any lighting units are connected to an IDNO's electrical supply network.
- The MPAN (Meter Point Reference Number) for the electrical supplies to street lighting equipment installed on this site.

It must be noted that no work to the Council's existing lighting stock shall be carried out by the Developer without written permission from the authority and in consultation with their nominated maintenance contractor.

If the Developer's street lighting installation is to be connected on to a Derby City Council private cable network, all work on or affecting the Council's network **MUST** be carried out by the Council or their representative. The Developer must allow for programming this work in their project programme.

As part of the design and installation works the developer will be required to ensure that the Central Management System (CMS) nodes are able to connect to the central management system. This may require the installation of a local base station to communicate with the CMS nodes.

**The developer will contact Lighting Derby to confirm the coverage of the CMS system and will arrange for the installation of a base station where required.**

## 1.12 ADOPTION

Upon adoption of the street lighting system responsibility for maintaining the system will pass to the Council. Costs for the following will be borne by the Council upon adoption:

- a) All daily fault repairs.
- b) Planned proactive maintenance including cleaning, inspection, bulk lamp change, electrical testing, structural testing, painting, re-numbering, all as appropriate.
- c) Energy. The Developer will be responsible for entering into an un-metered supply agreement with the Distribution Network Operator (DNO) or Independent Distribution Network Operator (IDNO) until the system of lighting is fully adopted.

However, this will not relieve the Developer of their obligation to bear the full costs for the following during the period prior to formal adoption.

- a) Replacement of damaged or vandalised equipment.
- b) Any failures in respect of equipment under guarantee.
- c) Any emergency call out (except in the case of malicious calls).

It will be the responsibility of the Developer to ensure that the lighting is maintained in efficient working order until adoption.

In the case of an application for a development that will significantly generate increased vehicular or pedestrian traffic, it may be necessary to improve existing lighting. In this event, in principal, the Developer should note that they may be required to contribute in full or in part to the cost of upgrading the existing lighting installation.

Before adoption of the street lighting system all guarantees in respect of materials and processes must be transferred to Derby City Council. This is irrespective of the life of the guarantees. A new lamp change lantern clean and electrical test is to be carried out at the Developers cost before final adoption unless otherwise agreed in writing by Derby City Council. All rights and benefits of any guarantees must also be transferred in full to the Council.

To comply with the UK Lighting Board Well-Lit Highways Code of Practice for Highway Lighting Management: 2004 a completed 61 item list of apparatus information is required for each item of equipment (See List Appendix A).

**Failure to comply with this instruction will result in the scheme not being adopted by the Authority.**

Original copies of test certificates will be required to be produced and forwarded on to the Derby City Council Street Lighting Monitoring Team (See Appendix B).

## 2 Appendix A - Required Inventory Items

The spreadsheet below should be completed for every asset to be adopted. Please contact the Street Lighting Monitoring Team at Derby City Council for a copy of the template.

### 3 Appendix B - Electrical Test Sheets

All electrical tests should be submitted using the standard HEA electrical test sheet.

HEA		Highway Elect. Inst. Cert & Periodic Report (in accord. with BS7671)		Enter Organisation Name		Job No.:		Cert.No.:											
Address and Postcode				Additional forms - no. attached															
Client Name				Location															
Inspection & Test type:		Initial:		Periodic Condition Report:		Addition:		Date of last Inspection (Periodic only)											
<b>Schedule of Items Inspected</b>																			
<b>Protection against electric shock</b> Both Basic & Fault protection <input type="checkbox"/> SELV / PELV / FELV <input type="checkbox"/> Double insulation Basic Protection <input type="checkbox"/> Insulation of live parts <input type="checkbox"/> Barriers / enclosure <input type="checkbox"/> Placing out of reach				<b>Fault &amp; Additional Protection</b> <input type="checkbox"/> Presence of earthing conductor <input type="checkbox"/> Presence of cpc <input type="checkbox"/> Presence of prot. Bonding conductor <input type="checkbox"/> Choice & setting of prot. Devices <input type="checkbox"/> Elect. Separation <input type="checkbox"/> Presence of RCD(s) <b>Prevention of mutual detrimental influence</b> <input type="checkbox"/> Proximity to non-electrical services / other influences				<b>Identification</b> <input type="checkbox"/> Band I and Band II circuit segregation / Band II insulation <input type="checkbox"/> Presence of diagrams, danger notices, labels <input type="checkbox"/> Identification of conductors <b>Cables and Conductors</b> <input type="checkbox"/> Selection of conductors for current /vd <input type="checkbox"/> Installation methods <input type="checkbox"/> Cables protected against mech. damage (eg SWA) <input type="checkbox"/> Connection of conductors		<b>General</b> <input type="checkbox"/> Presence & correct location of isolation & switching devices <input type="checkbox"/> Adequacy of access <input type="checkbox"/> Single pole devices in line only <input type="checkbox"/> Selection of equipment and prot. measures for external influences Installation Earth Electrode (where installed) Type: _____ Location: _____ Resistance(Ra) _____ (Ω)									
Circuit Details				Maximum Disconnection Time permitted: 0.4s / 5s*				Test Results											
No	Unit No. or Circuit ID / leg	Earthing g Arrana TNC-S / TNS / TT	Earthing Distrib or (D) / Earth Electrode	Nom. Voltage (by enquiry)	PSCC (D <sub>e</sub> or M <sub>e</sub> ) (kA)	Earthing Cond. csa (mm <sup>2</sup> )	Prot. Bond Cond csa(mm <sup>2</sup> )	Cable Type	Circuit conductor csa		Overcurrent protective device		Source ELI Ze (Determined or Measured)	Insulation resistance (for multi phase enter worst case)				RCD Operation (if applicable)	Overall Condition (C1-5)
									Live (mm <sup>2</sup> )	CPC (mm <sup>2</sup> )	BS EN and Type	Rating (A)		RCD Rated I <sub>Δn</sub> (mA)	Max device Zs from BS7671	Line / Neutral (MΩ)	Line / Earth (MΩ)		
1																			
Observations - Defects																			
Remarks:																			
Test Instrument serial nos.				Ins. Resist/Cont.				ELI/Earth Electr.				RCD				Other			
I / we being the person(s) responsible for the Design, Construction & Inspection & Testing of the highway electrical installation (as shown by my/our signature(s) below) particulars of which are described above, having exercised reasonable skill & care when carrying out the Design, Construction, Inspection & Testing, hereby certify that the said work for which I/We have been responsible is, to the best of my/our knowledge and belief in accordance with BS7671 latest edition, as amended, except for the departures, if any, detailed below Departures (Regs 120, 3/113.5) / Limitations																			
I/We, the Designer(s) (for initial Insp. & Test) / the Insp. & Tester*, recommend that this installation is further inspected and tested after an interval of not more than _____ years (provided that any observations requiring urgent attention are attended to without delay)																			
Designer: Signature				Name				Date				Address							
Installer/Data Coll/Insp & Tester*: Signature				Name				Date				Address							
Insp & Tester / Qual. Mgr*: Signature				Name				Date				Address							

Common Cable Type Codes: C1 - Multi-core PVC/PVC; C2 - Single core PVC/PVC; C3 - PVC cables in metal conduit; C4 - PVC cables in plastic conduit; C5 - PVC cable in metal trunking; C6 - PVC cable in plastic trunking; C7 - PVC/PVC; C8 - PVC; C9 - Other

## 4 Appendix C - Street Lighting Specification (M/C Class Roads)

**DERBY CITY COUNCIL  
NEIGHBOURHOODS DEPARTMENT  
STREETPRIDE, STREET LIGHTING SECTION**

**Street Lighting Specification  
M and C Class roads & footpath lighting level specification  
Tubular Steel Columns – LED Lanterns**

Group A lighting.

### 4.1.1 Column

Eight, Ten or Twelve metre Mallatite, Stainton or equivalent tubular steel column to be finished in a factory applied, approved, thermoplastic coating with a finish column colour of BS18 B29 (Raven) or, the equivalent RAL colour.

The complete lighting column shall be hot dip galvanised in accordance with BS1461 prior to a full factory finish being applied. Consisting of, a suitable degrease/etching preparation prior to the thermoplastic coating is applied; this is to ensure suitable adhesion.

Other size columns may be used in unusual circumstances only with written permission from Derby City Council's Street Lighting Monitoring Team and must still comply with the requirements of this paragraph. Columns shall be designed to carry an offset mounted sign attachment of 0.8 sq. metres.

### 4.1.2 Lantern

In general all lanterns shall use an LED light source and have a NEMA socket suitable for a NEMA type Telensa CMS node using a LV communication based dimming module. Please contact Derby City Council's Street Lighting Monitoring Team for the latest approved lantern specification before commencing any design work.

All lanterns must have an Elexon (UMSUG) code available prior to the date of installation. Where required additional UMSUG codes maybe required for pre-set dimmed values (typically at 70% and 50%).

The luminaire including the LED Modules and Driver compartment shall have an Ingress Protection rating of IP66 and Impact Resistant to IK08

#### 4.1.3 Obtrusive Light and Glare

Control of the light distribution of installations is necessary in order to limit obtrusive light and sky glow. Upward light should be minimized in all road lighting installations by controlling the intensity of light from luminaires as installed, at angles above the horizontal. Therefore, all luminaires when installed should wherever possible achieve Full Cut Off (FCO) and conform to an luminous intensity class of G4 or greater as specified in BS EN 13201-2:2003.

All luminaires used on a roundabout shall have a luminous intensity class of G5 or greater.

#### 4.1.4 Lamp

LED light source (Lamp wattage to be defined by the designer to achieve the designated design lighting class of the road) will need to demonstrate a luminaire lumen efficacy of  $\Rightarrow$  100lm/w. All designs should be based on a lumen depreciation of 20% (L80).

The drive current should not exceed 350mA

#### 4.1.5 Colour Temperature (CCT)

The colour appearance of light sources shall have a Colour Temperature ( $T_{cp}$ ) between 4000k and 5300k and will be determined as 'Intermediate' in colour appearance as defined in BS 5489-1:2013, with a Colour Rendering Index (CRI)  $R_a$  70 or above.

#### 4.1.6 Control Gear

In order to reduce energy, Derby City Council operates a central management system to provide dimming and control of all new streetlights. All new installations must comply with this control system. Contact must be made with Derby City Council's Street Lighting Service Provider (Lighting Derby) prior to any installation to ensure that the CMS nodes are correctly configured. Electronic Control Gear to include DALI interface or other approved equivalent to allow for variable dimming and also should be compatible with the Telensa CMS system. Please contact Lighting Derby for details on CMS compatibility.

#### 4.1.7 Switching - Photocell

Switching will be achieved through the Telensa CMS system and will be controlled centrally using the CMS node to be installed by the developer (see Control Gear above). Where CMS nodes are not to be fitted under written direction of an Authority Street Lighting Officer, each lighting point shall be fitted with a Photoelectric Cell Controller such as the Royce Thompson

SC1000/SAV 35/18 lux or approved equivalent one part mini photo-Electric cell.

#### 4.1.8 Site / Location

Many accidents involve a motorized vehicle leaving the carriageway, and if the vehicle collides with a lighting column, the severity of the injuries to the occupants might be increased. Therefore, adequate protection should be sought by the use of a standard 125mm kerb face with a horizontal clearance of 0.8 – 1.0 metres as recommended in BS 5489-1:2013. The set-back of lighting columns should be sufficient to allow the free passage of all people on any footway and columns will normally be erected at the rear of footways, grass verges, service strips, or maintenance strips, within the proposed public highway. (See appendix J)

#### 4.1.9 Numbering

All columns to be numbered as indicated on the scheme/plans. (See appendix's H and I for application instruction).

#### 4.1.10 Electrical Supply/Connections

The Developer is responsible for obtaining appropriate power supplies to all of the required electrical equipment. Unless agreed by Derby City Council's Street Lighting Monitoring Team prior to commencement of the scheme, supply to lighting columns must be provided by the local Distribution Network Operator (DNO) who is currently Western Power Distribution (WPD).

Alternatively, the supplies to street lighting can be obtained from an Independent Distribution Network Operator (IDNO) which will need to be registered/approved by the Authority prior to commencement of the scheme.

**All power supplies MUST be obtained via the local DNO (Western Power Distribution) or an approved/registered IDNO. If any other company is used, Derby City Council will NOT adopt the cable network or associated equipment.**

Operator's cut out fuse shall be BS88 rated at 16 amps.

A secondary double pole isolator must be installed and the tails from the isolator are to be terminated into the electricity company cut out. The isolator shall be as Derby City Council specification i.e. Charles Endirect LSI-02 with a 32A Switch disconnector & 1 no. BS88 Fuse Carrier. Fuse discrimination shall comply with BS7671 between the REC cut out and the secondary isolation.

Sub fuses for external sub circuits shall be fitted with 10A BS88 fuses with a 6A fuse in the external sign or bollard. Fuse discrimination shall comply with

BS7671. The Secondary isolation unit in this case shall be a Charles Endirect LSI-03 with 2 no. BS88 fuse carriers.

#### 4.1.11 General Conditions

All installation work/equipment shall comply with the current edition of Derby City Council's Standard Technical Specification. Any queries regarding this Specification should be referred to STREET LIGHTING MONITORING TEAM, DERBY CITY COUNCIL, STREETPRIDE, 15 STORES ROAD, DERBY, DE21 4BD

## 5 Appendix D - Street Lighting Specification (P Class Roads)

**DERBY CITY COUNCIL  
NEIGHBOURHOODS DEPARTMENT  
STREETPRIDE, STREET LIGHTING SECTION**

**Street Lighting Specification  
P Class roads & footpath lighting level specification  
Tubular Steel Columns - (LED) Lanterns**

Group B lighting.

### 5.1.1 Column

Six metre or Eight metre Mallatite, Stainton or equivalent tubular steel column to be finished in a factory applied, approved, thermoplastic coating with a finish column colour of BS18 B29 (Raven) or, the equivalent RAL colour.

The complete lighting column shall be hot dip galvanised in accordance with BS1461 prior to a full factory finish being applied. Consisting of, a suitable degrease/etching preparation before the thermoplastic coating is applied; this is to ensure suitable adhesion.

Columns up to and including 7m shall be designed to carry a symmetrically mounted sign attachment of 0.4 sq. metres, columns above 7m shall be designed to carry an offset sign attachment of 0.8 sq. metres.

### 5.1.2 Lantern

In general all lanterns shall use an LED light source and have a NEMA socket suitable for a NEMA type Telensa CMS node using a LV communication based dimming module. Please contact Derby City Council's Street Lighting Monitoring Team for the latest approved lantern specification before commencing any design work.

All lanterns must have an Elexon (UMSUG) code available prior to the date of installation. Where required, additional UMSUG codes maybe required for pre-set dimmed values (typically at 70% and 50%).

The luminaire including the LED Modules and Driver compartment shall have an Ingress Protection rating of IP66 and Impact Resistant to IK08

### 5.1.3 Obtrusive Light

Control of the light distribution of installations is necessary in order to limit obtrusive light and sky glow. Upward light should be minimized in all road

lighting installations by controlling the intensity of light from luminaires as installed, at angles above the horizontal. Therefore, all luminaires when installed should wherever possible achieve Full Cut Off (FCO)

#### 5.1.4 Lamp

LED light source (Lamp wattage to be defined by the designer to achieve the designated design lighting class of the road) will need to demonstrate a luminaire lumen efficacy of  $\Rightarrow$  100lm/w. All designs should be based on a lumen depreciation of 20% (L80).

The drive current should not exceed 350mA

#### 5.1.5 Control Gear

In order to reduce energy, Derby City Council operates a central management system to provide dimming and control of all new streetlights. All new installations must comply with this control system. Contact must be made with Derby City Council's Street Lighting Service Provider (Lighting Derby) prior to any installation to ensure that the CMS nodes are correctly configured. Electronic Control Gear to include DALI interface or other approved equivalent to allow for variable dimming and also should be compatible with the Telensa CMS system. Please contact Lighting Derby for details on CMS compatibility.

#### 5.1.6 Colour Temperature (CCT)

The colour appearance of light sources shall have a Colour Temperature ( $T_{cp}$ ) between 4000k and 5300k and will be determined as 'Intermediate' in colour appearance as defined in BS 5489-1:2013, with a Colour Rendering Index (CRI)  $R_a$  70 or above.

#### 5.1.7 Switching - Photocell

Switching will be achieved through the Telensa CMS system and will be controlled centrally using the CMS node to be installed by the developer (see Control Gear above). Where CMS nodes are not to be fitted under written direction of an Authority Street Lighting Officer, each lighting point shall be fitted with a Photoelectric Cell Controller such as the Royce Thompson SC1000/SAV 35/18 lux or approved equivalent one part mini photo-Electric cell.

#### 5.1.8 Siting

Many accidents involve a motorized vehicle leaving the carriageway, and if the vehicle collides with a lighting column, the severity of the injuries to the occupants might be increased. Therefore, adequate protection should be sought by the use of a standard 125mm kerb face with a horizontal clearance

of 0.8 metres as recommended in BS 5489-1:2013. The set-back of lighting columns should be sufficient to allow the free passage of all people on any footway and columns will normally be erected at the rear of footways, grass verges, service strips, or maintenance strips, within the proposed public highway. (See appendix J)

#### 5.1.9 Numbering

All columns to be numbered as indicated on the scheme/plans. See appendix's H and I for application instruction.

#### 5.1.10 Electrical Supply/Connections

The Developer is responsible for obtaining appropriate power supplies to all of the required electrical equipment. Unless agreed by Derby City Council's Street Lighting Monitoring Team prior to commencement of the scheme, supply to lighting columns must be provided by the local Distribution Network Operator (DNO) who is currently Western Power Distribution (WPD).

Alternatively, the supplies to street lighting can be obtained from an Independent Distribution Network Operator (IDNO) which will need to be registered/approved by the Authority prior to commencement of the scheme.

**All power supplies MUST be obtained via the local DNO (Western Power Distribution) or an approved/registered IDNO. If any other company is used, Derby City Council will NOT adopt the cable network or associated equipment.**

Operator's cut out fuse shall be BS88 rated at 16 amps.

A secondary double pole isolator must be installed and the tails from the isolator are to be terminated into the electricity company cut out. The isolator shall be as Derby City Council specification i.e. Charles Endirect LSI-02 with a 32A Switch disconnector & 1 no. BS88 Fuse Carrier. Fuse discrimination shall comply with BS7671 between the REC cut out and the secondary isolation.

Sub fuses for external sub circuits shall be fitted with 10A BS88 fuses with a 6A fuse in the external sign or bollard. Fuse discrimination shall comply with BS7671. The Secondary isolation unit in this case shall be a Charles Endirect LSI-03 with 2 no. BS88 fuse carriers.

#### 5.1.11 General Conditions

All installation work/equipment shall comply with the current edition of the City Council's Standard Technical Specification. Any queries regarding this Specification should be referred to STREET LIGHTING MONITORING TEAM,

DERBY CITY COUNCIL, STREETPRIDE, 15 STORES ROAD, DERBY, DE21  
4BD

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**Version No:** 1.0I  
**Compiled:** 26.02.2015  
**Ref:** MM

## 6 Appendix E – Cycle Tracks

**DERBY CITY COUNCIL  
NEIGHBOURHOODS DEPARTMENT  
STREETPRIDE, STREET LIGHTING SECTION**

**Street Lighting Specification  
Cycle Track – P Class lighting level specification  
Tubular Steel Columns - (LED) Lanterns**

### 6.1.1 General

The lighting scheme should enable pedestrians and cyclists to discern obstacles or other hazards in their path, and be aware of the movements and/or intent of other pedestrians and cyclists in the proximity. For this, the lighting on horizontal surfaces, as well as the control of glare and the colour rendering, is important.

Derby City Council's Output Specification allows an option to relax P4 to P5 when  $R_a \geq 65$ , (the uniformity for the higher category must be maintained, however, a minimum of 0.25 uniformity must be achieved).

The designer will also be required to apply good lighting practice and the adoption of current industry publications should be observed. TR23 – Lighting of Cycle Tracks carries a number of significant considerations, such as 'Visibility Zone' and 'Visibility Ratio'. Please refer to 3.2.2 Lighting Levels for Cycle Tracks Table 1(a) and Table 1(b) of this document.

### 6.1.2 Column

Six metre or Eight metre Mallatite, Stainton or equivalent tubular steel column to be finished in a factory applied, approved, thermoplastic coating with a finish column colour of BS18 B29 (Raven) or, the equivalent RAL colour.

The complete lighting column shall be hot dip galvanised in accordance with BS1461 prior to a full factory finish being applied. Consisting of, a suitable degrease/etching preparation before the thermoplastic coating is applied; this is to ensure suitable adhesion.

Columns up to and including 7m shall be designed to carry a symmetrically mounted sign attachment of 0.4 sq. metres, columns above 7m shall be designed to carry an offset sign attachment of 0.8 sq. metres.

### 6.1.3 Lantern

In general all lanterns shall use an LED light source and have a NEMA socket suitable for a NEMA type Telensa CMS node using a LV communication based dimming module. Please contact Derby City Council's Street Lighting Monitoring Team for the latest approved lantern specification before commencing any design work.

All lanterns must have an Elexon (UMSUG) code available prior to the date of installation. Where required, additional UMSUG codes maybe required for pre-set dimmed values (typically at 70% and 50%).

The luminaire including the LED Modules and Driver compartment shall have an Ingress Protection rating of IP66 and Impact Resistant to IK08

### 6.1.4 Obtrusive Light

Control of the light distribution of installations is necessary in order to limit obtrusive light and sky glow. Upward light should be minimized in all road lighting installations by controlling the intensity of light from luminaires as installed, at angles above the horizontal. Therefore, all luminaires when installed should wherever possible achieve Full Cut Off (FCO) or conform to an luminous intensity class of G4 or greater as specified in BS EN 13201-2:2003.

### 6.1.5 Lamp

LED light source (Lamp wattage to be defined by the designer to achieve the designated design lighting class of the road) will need to demonstrate a luminaire lumen efficacy of  $\Rightarrow$  100lm/w. All designs should be based on a lumen depreciation of 20% (L80).

The drive current should not exceed 350mA

### 6.1.6 Control Gear

In order to reduce energy, Derby City Council operates a central management system to provide dimming and control of all new streetlights. All new installations must comply with this control system. Contact must be made with Derby City Council's Street Lighting Service Provider (Lighting Derby) prior to any installation to ensure that the CMS nodes are correctly configured. Electronic Control Gear to include DALI interface or other approved equivalent to allow for variable dimming and also should be compatible with the Telensa CMS system. Please contact Lighting Derby for details on CMS compatibility.

### 6.1.7 Switching - Photocell

Switching will be achieved through the Telensa CMS system and will be controlled centrally using the CMS node to be installed by the developer (see Control Gear above). Where CMS nodes are not to be fitted under written direction of an Authority Street Lighting Officer, each lighting point shall be fitted with a Photoelectric Cell Controller such as the Royce Thompson SC1000/SAV 35/18 lux or approved equivalent one part mini photo-Electric cell.

### 6.1.8 Siting

When locating lighting columns, it should be ensured that there is an adequate set-back of the lighting column to avoid the potential for cyclists colliding or coming into contact with the lighting column.

### 6.1.9 Numbering

All columns to be numbered as indicated on the scheme/plans. See appendix's H and I for application instruction.

### 6.1.10 Electrical Supply/Connections

The developer is responsible for obtaining appropriate power supplies to all of the required electrical equipment. Unless agreed by Derby City Council's Street Lighting Monitoring Team prior to commencement of the scheme, supply to lighting columns must be provided by the local Distribution Network Operator (DNO) who is currently Western Power Distribution (WPD).

Alternatively, the supplies to street lighting can be obtained from an Independent Distribution Network Operator (IDNO) which will need to be registered/approved by the Authority prior to commencement of the scheme.

**All power supplies MUST be obtained via the local DNO (Western Power Distribution) or an approved/registered IDNO. If any other company is used, Derby City Council will NOT adopt the cable network or associated equipment.**

Operator's cut out fuse shall be BS88 rated at 16 amps.

A secondary double pole isolator must be installed and the tails from the isolator are to be terminated into the electricity company cut out. The isolator shall be as Derby City Council specification i.e. Charles Endirect LSI-02 with a 32A Switch disconnecter & 1 no. BS88 Fuse Carrier. Fuse discrimination shall comply with BS7671 between the REC cut out and the secondary isolation.

Sub fuses for external sub circuits shall be fitted with 10A BS88 fuses with a 6A fuse in the external sign or bollard. Fuse discrimination shall comply with BS7671. The Secondary isolation unit in this case shall be a Charles Endirect LSI-03 with 2 no. BS88 fuse carriers.

#### 6.1.11 General Conditions

See 5.1.11 of this document.

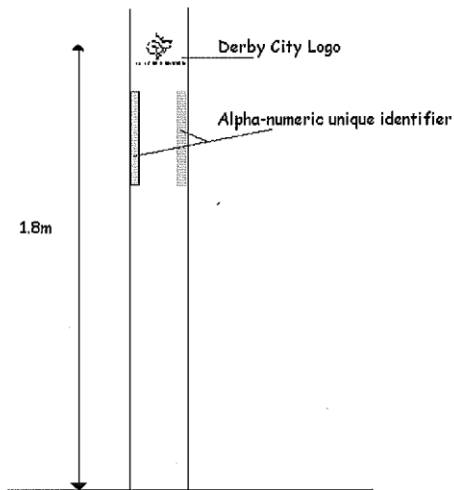
Further guidance is also provided in Technical Report Number 23 – Lighting of Cycle Tracks (ILP)

# 7 Appendix F - Detail Drawing: Column Labelling

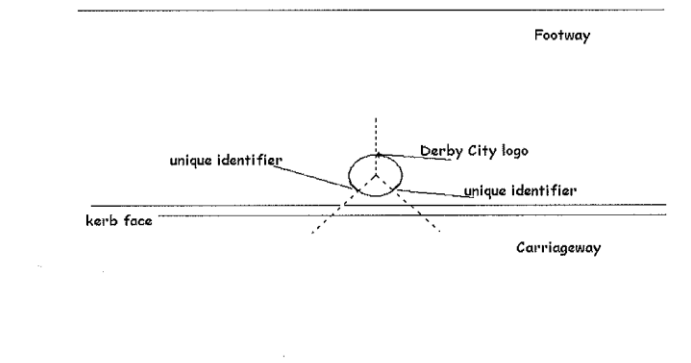
## APPENDIX 16

### Column Numbering and Identification Label Details

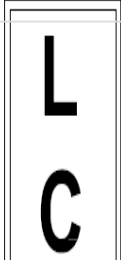
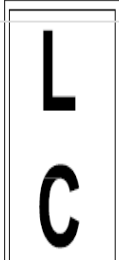
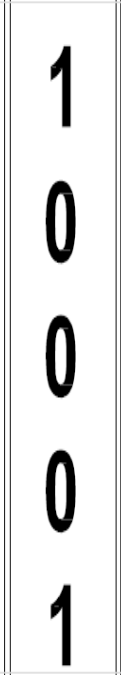
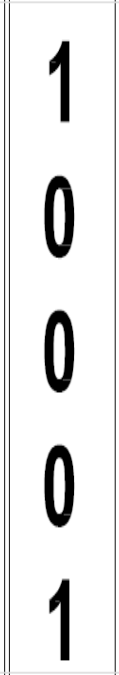
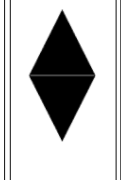
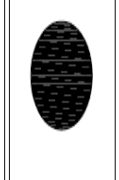

#### Identification height details



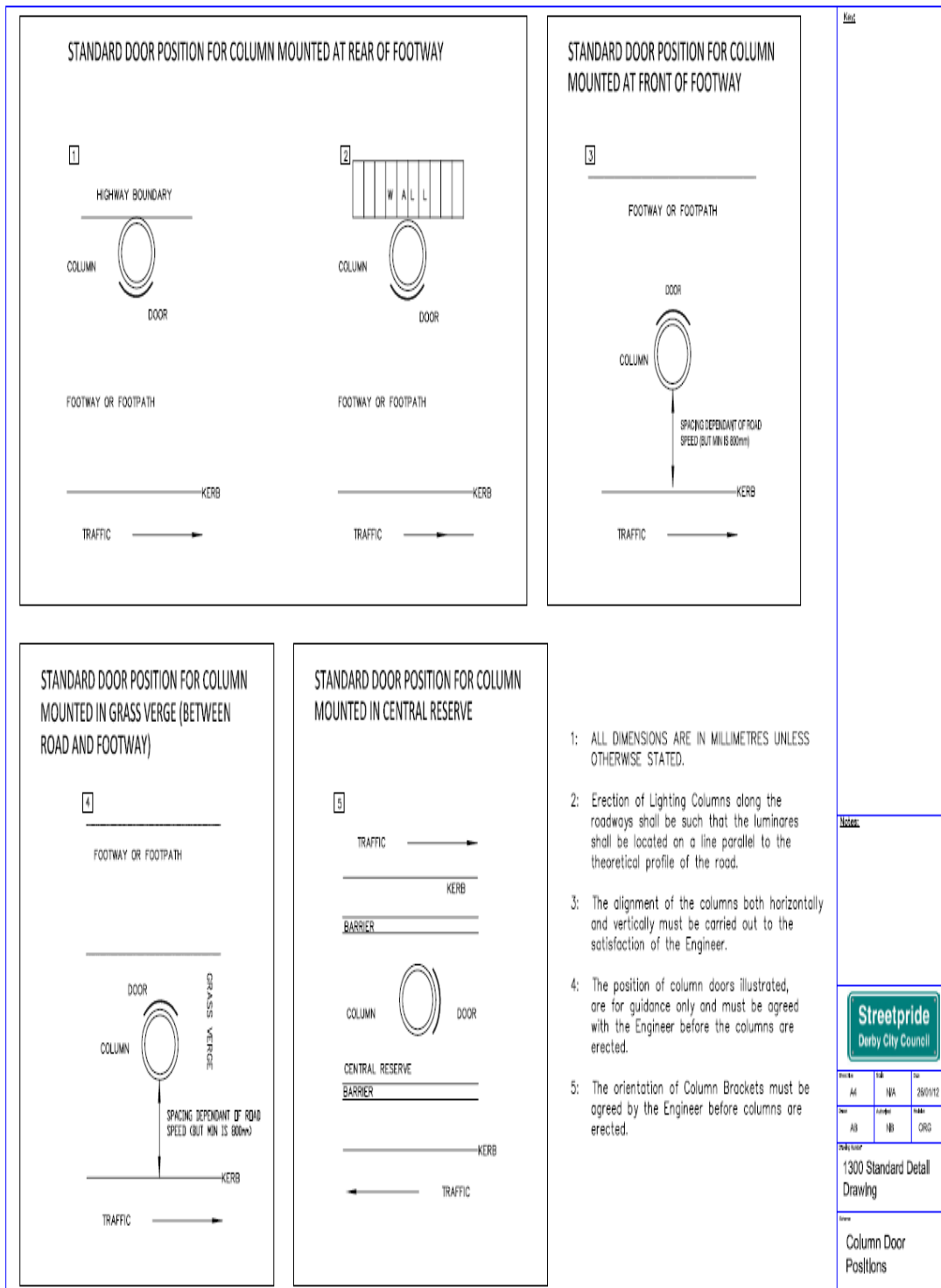
#### Column at the Front of the Footway



## 8 Appendix G - Detail Drawing: Asset IDs - Numbers/Stickers

		<p>Unit Type:          LC = Lighting Column      TS = Lit Traffic Sign          BD = Bollard (Lit)        MP = Zebra Unit          BC = Refuge/Bellsha Beacon    HM = High Mast          FP = Feeder Pillar        DX = Unsupported</p>	<p>Ref:</p>												
		<p>Unit Number:          In ascending order within the city of Derby. Each number is unique, no number will be repeated</p>													
		<p>Denotes supply type of the asset:          Diamond = DNO          Circle = PL</p>													
<p>Fault Line 01332 715002</p>	<p>Fault Line 01332 715002</p>														
<p>Notes:</p>			 <table border="1" data-bbox="1203 1464 1331 1532"> <tr> <td>Author:</td> <td>QA:</td> <td>Date:</td> </tr> <tr> <td>AA</td> <td>MA</td> <td>26/01/12</td> </tr> <tr> <td>Rev:</td> <td>Rev:</td> <td>Date:</td> </tr> <tr> <td>AB</td> <td>MB</td> <td>09/02</td> </tr> </table> <p>1300 Standard Detail Drawing</p> <p>Asset ID Numbers/Stickers</p>	Author:	QA:	Date:	AA	MA	26/01/12	Rev:	Rev:	Date:	AB	MB	09/02
Author:	QA:	Date:													
AA	MA	26/01/12													
Rev:	Rev:	Date:													
AB	MB	09/02													

# 9 Appendix H - Detail Drawing: Column Door Positions

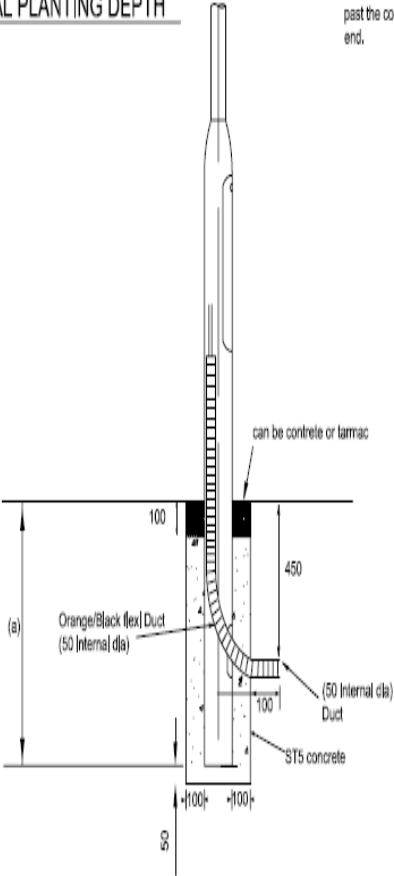


Kerb			
Notes			
Drawn	Rev	Issue	Date
AR	1/A	28/01/12	
AR	1/B	ORG	
1300 Standard Detail Drawing Column Door Positions			

# 10 Appendix I - Detail Drawing: Column Depth

COLUMN SIZE	RECOMMENDED PLANTING DEPTH	DIAMETER OF CONCRETE SURROUND (if any) mm		
		Standard Soil Type Factor G		
		630 Good	390 Average	230 Poor
6 metre Standard	1.0 metre	0	210	356
7 metre Standard	1.0 metre	0	230	391
8 metre Standard	1.2 metres	0	0	271
10 metre Heavy Duty	1.5 metres	244	395	669
12 metre Standard	1.8 metres	0	0	221
12 metre Heavy Duty	1.8 metres	0	309	524

**TYPICAL PLANTING DEPTH**



1: All Dimensions are in millimeters unless otherwise stated

2: Planting depth to be as manufacturers specification, Table to be used as a guide only

3: The joint between the flex and rigid duct shall be a (Detail 'A')

4: All materials and works shall comply with 'Specification for Highway Works'

5: Foundation details to be used as a guide only, Foundations should be suitable for the type of soil listed in appendix 13/1

6: Black duct shall be fitted where the service is by the Electricity Company, It shall extend past the concrete footing with a draw rope installed and tied to both door fixing bar and duct end.

Doc

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Notes

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**Streetpride**  
Derby City Council

AK	NA	16/01/15
AB	NB	ORG

Standard Detail Drawing

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Lighting Column -  
Planting Depth

# 11 Appendix J - Detail Drawing: Cut-out Termination Types

