Thurrock Council

Street Lighting Policy

July 2019

Thurrock: an ambitious and collaborative community which is proud of its heritage and excited by its diverse opportunities and future.

Contents

1. General

1.1. This document identifies the basic principles and standards for street lighting required by the Lighting Authority.

1.2. The Lighting Authority reserves the right to alter / amend the standards contained within this document as deemed necessary.

2. Requirements for lighting

2.1. The Developer shall adhere to the requirements as outlined in this *Specification* and the site-specific *Design Brief (see section 3 below)*.

2.2. The Developer shall be responsible for undertaking any amendments to existing lighting equipment which is affected as a result of their proposals.

2.3. Where it is determined that lighting should be provided, extended or improved, the Developer shall be responsible for the supply and installation of that lighting equipment and the associated electrical connections.

3. Design brief

3.1. Before commencing a design, the Developer shall contact the Lighting Authority to determine their requirements for street lighting.

3.2. The level and type of lighting will vary with the type and use of the area to be adopted as highway.

3.3. A Design Brief will provide guidance to the lighting designer and shall include (but not limited to) the following:

- Lighting Authority Project Engineer Contact
- The lighting class required
- Extent of lighting area
- Variable lighting requirements
- Mounting heights
- Control requirements
- Special material requirements (if required)
- Maintenance factor/s to be utilised

3.4. If the Developer considers that an alternative lighting class is appropriate, it should be referred to in writing to the Lighting Authority whose decision will be final and binding.

4. Design approval

4.1. Lighting proposals shall be submitted to the Lighting Authority for approval via the Transport Development team.

4.2. Designs shall be undertaken by a competent Lighting Designer.

4.3. In order for approval to be given, lighting designs must demonstrate compliance with the requirements of the *Design Brief* and this *Specification*.

4.4. Lighting scheme design approval shall be obtained in writing from the Lighting Authority prior to commencement on site.

4.5. If installation of the design does not commence on site within 3 years of approval, the Lighting Authority reserves the right to review the suitability of the design proposal and may require it to be upgraded or redesigned at the developer's expense.

5. Documentation required for approval

5.1. All information specified in the *Design Brief* is to be sent electronically to the Lighting Authority via the Transport Development team. The following information will be required for approval:

i. Location plan
ii. Adoption plan ("Pink/Yellow Drawing") (Electronic DWG e-transmit and PDF Format)
iii. Lighting design calculations in Lighting Reality native format (alternative formats should be agreed with the Lighting Authority – lighting plots alone are not acceptable)
iv. Details of design consideration(s) made
v. Survey pictures for S278 schemes are recommended
vi. Equipment specification detailed on the drawing/s for all equipment proposed with supporting certification and documentation (if not detailed in this specification)
vii. Details of power supplies, including cable calculations. (Trimble ProDesign format) alternative and schematic drawings (where required)
viii. Column / Distribution Network Operator (DNO) Connections / Luminaire / Isolator type schedule with Northings and Eastings to be provided on the design drawing/s
ix. Scheme drawings (Electronic DWG e-transmit and PDF Format)
x. Passive safety risk assessment (as per ILP TR30 – Institution of Lighting Professionals Technical Report 30) for roads 50mph or over
xi. Details of signing layout including supply connections and illumination requirements
xii. CDM details (Construction (Design & Management) Regulations 2015) Designer Hazard Elimination and Management record, H&S (Health & Safety) File etc.
xiii. Environmental considerations (if required)

5.2. Lighting Design construction drawings shall:

i. Be no larger than A1
ii. Be at a scale of 1:500 or less – for example, 1:200 and so on
iii. Have a minimum text size of 2.5mm for A1 drawings and 1.8mm for A3 drawings
iv. Have cut lines where required
v. Have a north point
vi. Shall have a key where symbols can be identified when the drawing is printed in colour or black and white
vii. Show overhead lines LV, HV (Low Voltage, High Voltage) and major services – for example, telecommunications, HV cable, high/medium pressure gas, fibre optic cable, and so on
viii. Any significant residual risks identified within the design shall be shown on the drawing with a hazard symbol and individual reference number which shall correspond with the identified hazard within the Designer's Hazard Elimination and Management Record

6. Design

General

6.1. All lighting designs shall be in accordance with *BS 5489* and *BS EN 13201* (latest editions), other standards, best practice guidance documents and technical reports that may be appropriate. All electrical works shall comply with the latest edition of BS7671 and the Electricity at Work Regulations 1989.

6.2. When approved by the Lighting Authority, a foot path or cycleway may be considered independent from the adjacent carriageway. Where this is the case the lighting for the foot path or cycleway shall have a separate calculation grid from the carriageway. Foot paths and cycleways which required separate calculation grids may have a different lighting class classification from the carriageway as specified in the Design Brief.

Design considerations

6.3. The proposed location of the lighting installation shall be inspected to determine the type, arrangement, source, supply details and any existing lighting.

6.4. The street lighting system must be an integral part of the design of the estate and sufficient space for the installation of street lighting shall be provided.

6.5. Columns shall be located on highway land adopted by the Lighting Authority.

6.6. Columns shall not be placed in a shared surface or located within the span of a dropped kerb.

6.7. On housing estates, columns shall not be located outside building frontages. It is preferred that columns be located away from building frontages, however the designer may locate columns on the party line of two adjacent properties, or in line with the side wall of a building.

6.8. Lighting columns shall be located at the back of the footway/path wherever possible; where no footway exists they shall be positioned in an adoptable easement not less than 1.0m x 1.0m in area. Where lighting columns are placed in the verge, they shall be placed not less than 1.0m back from the kerb, (or greater if the speed limit of road allows as recommended in BS 5489). The lighting column set back shall be increased at the request of the Lighting Authority.

6.9. Designers shall specify tool free **mid-hinged** columns where maintenance access cannot be achieved from a Mobile Elevated Work Platform (MEWP), such as in the requirements set out in G39 (Working in the vicinity of DNO / Independent DNO equipment) and any subsequent recommendations provided by the Distribution Network Operator or National Grid. This includes remote footpaths where vehicular access is not possible and areas where traffic flow would be obstructed by a MEWP.

6.10. Where mid-hinge columns are specified, the lighting designer shall ensure that the column is located so that, when the column is being lowered or raised, the action of the column is not obstructed, and that no part of the column passes over un-adopted land when being lowered.

6.11. Due consideration is to be given to trees and their growth, traffic calming, parking and pedestrians when deciding the locations of lighting columns. All trenching / groundworks in close proximity of existing trees to be carried out in accordance with NJUG (National Joint Utilities Group) guidelines for the planning, installation and maintenance of utility apparatus in the proximity of trees – volume 4.

6.12. Within or adjacent to conservation areas, and in other environmentally sensitive areas, heritage style equipment may be required at the discretion of the Lighting Authority. This will be provided as part of the Lighting Design Brief and may attract a commuted sum.

6.13. The lighting shall provide visual guidance and assist in revealing the run of the road, particularly at junctions and bends, as described in the latest edition of BS 5489.

6.14. The lighting arrangements shall be coordinated with any traffic signing, signalling and surveillance installations.

6.15. Signs shall only be illuminated where it is a requirement of the latest edition of the TSRGD (Traffic Signs Regulations and General Directions 2016).

6.16. Lighting designers shall take into account guidance given in the ILP '*Guidance for the Reduction of Obtrusive Light*' GN01:2011.

6.17. The lighting designer shall provide a lighting design that reduces or eliminates the need for passive safe street lighting columns.

6.18. Where subsidiary road lighting classes are required, the lighting designer shall carry out minimum and maximum design spacings using a Lighting Reality Roadway calculation prior to undertaking further calculations in Lighting Reality Outdoor.

6.19. The designer shall ensure that the design is the most economic by maximizing the spacing between columns and therefore minimizing the number of columns to reduce the installation, operating and maintenance costs.

6.20. Where subsidiary road lighting classes are required, calculation grids shall be per road expect for roads that contain three or less lighting columns. These roads shall be included in the calculation undertaken for the connecting road where they have the same lighting class.

6.21. Re-siting existing lighting columns for re-use or using existing lighting columns without prior agreement from the Lighting Authority is not permitted.

7. Control

Photocells

7.1. Controls should be Telensa telecells wherever possible or if not viable a photocell with a switching regime of 35 Lux on /18 Lux off

8. Mounting

8.1. All luminaires shall be mounted directly onto the lighting column by means of a post top mounting mechanism.

8.2. Brackets shall only be used where a post top mounting facility is not appropriate, such as tree lined areas and shall be agreed with the Lighting Authority at the design stage.

8.3. No wall mounted brackets are permissible.

9. Glare and light trespass

9.1. For Traffic route (M class) and subsidiary roads (P class) lighting designs, the luminaries are to conform to the luminous intensity classes as described in *BS EN 13201-2, Table A.1* to provide adequate control of glare:

i. Where there is a contiguous lighting network within E3 and E4 environmental zones (IESNA table 1), luminaires shall conform to Class G2 or higher with lighting intensity above 95° to be 0.0 cd.

ii. Where there is a contiguous lighting network within E1 and E2 environmental zones, luminaires shall conform to Class G4 with lighting intensity above 90° to be 0.0 cd.

iii. Where there is a contiguous lighting network within E0 environmental zones, luminaires shall conform to Class G6.

Where comparable C class lighting from Table A.1 of BS5489-1:2013 is provided, luminaires shall conform to Class G4 or a higher class.

Where conflict area class lighting from Table A.4 of BS5489-1:2013 is provided, luminaires shall conform to Class G4 or a higher class.

9.2. All lighting designs should take account of the environment that they are located within, maintain light spill within ILP "*Guidance Notes for the Reduction of Obtrusive Light*" GN01:2011 and show lux contours for the appropriate environmental zone (calculated with the maintenance factor set to 1). Where necessary, luminaires shall be fitted with shields and louvres to minimise light spill. Luminaire mounted shields are the preferred option.

10. Conflict areas

10.1. Conflict areas will be identified in the design brief and shall be designed as follows:

i. Conflict areas shall be illuminated to the class as specified in the Design Brief and in compliance with BS 5489.

ii. The application of the conflict area shall be as *ILP PLG02 :2013* (The Application of Conflict Areas on the Highway 2013).

iii. It shall be noted that the 5 second rule relates to the approach being lit to the correct lighting standard and does not require the approach to be included within the conflict area calculation.

11. Pedestrian subways and underpasses

11.1. Details for the lighting for pedestrian subways/underpasses shall be included in the Design Brief from the Lighting Authority.

11.2. PIR (Passive infrared) sensors shall be incorporated where requested by the Lighting Authority.

12. Other

12.1. Cycle ways shall be designed in accordance with the principals of ILP TR23:1998 (Lighting of Cycle Tracks 1998).

12.2. Cycle ways next to the carriageway shall be lit by the carriageway lighting.

12.3. Zebra crossings shall be lit in accordance with the principals of ILP TR12:2010 (Lighting of Pedestrian Crossings 2010)

Refuge beacons

12.4. Refuge beacons shall be designed in accordance with the requirements of the Traffic Signs Manual chapter 4 which states:

The purpose of the beacon shall be to indicate the presence of a refuge which might be obscured by other traffic, the brow of a hill or a bend. It is not normally necessary on refuges which carry lighting columns or traffic light signals.

Belisha beacons

12.5. Belisha beacons shall be designed in accordance with the requirements of the Local Authority Traffic Engineer.

12.6. Belisha beacons shall be designed in accordance with the requirements of the Traffic Signs Regulations and General Directions 2016.

Cranked roots / labelling of special cranked roots

12.7. Cranked roots shall be in accordance with the manufacturer recommendations, and shall only be utilised with Lighting Authority approval.

12.8. Cranked root marks shall be manufactured from one piece U.V. stabilized self-adhesive vinyl.

12.9. There are two labels required one is to be positioned below the Maintenance Number.

12.10. The second label denotes the direction and length of the cranked root and shall be placed facing the direction of the root.

12.11. The labels shall consist of a neat rectangular reflective red background with no less than 12mm border, with white gloss numbers sized as maintenance numbers.

13. Electrical services

13.1. All electrical supplies for connection to the street lighting system will be arranged and paid for, (including energy) by the Developer, until adoption by the Lighting Authority has been confirmed in writing.

13.2. Lighting columns shall have Distribution Network Operator (DNO) services, unless otherwise agreed with the Lighting Authority.

Illuminated signs located on the verge or footpath shall have DNO services.

Illuminated signs or lighting columns located on traffic islands or in vulnerable locations shall have a private network supply.

13.3. If a private cable network is agreed, cable calculations (in Amtech ProDesign format or similar agreed format) and cable schematics to prove compliance with latest edition of BS7671 shall be included within designer's submission.

13.4. DNO cut-outs shall be located at the bottom of the backboard, unless otherwise stated by the Lighting Authority and a secondary double pole isolator shall be installed above, fused appropriately for the luminaire taking into account fuse discrimination. (This information shall be recorded on the drawing schedule)

13.5. All electrical supplies shall be unmetered unless agreed at the design stage with the Lighting Authority.

13.6. DNO or IDNO (Independent Distribution Network Operator) services shall be single way service cut-out. Two way looped cut-outs shall not be used.

IDNO

13.7. The Lighting Authority's preference is for the Developer to utilise DNO connections. If IDNOs are used, the Developer shall provide the Lighting Authority with details of the IDNO and the emergency contact details kept in the base of the lighting equipment and shall include the information in the Health and Safety File.

13.8. For guidance on IDNOs, contact the Highway Electrical Association (HEA). Go to https://thehea.org.uk/

14. Installation

14.1. Installation shall be carried out in accordance with the approved layout. If the highway or property layout is changed from that used for the approved lighting design, the approval of the lighting proposals shall be withdrawn and the developer shall be required to provide a revised lighting proposal for approval.

14.2. For new works on existing adopted highways – for example, Section 278 works – the Developer shall inform the Lighting Authority of the programmed works start date, no less than 28 days before commencement on site, (including the maintenance numbers of the items covered by the works).

14.3. Prior to installation, the developer shall arrange for the Lighting Authority to inspect the setting out of the lighting column positions, and any other street lighting furniture.

14.4. The Developer shall be responsible for the complete installation and commissioning of each unit.

14.5. Street lighting works shall be carried out by a competent contractor who shall be registered under HERS (Highway Electrical Registration Scheme) and that their operatives are

suitably qualified under the National Highway Sector Scheme 8. The Lighting Authority may request proof of accreditation and authorisation of any subcontractor to perform such duties. The Lighting Authority reserves the right to request a resubmission of any test certificates. Works are to be undertaken and specified in accordance with Manual of contract documents for highway works unless otherwise specified.

14.6. If the development works have scaffolding within 3 metres of a column or impedes access, then until the scaffolding is removed, that column will become the liability of the Developer to maintain and ensure no damage is incurred. Please ensure that the Lighting Authority is notified.

14.7. Where lighting already exists, the Developer shall maintain an adequate standard of road lighting. Where columns have to be removed or replaced, adequate temporary lighting shall be provided and shall be operational before disconnecting existing street lighting. Temporary lighting proposals shall be submitted to the Lighting Authority for approval.

14.8. Copies of electrical test certificates shall be passed to the Lighting Authority within 28 days of inspection prior to the issuing of the completion certificate.

14.9. Where it has been agreed that existing columns may be retained as part of the permanent works, structural testing shall be undertaken at the developer's expense in line with nationally recognised methods and copies of the certificates shall be supplied to the Lighting Authority.

15. Pre-adoption (maintenance) period

15.1. It shall be the Developer's responsibility to ensure that prospective purchasers are fully aware of the locations of all street lighting furniture. Any relocation of equipment shall be at the Developer's expense, prior to handover and shall be within design parameters or included in a complete re-design of the scheme.

15.2. The Developer is responsible for all maintenance until such time as the installation is formally adopted in accordance with the relevant agreements.

15.3. The Developer shall be responsible for the mitigation of light intrusion.

15.4. For Section 38 developments, the Developer shall be responsible for all energy and maintenance costs until the date of adoption and will require their own MPAN (Metering Point Administration Number).

15.5. For Section 278 developments, the Developer shall be responsible for the cost of energy and maintenance until the Lighting Authority has issued the completion certificate.

15.6. Emergency Repair – The Lighting Authority holds the right to make safe, or cause to be made safe, any equipment that is dangerous – for example, though vehicular impact damage, and so on – and all reasonable costs shall be chargeable to the Developer.

15.7. The Developer shall give 20 working days' notice requesting an inspection of the street lighting installation.

15.8. The Developer shall not offer the columns, signs, beacons and bollards for inspection by the Lighting Authority, until such time as they are confident that all works have been

completed satisfactorily as specified by the Lighting Authority and in accordance with this document.

15.9. Final numbering scheme shall be provided by the Lighting Authority. The Developer shall provide road names and postal addresses for each property so that the maintenance numbers can be specified. The developer shall be responsible for fixing the numbers to the lighting columns (and other street lighting equipment).

16. Adoption

16.1. Prior to adoption the Developer shall provide a Health and Safety file which shall include the record information as detailed in Appendix 14/1 of this specification.

16.2. Once the site is ready for adoption (after the maintenance period), a final inspection will be carried out by the Lighting Authority.

16.3. If the development is not adopted within 5 years, the Lighting Authority reserves the right to review the suitability of equipment installed and may require it to be upgraded or replaced at the Developer's expense.

16.4. A bulk lamp / LED (Light emitting diode) array / LED driver change may be required by the Lighting Authority dependent on scheme life.

16.5. Only when the Lighting Authority is satisfied that all equipment has been installed and all issues resolved will the street lighting system be accepted for adoption.

17. Commuted sums

17.1. Subject to the agreement of the Lighting Authority, where a standard of materials exceeds the standard specification, and which shall incur higher maintenance costs, a Commuted Sum shall be calculated and agreed prior to the granting of technical approval. The commuted sum shall be payable to the Lighting Authority prior to adoption of the completed scheme.

17.2. Where a higher standard of materials is installed without the agreement of the Lighting Authority and/or where a Commuted Sum has not been paid, then adoption will not be granted. The ongoing maintenance of the lighting system shall be the responsibility of the Developer or their appointed managing agents.

18. Equipment specification

18.1. All new street lighting furniture shall be in accordance with this specification. All product references are typical specifications, any alternatives proposed must be equivalent products and approved by the Lighting Authority prior to use.

18.2. Equipment shall be supplied in new and unused condition.

18.3. Electrical equipment shall be stored with suitable ingress protection ratings.

18.4. The Developer shall ensure that the equipment supplied is compatible with all other equipment with which it is associated.

18.5. Manufacturers shall be certified for the manufacture, supply and verification of apparatus under BS EN ISO 9001.

18.6. Preferred materials are detailed in Annex A.

Appendices

The following shall apply when the Manual of Contract Documents for Highway Works (MCHW) Volumes 1 and 2 is used where Local Authority documentation is not available:

Appendix 0/2 – contract specific minor alterations to existing clauses and tables included in this contract

1421 Clause 1.

Delete "XLPE insulation" and insert "PVC or XLPE insulation"

Delete "XLPE or MDPE sheathing" and insert "PVC, XLPE or MDPE sheathing" Delete "or aluminium strip"

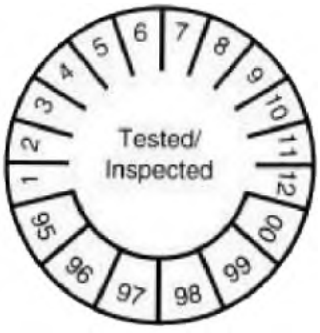
1424 Insert after sub-clause 2(j):

Upon completion of testing a weather-proof UV resistant label shall be fitted in the unit, which clearly indicates the month and year that the unit was tested.

The label shall:

- be 65mm in diameter
- have black text on a yellow background
- be made of a non-degradable material
- be either fixed to the backboard or ty-rapped to the internal cabling

The label shall be similar to the example shown below.



Appendix 1/5 – testing to be carried out by contractor

Clause	Work, Goods or Material	Test	Frequency of Test	Test Certificate	Comments
Series 1300					
1305	Anchorages for use in drilled holes	Tensile load (Manufacture's tests)		Required	To provide well attested and documented evidence
1306	Anchorages in drilled holes to column flange plates	Load test on site			
1310	Welding	Welding procedures (Manufacture's tests)	Every 7 years		Quality management scheme applies
		Welder qualifications (Manufacture's tests)	(as Sub-Clauses 1310.1 and1310.2 (7.1.3))		
		Production testing (Manufacture's tests)	(as Sub-Clauses 1310.1 and1310.2 (7.1.4))		
Series 1400					
1421	Cable				Product certification scheme applies
1424	Lighting units	Tests specified in Clause 1424	Each unit	Required (Test instrument calibration certificate required)	Product certification scheme applies. Certification that the installation complies with BS767 1 (the IET Wiring Regulations) is required
	Networks	Tests specified in Clause 1424 (as amended in Appendix0/2)	Each circuit and sub-circuit	Required (Test instrument calibration certificate required)	Certification that the installation complies with BS767 1 (the IET Wiring Regulations) is required

Appendix 5/1 – service duct requirements

Chambers

1. Plastic duct chambers shall conform to the following and be installed as per the manufacturer's guidelines:

    a) Either be 450mm x 450mm, 600mm x 600mm or 900mm x 900mm as stated in the works package drawing.
    b) Shall be injection moulded with a twin wall construction min. 47mm thick, pre-formed segments to produce a complete ring with stiffeners at min 65mm centres. Each ring section is to be castellated to positively interlock with the unit above and below to form a chamber.
    c) Be installed with galvanised eye bolt(s) the number required is to be dependent on the required number of draw ropes (see ducting requirement above). An additional eye bolt(s) (as required) is to be installed in each draw pit which is to be used to support column cabling.
    d) Have a 100mm diameter drain hole cast into the concrete base of the draw pit and be filled level with suitable filter drain material. The foundation shall be cast on site.
    e) Standard colour black.
    f) Vertical loading capability of not less than 40 Tonnes.
    g) Comply with the following Standards:
        i. EN124 B125 & D400 Vertical Loading Requirements.
        ii. BS5834 Part 4. 1993 Side Wall loading for small chambers.
        iii. BS1247 Part 2. Cold Impact Test.
        iv. EN228 Resistance to Petrol & Chemicals. v. EN295-3 Stress Relief.
        v. BS2782 Part 4. Methods 430A to 430D Water Absorption.

1.1. Covers and Frames shall conform to EN124 and have load rating as appropriate for the location it is placed (B125, C250 & D400).

1.2. Shall state 'Street Lighting' on the Cover. .

1.3. The Lighting Authority shall be provided with a set of access keys.

General requirements for service ducts

1.4. Cable ducts shall be 100mm diameter of twin wall construction, ribbed on the outer profile and smooth internal profile manufactured from polythene or medium density polyethylene, wall thickness 5mm minimum, orange in colour, inscribed "STREET LIGHTING" at 1 metre intervals permanently embossed. Draw cords to be provided in all ducts.

1.5. Yellow PVC cable identification tape shall be installed in the trench above cables and ducting bearing the legend "CAUTION STREET LIGHTING CABLE BELOW".

1.6. Ducts in carriageway shall be installed using either open trench or trenchless methods as proposed by the Contractor with a depth of cover of 750mm, in accordance with Clause 1421.

1.7. Ducts in verge and footways shall be installed by open trench with a depth of cover of not less than 450mm, in accordance with Clause 1421. All cables will be installed in ducting.

1.8. All duct requirements for Statutory Undertakers and Agent Authorities shall be determined by the Contractor in liaison with the relevant bodies, ducts and draw cords provided where necessary.

1.9. Duct marker plates to be installed in verge areas to indicate the road duct crossing location where no cable draw pit is installed.

1.10. Ducts shall be colour coded as follows:

- Electricity Company (DNO) – black colour – supply cable into proposed columns.
- 100mm nominal diameter duct – orange colour – for private highway lighting cables

Appendix 12/1 – traffic signs: general

1. Sign plate

1.1. Signs shall comply with Class RA 2 of BS EN 12899.

1.2. Sign plates must have a guaranteed on-site life of not less than 25 years.

1.3. Sign plates shall be made from composite material.

1.4. All signs shall be manufactured and erected in accordance with BS EN 12899-1:2007, Traffic Signs Regulations and General Directions 2016, Traffic Signs Manual, Specification for Highway Works, location plan and associated sign schedules and the following specification.

1.5. The finish shall be Class RA 2 retro-reflective material with a warranted life of not less than ten years and shall fulfil the requirements of BS EN12899-1:2007.

1.6. Signs shall be stiffened such that post fixings may be positioned at any point across the width of the sign without the need for drilling of the stiffening to permit erection onto posts of specified spacing.

2. Illuminated traffic signs

2.1. Illumination of sign plates shall be external and overhead mounted unless directed otherwise by the Lighting Authority. One piece light units with integral brackets shall be mounted directly on the sign post and/or on luminaire support posts or as directed by the Lighting Authority.

2.2. All lit traffic signs shall comply with Class RA 2 of BS EN 12899 and sections 7.4.1.2 – Mean Illuminance and 7.4.1.3 – Uniformity of Illuminance.

2.3. All sign and luminaire fixings shall have a guarantee of 25 years on site life.

2.4. Non-passive signs, which require illuminating shall be mounted on a wide based post or lighting column.

2.5. The orientation of sign post doors shall be in facing away from oncoming traffic to enable the maintenance personnel to be aware of oncoming traffic.

3. Attachments on columns

3.1. Where signs are to be attached to lighting columns, the column shall be designed by the manufacturer to allow for the additional loading of the sign and associated attachments.

3.2. Signs may be attached to existing columns subject to the following:

a) the sign is no larger than the attachment size that the column is designed for
b) the column is of a suitable type and is in a suitable condition to support the attachment
c) approval is granted by the Lighting Authority

A suitable replacement lighting column to be supplied, installed and commissioned at the Developer's expense may be required if these conditions cannot be met.

4. Sign posts

4.1. Sign posts shall conform to BS EN 12899, Appendix 13/1 and sections 4, 5 and 6 in this document.

4.2. Caps shall be applied to the top of the post to prevent ingress of water.

5. Passively safe sign posts

5.1. Tubular passively safe sign posts shall be provided with a purpose made post cap, coloured to match the post, to prevent ingress of water.

5.2. Only signposts that have been independently tested by an approved testing organisation and certified to comply with the appropriate class in BS EN 12767 shall be permitted.

5.3. Where signs on passively safe posts require power supply cables for illumination, an electrical disconnection system is required for safe disconnection of the electrical supply. Refer to the Institution of Lighting Professionals Technical Report 30 for further details.

6. Wide based posts

6.1. The housing shall have an aperture of not less than 500mm x 100mm and be fitted with a weatherproof metal door having a vandal-resistant lock with key. The door and housing shall have the same finish as the post, both inside and out.

6.2. Wide based posts shall have an access door and cable entry slot. The cable entry slot shall be 75mm wide and 150mm high and shall be 500mm below ground level.

6.3. The support posts and fittings shall comply with the requirements for sign posts and shall be fixed directly to the sign stiffening members.

6.4. Caps shall be applied to the top of the post to prevent ingress of water.

6.5. The electrical supply should be as stated within the design brief.

Appendix 13/1 – lighting columns and brackets

1. General column requirements

1.1. Please refer to the Standard Details for column general arrangement.

1.2. Amendment to BS EN 40 column Design Life shall be 40 years.

1.3. All columns shall be CE marked in accordance with the European legislation.

1.4. Columns shall comply with BS EN 40 as above, PD6547, and be designed for the location it is being installed, with the amendment that all columns shall be designed to support attachments (in addition to the luminaire) with the following specification:

- PD6547 Table 3 Type B for residential roads
- PD6547 Table 3 Type C for traffic routes

1.5. Shall take:

Spring Loaded Banner 1.54m2 (740mm x 2030mm) mounted 2.7m to bottom edge of banner (Wind Loading 0.4m2)

or

Festive Decoration 2.0m2 (2000mm x 1000mm), weight 20kg, 30% solidity, 1.2 shape coefficient mounted minimum 2.5m to bottom edge

or

Flower Basket 0.6m2, weight 100kg concentrically mounted (Clamp on) 1.0 shape coefficient mounted 2.5m to bottom edge

1.6. Shall be galvanised steel with two pack glass flake epoxy or bitumen to the external and internal root to 250mm above ground level, minimum dry film thickness 200µm colour black (shop applied).

1.7. Shall have a 50mm duct in the cable entry hole to protect incoming cable.

1.8. Shall have a welded bead to identify ground level placed below the door with a minimum length of 40mm.

1.9. Columns shall be provided with an earth lug at the bottom left-hand side of the gear compartment to fit the earth wire.

1.10. Columns shall be galvanised to the latest edition of BS EN ISO 1461 Hot Dip Galvanised Coatings on Fabricated Iron and Steel Articles. Specifications and Test Methods and shall be free from imperfections including porosity. Galvanising shall be fettled and rasped to remove all spikes and sharp edges and leave a smooth finish prior to finishing application.

1.11. Columns shall be coated in accordance with Section 19/1 (where required by the Lighting Authority).

1.12. Be provided complete with 1 key per 40 columns or part thereof.

1.13. Have a baseboard made from material which is substantially non hygroscopic and rot resistant, of not less than 15mm thickness and suitable size, fixed securely in the base

compartment of each column to accommodate all equipment with adequate space left at the bottom for cable termination and service cut-outs.

1.14. Have a tapped stud, set-screw and shake-proof washer to be used as an earthing terminal and this is to be so positioned as to be easily accessible from the door opening. The screw, shake-proof washers and nuts are to be made of non-corrodible material.

2. Column door requirements

2.1. Generally have one access door (including double arm columns). Columns with CCTV or festive lighting may require columns with two doors.

2.2. The door shall be wrap around with a single clamp fixing arrangement and M8 tri-head stainless steel bolts.

2.3. Door lock type shall be triangular type unless otherwise specified.

2.4. Column doors shall be hinged doors when the column is located on a structure, or is accessed from a structure.

3. Special design columns

3.1. Festive decorations and hanging baskets shall not be fitted to columns unless the column and foundation has been designed for the additional loading and approved by the lighting Authority.

3.2. A license from the Lighting Authority shall be required if festive lighting is to be used on any of the columns. Consent will only be issued subject to confirmation that the seasonal decoration applicant will comply with the following document. ILP – PLG06 (Guidance on installation and maintenance of seasonal decorations and lighting column attachments) which is available at www.theilp.org.uk

3.3. The installation of CCTV and lighting masts requires consultation with, and approval from the Lighting Authority.

3.4. Columns identified by the Lighting Authority as requiring additional security to the base compartment shall be specified by the Lighting Authority on a case by case basis.

4. Hinged columns

4.1. All hinged columns shall be Mid-Hinged unless agreed otherwise by the Lighting Authority.

4.2. Hinged columns shall be fitted with a door and base compartment that is accessible without requiring the column to be folded down.

4.3. A captive length of flexible conduit should protect the internal wiring cables from accidental pinching between the column base and shaft sections.

4.4. Where a hinged column is located on the central reservation of a dual carriageway the base and the column anchor shall be arranged so that when the column is in the lowered position, the luminaries on both sides of the bracket fall within the central reservation and if required only one lane of the carriageway.

4.5. The hinged column shall be lowered without requiring additional apparatus unless agreed with the Lighting Authority.

5. Passively safety columns

5.1. Passively safe lighting columns shall meet the requirements BS EN 12767 Passive Safety of Support Structures for Road Equipment. Requirements, classification and test methods.

5.2. Electrical disconnection of Passive Safe Columns shall be in accordance with recommendations of ILP technical report 30, BS7671 and approved by the Lighting Authority.

5.3. Passively safe columns shall be installed using a Retention Socket see below.

6. Retention sockets / flange plates

6.1. Socket head shall be of cast steel construction, to BS EN10340 Steel castings for Structural Uses, grade: GS240.

6.2. Galvanised on all internal and external surfaces.

6.3. The socket shall be capable of withstanding impact forces to steel posts with a wall thickness up 6mm.

6.4. Shall be designed to take incoming and outgoing electrical cables.

6.5. Shall be installed in accordance with the guidelines set out by the manufacturer.

6.6. Shall be provided with supporting calculations proving it is fit for purpose.

6.7. In some situations flange plates may be used but this will be specified in the Design Brief / or agreed by the Lighting Authority.

7. Refuge beacons

7.1. The refuge beacon shall consist of an illuminated spherical globe. The globe shall be white with a diameter of not less than 275mm or more than 335 mm. The height of the centre of the globe above the surface of the carriageway in the immediate vicinity shall be not less than 3800 mm or more than 5000 mm.

7.2. The globe shall be illuminated using an LED lamp, have easy access and minimum IP54 sealing. The globe shall be mounted on an anti-vandal gallery which is designed to be fitted quickly and securely onto a 76mm circular post.

7.3. Signs to diagram 610 to indicate which side drivers should pass may be added at 3000mm above the surface of the carriageway.

8. Belisha beacons

8.1. The Belisha beacon shall consist of a spherical globe. The globe shall be yellow or fluorescent yellow with a diameter of not less than 275mm or more than 335 mm. The height of the centre of the globe above the surface of the carriageway in the immediate vicinity shall be not less than 2100 mm or more than 3100 mm.

8.2. The globe shall be illuminated by an energy and maintenance efficient flashing light source, have easy access and minimum IP54 sealing. The globe shall be mounted on an anti-vandal gallery which is designed to be fitted quickly and securely onto a 76mm circular post.

9. Maintenance numbers

9.1. Columns shall be identified by maintenance numbers as detailed in Appendix 14/70.

Appendix 14/1 – site records

1. Site records

1.1. As built drawings shall be produced by the Contractor and shall be in accordance with the requirements of Clause 1402 of the Specification for Highways Works.

1.2. The record information and "as built" drawing must be submitted to the Lighting Authority prior to the Works being adopted.

1.3. The recorded information shall include:

a) electronic "as-built" drawings with grid references to be submitted after installation
b) columns schedule and connection type
c) electrical test certificates
d) schedule of maintenance numbers fixed to lighting columns (and other street lighting equipment)
e) data for Lighting Authorities street lighting inventory. Details as required in Annex B
f) test certificates cross referenced to the apparatus identified on the "as built" drawings

1.4. The record information ("as built" drawings) to be provided by the Contractor shall clearly show the position of all street lighting equipment, cabinets, cables, draw pits, ducts, and the like, as actually installed, together with all telephone cables, power cables and communication cables including cable sizes, and route, that cross or run within 5m of the line of a street lighting cable or duct.

1.5. BS7671 inspection and testing certificates must be submitted to the lighting authority prior to the works being adopted.

Appendix 14/2 – location of lighting units and feeder pillars

1.1 The positions of the lighting units, feeder pillars and cable routes to be shown on drawings.

1.2 Where required, the Contractor shall position columns a minimum distance from front of safety fence barrier to front face of the lighting column in accordance with the current issue of the Design Manual for Roads and Bridges document TD19 Requirements for Road Restraint Systems.

1.3 The Contractor shall liaise with all the utility services who may have equipment in the area, and for the disconnection/connection of cable supplies to feeder pillars and lighting columns. Locations of existing underground utility services (excluding Street Lighting) to be shown in the Site Information.

1.4 The contractor shall obtain a quotation from the DNO/IDNO Operator for all electrical connections/disconnections identified on the drawings.

1.5 All DNO/IDNO invoices for electrical connections/disconnections shall be paid by the contractor.

Appendix 14/3 – temporary lighting

1. The levels of illumination of the existing trafficked carriageways shall be maintained at a level not lower than that existing until the date of the Completion Certificate for the whole of the Works. New and temporary carriageway used for traffic during the course of the works shall be illuminated by temporary or permanent lighting to the standards detailed in paragraph 2 below.

2. The levels of illumination of temporary lighting shall not be lower than the standard provided by the permanent road lighting system, or BS 5489, whichever is the greater.

3. Where the Developer proposes to use either temporary lighting, or temporary supplies or cable networks, the Developer shall submit his proposals to the Lighting Authority for their approval. The Contractor shall not proceed until the temporary lighting proposals have been agreed.

4. Where necessary the Contractor shall provide protection to existing cables or install new diversion cables to maintain electrical supplies to luminaires.

Appendix 14/4 – electrical equipment for road lighting

1. Luminaires

1.1. Luminaire correlated colour temperature shall be neutral white (approximately 4000K)

1.2. Luminaires shall be in accordance with Annex A and be as stated below unless otherwise agreed.

1.3. Colour Rendering Index of no less than Ra. 60.

1.4. LED drivers shall be replaceable throughout the design life of the luminaire.

1.5. LED luminaires shall have a warranty of no less than 10 years on all parts including luminaire body, LED driver, any other internal parts and a design life of 25 years (to correlate with 100,000 hours at 4,000 hours a year).

1.6. Luminaires shall be Class I insulation and be of Aluminium Construction Marine Grade alloy.

1.7. Luminaires for road lighting shall have degree of protection rating of at least IP66 to BS EN 60529 for Luminaires, LED optics and LED Drivers.

1.8. LED luminaires shall conform to BS EN 60598-1.

1.9. Luminaires shall be of a totally enclosed design, shall be of sound construction and be capable of being easily dismantled for maintenance.

1.10. Luminaires shall be fitted with integral electronic DALI driver, contained within a separate compartment to the LEDs.

1.11. LED drivers shall be supplied with Constant Light Output (CLO).

1.12. Luminaires are to be supplied with approved unmetered supply charge codes (ELEXON Codes).

2. Photo-electric control units (PECU)

2.1. Luminaires shall be supplied with integral DALI compatible electronic control gear and factory flitted one part 7 pin NEMA socket mounted photocell or (where agreed by the lighting authority) miniature type mounted on the luminaire canopy.

3. Drivers

3.1. Control Gear shall conform to BS EN 61347-2-13.

3.2. The insulation test shall be carried out in accordance with the requirements of BS EN 60598-1

4. Cut-outs and isolators

4.1. Cut-outs and Isolators shall:

a) have an insulated gland plate with grommets

b) be rated at 25A
c) be double pole
d) consist of a substantial moulded-plastic enclosure with separate terminals for live and neutral conductors, incorporating a BS88 fuse
e) be designed primarily for use in road lighting columns and be suitable for terminations or looped services
f) have terminals large enough to accommodate the supply cables specified, in single cable or looped cable terminations
g) be securely fitted to the backboard by means of at least 3 stainless steel screws
h) shall be tested in accordance with BS EN 60269-1 – Low-wattage fuses, Part 1: General requirements

4.2. Cut-outs shall be used when the cable termination is located below ground level (bollards).

4.3. Isolators shall be used when the cable termination is located above ground level (Columns, signs, etc.)

4.4. Cut-outs shall:

a) be designed in accordance with BS 7654 and EN 60947
b) be fitted with a BS88 fuse LST type

4.5. Isolators shall:

a) be fitted with a BS88 fuse MD type

5. Wiring

5.1. All cable must be BASEC (British Approvals Service for Electric Cables) approved.

5.2. Cable from isolator to lanterns shall be 3 core PVC/PVC, a minimum 1.5mm2 for column up to 6m mounting height and 2.5mm2 for column over 6m mounting height, insulated and sheathed flexible copper cable to BS EN 50525-2-11 rated 300/500V.

5.3. Connection between the isolator and Distribution Network Operator's apparatus shall be sheathed single core cable (double insulated).

5.4. Cable for wall mounted solutions shall be H07RN-F, multicore copper cable to BS EN 50525-2-21 rated 450/750V and be suitably mechanically protected. Note the intention is that new installations will not use third party building mounted luminaires.

6. Private network cabling

6.1. Cable joints are not allowed on the network unless agreed by the Lighting Authority. Where the cable joints are authorised by the lighting Authority the location of the cable joint shall be marked with a joint marker block and recorded on the "as build" drawings.

6.2. All private cables shall be labelled (source and destination) refer to section 11.0 for details.

6.3. All incoming and outgoing private supplies shall be connected securely using C.E.T (central earthing terminal) glands.

6.4. All supplies to traffic signs and bollards shall be sub-fused at source and provided with a local fuse within the sign / bollard.

6.5. All private network cables shall provide a circuit protective conductor with the same cross-sectional area as the line conductors.

7. Earthing

7.1. In private cable arrangements with two or more columns; supply point and the last column shall be earthed with an earth electrode and pit arrangement with a suitable inspection chamber.

7.2. Cable armour shall be terminated in a central earth terminal clamp.

8. Earth electrodes

8.1. Earth electrodes shall be located in an earth electrode core and surrounding housing.

8.2. Earth electrode/s to comply with the requirements provided within BS 7671:2018 and BS 7430:2011+A1:2015, Code of practice for protective earthing of electrical installations.

8.3. Earth bonding conductor terminations shall be made using suitably sized crimp type lugs and brass bolts, nuts and washers of a minimum diameter of M8.

9. Feeder pillars

9.1. Shall have two pack glass flake epoxy to the external and internal root to 200mm above ground level minimum dry film thickness 200µm colour black (shop applied).

9.2. The pillar shall be hot dip galvanised to BS EN ISO 1461 and if required painted in accordance with appendix 19/1 and the Lighting Authority.

9.3. Feeder pillars of up to 600mm wide shall be fabricated from a minimum of 3mm steel and larger pillars shall be fabricated from minimum of 5mm steel.

9.4. Feeder Pillars must have a wiring schematic laminated in the feeder pillar. A pocket on the inside of the door shall be able to accommodate the schematic.

9.5. Outgoing Supplies shall be labelled, refer to section 11.0.

9.6. Shall have warning labels in accordance with BS7671.

9.7. The pillar doors shall be fitted with tamper proof locks, all locks being identical in pattern and two sets of keys shall be provided. All hinges and locks shall be of stainless steel and be a greased non-corrodible lever design operated 8mm triangular headed tamper proof lock.

9.8. Feeder Pillars shall be identified by maintenance numbers as detailed in Appendix 14/70.

10. Internal equipment

10.1. The backboard shall be at least 18mm non-hygroscopic marine ply (with 5mm air-gap and pressure treated).

10.2. Internal equipment located in feeder pillars shall be housed in an arrangement of IP54 modular enclosures, occupying no more than 75% of the backboard, with at least 10% spare capacity in the enclosures, and 20% additional electrical capacity.

10.3. Feeder pillars shall incorporate an RCD socket outlet and shall be connected to the electricity company service cut-out via an isolation switch.

10.4. There shall be a lockable isolator wired in between the DNO supply and the distribution panel and shall be rated for its intended use in accordance with BS7671.

10.5. The following standards should be met:

- Fuse switch disconnectors BS EN 60947-3
- Switch disconnectors BS EN 60947-3
- Distribution boards BS EN 60439-3
- Fuse holders BS88-2.2
- Fuse links BS88-2.2
- Miniature circuit breakers BS EN 60898 or BS EN 60947-2
- Contactors BS EN 60947-4-1
- RCCBs BS EN 61008-1
- RCBOs BS EN 61009-1
- Surge Protection device/s to BS EN 62305

11. Cable identification

11.1. The cables into (and out of) a unit shall be labelled to indicate where the cable comes from or what it supplies, respectively.

11.2. The supply source point of isolation shall also be indicated.

11.3. The labelling shall take the form of K-type markers on universal carrier strip fixed to the cable with using self-locking plastic cable ties or similar.

Appendix 14/5 – electrical equipment for traffic signs

1. Illuminated traffic signs

1.1. Signs shall only be lit when the Traffic Signs Regulations and General Directions (TSRGD) states that a sign must be lit.

1.2. Sign luminaires shall be fitted with the same switching regime as per the road unless specified within the design brief.

2. Traffic bollards

2.1. Plain face bollards shall be retro-reflective.

2.2. The traffic signs designer and the Lighting Authority will determine whether retro-reflective, solar powered or mains powered illuminated bollards shall be utilised.

2.3. Mains powered bollards shall be switched from the supply.

2.4. Retro-reflective bollards shall have reflective material on the front, back and sides.

3. Belisha beacon

3.1. Belisha Beacons to be installed on 3.8m Large Base Post painted black in accordance with Appendix 19/1 with the addition of Micro Prismatic Reflective bands to BS EN 12899.

- Yellow polyethylene globe
- Light Source shall be LED

4. Centre island beacon

4.1. Standard centre island post shall be between 3800mm and 5000 mm mounting height, finished in accordance with appendix 19/1 to BS EN 12899.

- White Polyethylene Flexi Globe
- LED Beacon
- Externally illuminated 600mm 610 signs back to back attached

Appendix 14/70 – electrical equipment for road lighting and traffic signs

1. Cable damage

1.1. In the event of damage, however slight, to any lighting cable the Contractor shall immediately inform the Lighting Authority who will assess the damage and determine what action is required. The repair of the damaged cable shall be carried out at the Contractors expense.

1.2. Sheath damage shall be repaired by an approved sheath repair kit Tyco Electronics – Wrap around sheath repairs and installed by personnel with proven competencies in line with the requirements of the Highway Electrical Registration Scheme.

1.3. If the damage to any cable extends into the cable armoring, then a new length of the same cable is to be installed.

2. Maintenance numbers

2.1. Columns, illuminated traffic signs, illuminated bollards, and feeder pillars shall be identified by a maintenance number in accordance with a schedule or drawing which will be provided by the Lighting Authority. The Contractor shall confirm the accuracy of the numbers with the Lighting Authority prior to manufacturing or purchase of the labels.

2.2. Maintenance numbers shall:

a. Be self-adhesive, reflectorised 3 M or similar
b. Have a text height of 50mm with a minimum 12mm border surrounding the character
c. Be Helvetica Medium (unless otherwise specified)
d. Have black characters on a white background

2.3. All assets shall have the maintenance number located above the ground level:

- columns shall be fitted with maintenance numbers
- signs to have letter prefix S
- feeder pillars to have prefix FP
- refuge beacon to have prefix CP
- belisha beacon to have prefix PX

2.4. Belisha beacons and illuminated signs, accommodating two separate luminaires, shall be provided with two separate maintenance number labels. The first label shall be provided as above. The second label, denoting the same maintenance number with the suffix "PX", shall be provided at a height of 2.5m above ground level directly above the first label.

2.5. Maintenance numbers on column, signs and the like shall have characters vertically below one another and shall read downwards. I.e. For the number "361", the "3" shall be at the top and the "1" shall be at the bottom.

3. Electrical supervision

3.1. The Contractor shall have an approved deputy whose sole responsibility shall be for the electrical lighting installation Works. This deputy shall be an employee of the Contractor

and have a thorough working knowledge and proven competencies in line with the requirements of the Highway Electrical Registration Scheme.

3.2. The electrical sub-contractor shall have an electrical supervisor with proven competencies in line with the requirements of the Highway Electrical Registration Scheme, on Site at all times when electrical works is being carried out.

4. Cable location

4.1. The Contractor is responsible for locating and marking all existing lighting power cables. These cables shall be located by personnel with proven competencies in line with the requirements of the Highway Electrical Registration Scheme.

4.2. Cables shall be marked at 10 m intervals by means of a high visibility peg having at least 150 mm of its length above ground by personnel with proven competencies in line with the requirements of the Highway Electrical Registration Scheme.

4.3. The location of a cable shall be confirmed every 50 m by a test excavation. A marker peg will also be required. The Contractor is responsible for maintaining his cable marking by personnel with proven competencies in line with the requirements of the Highway Electrical Registration Scheme.

Appendix 19/1 – protection of steelwork against corrosion

1. Root protection

1.1. Pre-treat galvanised external surface of the column and the internal root to 250mm above ground level with "T" Wash application to be fully in accordance with Technical Data Sheet (shop applied).

1.2. Apply one coat two pack micaceous iron oxide, Item 121 of the Specification of Highway Works, to the external surface of the column and the internal root, to 250mm above ground level, minimum dry film thickness 100µm (shop applied).

1.3. Apply one coat of two pack glass flake epoxy ref 79-489 to the external and internal root, to 250mm above ground level, minimum dry film thickness 200µm colour black (shop applied).

1.4. All lighting columns shall be packed at contact points for transport and storage to protect the finish.

2. Colour finish

2.1. Where required by the Lighting Authority that the column should be painted, the following will apply:

2.2. Pre-treat galvanised external surface of the column with Dacrylate 'T' Wash ref: 150-23 application to be fully in accordance with Dacrylate Technical Data Sheet (shop applied). Rinse/wash after using fresh clean water and allow it to dry before proceeding.

2.3. Any areas damaged back to bare steel or exhibiting indication of corrosion should be:

a) Manually cleaned to St3 (ISO 8501 – 1), ensure resulting surface is suitably profiled to provide good coating key

b) Patch prime using Amercoat 4376 at 125 microns by dry film thickness overlapping surrounding areas by 50mm

2.4. Apply one coat of Epidac 2 HB Aluminium Epoxy Primer Item 115 ref 90-268 to the external surface of the column minimum DFT 125 m colour metallic aluminium (shop applied).

2.5. Apply one coat Dac Sil Polysiloxane Finish ref 200 line to the upper section of the column from 100mm below ground level minimum DFT 75µm to a finish colour as stated in the accompanying design brief and be shop applied.

2.6. Any damage to the paintwork during transportation, unloading and installation will need to be made good in accordance with the manufacture's requirements.

Abbreviations

Abbreviation	Meaning
BASEC	British Approvals Service for Electric Cables
CET	Central Earthing Terminal
CDM	Construction (Design and Management) Regulations: 2015
CLO	Constant Light Output
CMS	Central Management System
DALI	Digitable Addressable Lighting Interface
DNO	Distribution Network Operator
H & S	Health and Safety
HEA	Highway Electrical Association
HERS	Highway Electrical Registration Scheme
IDNO	Independent Distribution Network Operator
IEC/PAS	International Electro-Technical Commision Publicly Available Specifications
IESNA	Illuminating Engineering Society of North America
ILP	Institution of Lighting Professionals
LED	Light Emitting Diode
LV/HV	Low Voltage/High Voltage
MCHW	Manual of Contract Document for Highway Works
MEWP	Mobile Elevated Work Platform
MPAN	Metering Point Administration Number
NJUG	National Joint Utilities Group
PECU	Photo-Electric Control Unit
PECU	Photo-electric Control Units
PIR	Passive Infrared
RCBO	Residual Currant Circuit Breaker
TR	Technical Report
TSRGD	Traffic Signs Regulations and General Directions: 2016
UMSUG	Unmetered Supplies User Group

Annex A – Approved materials

1. Luminaires

Luminaires shall be sourced from the following families of luminaires as per the table below unless otherwise agreed with the Lighting Authority.

Manufacturer	Type
Philips Iridium Gen 3	LED
Thorn CiviTeq	LED
Urbis Ampera	LED
DW Windsor Kirium Pro	LED
Simmonsigns Safeway Subway Light Unit	LED
DW Windsor Kova Subway Light Unit	LED
Aether Subway Light Unit	LED
DW Windsor Strand Heritage Lantern	LED
MSD MW158L Metro Large Heritage Lantern	LED

2. Illuminated traffic signs

Manufacturer	Luminaire Type	Type	Description
Simmonsigns	LUA	LED	Aluminium sign light for use with up to 750mm traffic signs
Simmonsigns	LUB (900,1200 or 1500)	LED	Aluminium sign light for signs larger than 750mm
Mallatite	Exlite Delta	LED	Aluminium sign light for use with up to 900mm traffic signs
IMP	Apollo Alpha	LED	Aluminium sign light for use with up to 900mm traffic signs

3. Traffic bollards

Manufacturer	Type	Type	Description
TMP	Evo -N	Retro reflective	Double sided, non-illuminated, passively safe, reboundable reflective highway traffic bollard with regulatory symbol as required

Manufacturer	Type	Type	Description
TMP	Evo-S	Solar	Double sided, Solar powered LED, passively safe, reboundable and Double sided, Solar powered LED, passively safe, reboundable and reflective highway traffic bollard with regulatory symbol as required
Glasdon	Signmaster	Solar	Double sided, Solar powered LED, passively safe, reboundable and Double sided, Solar powered LED, passively safe, reboundable and reflective highway traffic bollard with regulatory symbol as required
Glasdon	Signmaster Rebound	Retro reflective	Double sided, non-illuminated, passively safe, reboundable reflective highway traffic bollard with regulatory symbol as required

4. Belisha beacons

Manufacturer	Type	Type	Description
Simmonsigns	Modubel/Midubel	LED	Zebra crossing Belisha beacon
Simmonsigns	Centrenol	LED	Pedestrian refuge beacon with or without internally illuminated section

5. Photocells

Manufacturer	Type	Type
Telensa	Telecell	Telecell
Royce Thompson	Oasis 2000	One part 7 pin NEMA socket photocell switching at 35/18 lux
Lucy Zodion	SS6	One part 7 pin NEMA socket photocell switching at 35/18 lux

Annex B – Inventory data

Unit Inventory Data

Road No (Completed in Office) .....
Unit ID .....
Road Name .....
Parish/Area .....
Location O/S ..... OPP .....
Unit Type:
Column/Sign/Bollard/Pillar
Unit Material .....
Unit Shape ..... Unit Protective Coating .....
Unit Height .....
Unit painted – YES/NO ..... Unit Colour .....
Unit Fixing – ROOT/FLANGE/WB/CLAMPED/CRANK ROOT/SOCKET .....
Supply Point ..... Ground Type .....
On a Bridge – YES/NO ..... Number of Brackets .....
Bracket Type – SA/DA ..... Bracket Projection – 0.3/0.5/.075/1/1.5/2
Service Owner – PVT/DNO/IDNO .....
Number of Lanterns .....
Lantern Manufacturer .....
Lantern Model .....
Lantern – SE/TE/PT ..... Number of Lamps .....
Lamp Type or LED output and optical setting .....
Lamp Wattage ..... Unit Manufacture .....
Cutout type ..... Control Type .....
Control ID .....
Gear Type ..... Gear Location: Remote/GIH .....
UMSUG energy code .....
Notes .....

Pillar Inventory Data

Road No (Completed in Office)
Road Name ..... Parish/Area .....
Unit ID ..... Location O/S ..... OPP .....
Date installed (Taken from label in unit) .....
Service Owner – PVT/DNO/IDNO ..... DNO/IDNO Isolation – SP / DP .....
DNO/IDNO Isolation – SP / DP ..... DNO/IDNO Fuse Amps .....
Phases – SINGLE / THREE ..... Number of FUSE / TRIP .....
Fuse amps ..... Cutout type .....
Number of outgoing Circuits ..... Unit Manufacture .....
Unit Material ..... Unit Height .....
Unit Shape – MINI / MIDI / MAXI ..... Unit Protective Coating ..... Unit painted – YES / NO .....
Unit Colour ..... Unit Fixing .....
Ground Type ..... On a Bridge YES / NO .....
Door bond – YES / NO ..... Sign plate Diagram No .....
Sign Plate Dia. Dimensions ..... Sign plate Diagram No .....
Date of installation .....