STREET LIGHTING DESIGN GUIDE AND
SPECIFICATION FOR NEW DEVELOPMENTS
(to be read in conjunction with The City Council's Highway Design Guide)
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Introduction

The Highway Authority unless otherwise stated, requires developers to provide an approved form of street lighting as an integral part of an estate development that is to be adopted as highway and maintained at the public expense.

All lighting designs are required to meet the adoptable standards for the City Council where positioning of the equipment will be in accordance with BS EN 13201-2:2003 Road Lighting Design with due consideration given to passive lighting, trees and their growth, traffic calming, parking and pedestrians. The design shall minimise light spill off the highway, and utilise column locations on property boundaries or building lines and must be an integral part of the estate design with implications for security as well as Highway safety taken into account.

Developers should note that this Lighting Design Guide and Specification applies to highway electrical equipment on roads on residential developments, industrial estates and retail parks where the speed of vehicles is not expected to exceed 30 m.p.h. [50 k.p.h.] Whilst the specification of equipment to be used on roads for higher vehicular speeds will generally comply with this document, it is recommended that the design of street lighting on roads for higher vehicular speeds should be discussed with the City Council’s Street Lighting Engineer before detailed design commences.

Within certain criteria the developer may be charged for alterations to existing street lighting where, at the Authority’s discretion, it is deemed necessary. For example, where the development forms a new junction with an existing highway the provision of lighting for the new development will be deemed to include the new junction and its approaches.

In conservation or sensitive areas, or very close to them and listed buildings, specially designed apparatus may, at the complete discretion of the Authority, be required.

The materials suggested for use in the installation of street lighting on roads in this document are those which contribute to the City Council’s preferred option for a street lighting system on roads for adoption. Equipment shall be supplied in new and unused condition. The developer shall ensure that the equipment supplied is compatible with all other equipment with which it is associated however, developers who wish to utilise alternative designs or materials should liaise with the Street Lighting Engineer to ensure that adoption will not be prejudiced.

No adoptable lighting shall be installed onto buildings unless agreed with the Authority in writing prior to installation and shall only be adopted upon submission of relevant wayleaves allowing the Authority the right, in perpetuity, to provide power, across said private property if required, install, operate, maintain, remove, affix signs, displays and notices, and provide sub-feed to adjacent equipment, across said private property as and if required.

All adoptable lighting shall be within the area of adoptable highway or within a service strip. Where this can be shown as not possible the developer must arrange appropriate covenants or agreements with the landowners or property owners and any such covenants or agreements shall be binding on the successors in title. The covenants or agreements will apply to an area of one square metre around the installation and allow the Authority the right, in perpetuity, to provide power, across said private property if required, install, operate, maintain, remove, affix signs, displays and notices, and to provide sub-feeds to adjacent equipment, across said private property as and if required.
It will be the developer’s responsibility to ensure that prospective residents are fully aware of the locations of all street lighting points and any relocation of equipment will be at the developer’s expense prior to handover and must be within the design parameters or included in a complete re-design.

The granting of planning permission or building regulations approval does not mean that the Highway Authority will check, approve or adopt the proposed street lighting or that the highways as proposed will be suitable for adoption. It is vital that developers consult with the appropriate Highway Authority officer prior to submission for planning permission or building regulations approval to ensure that what is proposed will be acceptable for adoption.

The developer shall bear the costs for any and all works required in the removal, replacement or re-positioning of any and all existing lighting equipment made necessary by the site works. No existing lighting shall be switched off, dismantled or removed without prior written approval of the Authority. This approval will not normally be granted unless temporary lighting or the commissioning of the new permanent system is in place and working.

The developer shall be responsible for the complete installation and commissioning of each unit. It is required that actual installation is carried out by a specialist contractor who is a member of ASLEC (Association of Street Lighting Electrical Contractors) and that their operatives are suitably qualified under the sector scheme.

All Connections shall be made to the DNO or IDNO network except with the expressed written permission of the Local Authority. The developer shall be responsible for the provision of the electricity supply to the lighting installation and shall liaise with the DNO/IDNO and provide all necessary information. A minimum of 8 week’s notice is required by the DNO/IDNO prior to the supply being required.

All private (non-DNO) cable networks are to be ducted in 100 mm orange duct with ducts to be provided with draw cords and a minimum depth of cover of 450cm within grass or footways and 600cm depth of cover under crossovers, parking areas and roads. All private (non-DNO) cable networks are to be run in steel wire armoured cable.

The Authority shall be notified when the installation is complete and ready for an adoption inspection. This inspection will attract a fee. This notification shall include a schedule confirming the technical details, equipment details, as built drawing, location details and electrical test certificates.

The inspector shall check that the work is been undertaken in accordance with the check list, method statements, designs and specifications in compliance with Good Industry Practice and the requirement of the City Council. Refer Appendix A (Check List)

The developer will remain liable for any defect or damage until the road has been adopted. Adoption of the lighting will incur the developer an accrual fee and a commuted maintenance payment. Refer Appendix B (Preferred Lighting Equipment)

The term “developer(s)” has been used throughout this document to identify the person or organisation who should comply with this design guide and specification. Within this document “developer” also includes “designers” and “contractors”.

Kingston upon Hull City Council

Design Guide and Specification for New Developers
Part A - Design and Adoption

1 General

1.1 General Procedures

1.1.1 The preferred procedure for adoption will be in accordance with the provisions of Section 38 of the Highways Act, 1980 and developers are encouraged to enter into a formal agreement with the Highway Authority.

1.1.2 Where works associated with new road construction involve work within an adopted highway which cannot be included in a Section 38 agreement, a further agreement under Section 278 of the Highways Act, 1980 should be obtained. These agreements should be arranged with the appropriate Highway Authority Officer.

1.1.3 Where works associated with construction involve electrical work being undertaken within an area which is maintained by the City Council's Street Lighting Section and such work is being carried out by a Section or Department of the Council or any other authority which cannot enter into a Section 38 or 278 agreement and who are not normally involved with the maintenance of such equipment, the works shall be designed, approved and constructed in accordance with this document.

1.2 Energy Connections and Lighting Inventory

1.2.1 Any new street lighting (including illuminated signs, beacon units, bollard base lights etc.) installed within Kingston upon Hull will be subject to a period of warranty prior to formal adoption by the City Council. During this warranty period the City Council will not be responsible for the energy used by the new street lighting apparatus, and developers are required to make their own arrangements.

1.2.2 Normally all connections have to be metered, however, the DNO can allow certain equipment to be connected without a meter. An Unmetered Supply (UMS) is any electronic equipment that draws a current and is connected to the Distribution Network without a meter recording its energy consumption.

1.2.3 The developer must make separate arrangements with the local Distribution Network Operator (DNO) in this instance Northern Powergrid (NPG) for connection of the equipment. NPG will require inventory information and contact/address details of the person/s responsible for this apparatus for billing purposes. This information must include the quantity, type, wattage, location of the lamps installed and the annual usage or burning hours together with details of nominated energy supplier.

The UMSO (Unmetered Supplies Operator) will then provide a certificate of an unmetered supply which the developer must forward a copy onto an energy supplier of their choice to register with.

Please note IDNO service connections may only be permitted when the individual IDNO has entered into a service level agreement with Hull City Council.
1.2.4 The developer will be responsible for all charges or costs relating to the maintenance or energy of the lighting equipment installed under a developer agreement (S38 or S278, Highways Act 1980) until partial or full adoption is confirmed by Hull City Council. The developer will liaise with the DNO to ensure all energy charges are covered and paid for until the adoption has been completed and all street lighting assets have been transferred to Hull City Council.

1.2.5 Upon formal adoption by the City Council, responsibility for the energy will transfer from the developer’s inventory to the City Councils, however, it will remain the responsibility of the developer to ensure that their own inventory is updated.

1.2.6 All equipment including LED, luminaires, drivers and PECUs shall be approved for use under the Balancing and Settlement Code (BSC), Unmetered Supplies Arrangement and shall have all necessary charge (UMSUG) codes.
2 Design Requirements of Lighting Installations

2.1 General

2.1.1 The design of street lighting can, at the request of the developer, by carried out by the City Council for a design fee. In addition, the City Council will manage the installation programme, inspect and certificate allowing immediate adoption and transfer of responsibility and energy costs to The Authority.

All lighting designs shall be to the requirements of BS/EN13201 unless prior written consent with the City Council has been gained otherwise all design, specification of equipment and installation of street lighting shall be in accordance with the latest edition of the following publications, incorporating any amendments issued:

- BS 5489-1:2013 +A2 Code of Practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas
- BS EN 13201–2:2003 Road Lighting (Performance Requirements)
- BS EN 13201–3:2003 Road Lighting (Calculations and performance)
- BS EN 13201–2:2003 Road Lighting (Methods of measuring lighting performance)
- BS 7671 - Requirements for electrical installations
- BS EN 40-1: 1992 – Part 1: Definitions and terms
- BS EN 40-2: 1978 – Part 2: Dimensions and tolerances
- BS EN 40-3-1: 2000 – Part 3: Design and verification – Specification for characteristic loads including the particular requirements as set out below:
- BS EN 40-3-2: 2000 – Part 3-2: Design and verification – Verification by testing
- BS EN 40-3-3: 2000 – Part 3-3: Design and verification – Verification by calculation

Except that fatigue calculations shall be in accordance with BD26/99 as opposed to informative Annex A of BSEN 40-3-3 for columns over 8 metres in height and a design life of 50 years shall be taken for the purposes of this calculation.

- BS EN 40-5: 2002 – Part 5: Requirements for steel lighting columns
- BS EN 40-6: 2002 – Part 6: Requirements for aluminium lighting columns
- BS EN 40-7: 2002 – Part 7: Requirements for fibre reinforced polymer composite lighting columns
- BS EN 60598-1:1997 – Part 1 – Luminaires – General requirements and tests
- BS EN 60598-2-3:2003 – Part 2 and 3 – Luminaires – Particular requirements for luminaires for road and street lighting
- BS EN 60529: 1992 – Specification for degrees of protection provided by enclosures

Class IP65 shall be specified as a minimum for optical compartments forming street lighting luminaires.
The Institution of Lighting Engineers publications:

- Code of Practice for Electrical Safety in Highway Electrical Operations, as amended within this Specification
- Guidance Notes for the Reduction of Light Pollution
- Technical Report No. 12 – Lighting for Pedestrian Crossing
- Technical Report No. 23 – Lighting of Cycle Tracks
- The Electricity at Work Regulations.
- Construction (Design and Management) Regulations 2007

2.1.2 Before any design work proceeds and to avoid or minimise any abortive work, the applicant/developer shall seek agreement with the Street lighting Engineer, on the following basic principles:

i) The standards of lighting to be achieved.
ii) The lighting source and luminaire type.
iii) The method of electricity supply.
iv) Switching method.
v) Lighting column type and finish.

2.1.3 After design and before applying for a Section 38 agreement, the proposed installation shall be submitted for approval to the Street Lighting Engineer. The submission shall comprise:

- A 1:2500 scale location plan of the development and its surrounding area.
- 2 paper copies and one electronic (pdf format) of a 1:500 scale general layout plan(s) showing:
  - the detailed layout of the development.
  - the dimensioned widths of carriageways, footways, link paths, cycle routes and service margins.
  - the location of street lighting columns and lighting feeder pillars, any existing lighting installations together with the positions of any existing or proposed tree planting which might affect the illumination of the road.
  - The drawings must be coloured up appropriately with street lighting within s38 works shown as a red dot; in existing highway a blue dot and in existing highway to be moved a green dot.
  - numbered building plots, existing streets/roads and properties, named or numbered.
  - any proposed traffic calming measures.
  - a copy of the planning consent decision notice

- 2 copies of a completed schedule of equipment as shown in Appendix A.

- The developer is responsible for identifying and instructing the City Council of any departures from standards.

- Copies of any lighting design calculations and where necessary, cable size design calculations.

- Where the design information is supplied in the form of a site drawing showing Isolux contours, any minimum point or average values shall relate to each road and not to the site as a whole.
2.1.4 When dealing with the limitation of obtrusive light from the proposed lighting installation in accordance with the Institution of Lighting Engineers guidance notes, the Street Lighting Engineer shall be consulted before any design is undertaken if there is doubt as to which Environmental Zone is applicable to the development.

2.1.5 In exceptional circumstances, lanterns provided to illuminate the highway and which, because of limitations of space, or for aesthetic reasons, are fixed to buildings or structures, may be considered for adoption. Adoption will be subject to the securing of a suitable wayleave, the form of which is to be authorised by the Street Lighting Engineer who will also require written confirmation from the designer of the building or structure or an independent structural engineer of the suitability of the building to support the weight of the lantern and bracket.

2.1.6 The luminaire maintenance factor used in the design calculations shall be taken from Table B1 in BS 5489-1:2013 and shall equate to the cleaning interval and pollution level as advised by the Council’s Street Lighting Engineer. The Maintenance Factor to be used in the design calculations shall be the product of the process shown in Annex C of BS 5489-1:2013. SP ratio must be taken into account when designing P class installations.

2.1.7 Electricity supplies to lighting columns shall, unless agreed otherwise, be provided individually from the DNO main and early contact should be made with the DNO to ascertain the locations of their mains.

2.1.8 Where it is necessary to provide underground cables, the proposed locations of the lighting columns shall be agreed with the Street Lighting Engineer prior to any cable design being undertaken. The overall scheme shall be submitted to the Street Lighting Engineer for approval on completion of any underground cabling layout and design.

2.1.9 In designing the street lighting installation, particular attention should be given to the requirements of Section 5 of BS 5489-1:2013 concerning the positioning of columns.

2.1.10 If new lighting is to be installed near to a railway line or in any other sensitive location, as defined in Section 12 of BS 5489-1:2013, the appropriate Authority must be consulted at an early stage about possible interference from the lighting. Copies of consultation correspondence must be provided with the submission to the Street Lighting Engineer.

2.1.11 The lighting installation for car parks may be considered for adoption although, the car parks themselves, will not be considered for adoption by the Highway Authority. The lighting of such features shall be designed in accordance with Section 10.7 of BS 5489-1:2013 and, in general, lighting within these areas shall not involve the use of low-pressure sodium lamps or be low level in nature.
2.1.12 Any proposed tree or shrub planting within the highway boundary shall be located no closer than 5 metres from any street light or illuminated traffic sign and no closer than 2 metres from any feeder pillar. Where the developer provides landscaping or planting on land adjacent to the highway the minimum distances stated above should be complied with in order to avoid obstruction of highway electrical equipment.

2.1.13 Please note that the technical approval remains valid for the period described in the s38 agreement. If works are not started during the specified timescale a further application is required. Street lighting is normally an additional fee on s38 costs.

2.2 Lighting of Estate Roads and Retail Parks

2.2.1 The lighting installation for the Urban Road Network including industrial estates and retail parks shall generally be designed to meet the requirements of Section 7 of BS 5489-1:2013 and a usual mounting height of either 8m or 10m is expected. Information on the selection of an appropriate lighting class is given in Annex B of BS 5489-1:2013 however, prior to any design being undertaken the developer should discuss the particular requirements for the site under consideration with the Street Lighting Engineer.

2.2.2 The lighting installation for the Estate Road Network shall generally be designed to meet the requirements of Section 9 of BS 5489-1:2013 and a usual mounting height of 5m or 6m is expected. Information on the selection of an appropriate lighting class is given in Annex B of BS 5489-1:2013. If there is any doubt as to the standard to be applied having regard to the road’s location and anticipated usage, this must be agreed with the Street Lighting Engineer prior to any design being undertaken.

2.2.3 The lighting of conflict areas i.e. road junctions, roundabouts and pedestrian crossings shall be designed in accordance with Section 11 of BS 5489-1:2013. Information on the selection of an appropriate lighting class is given in Annex B of BS 5489-1:2013. Zebra crossing shall be lit to the requirements of ILP’s TR12 however consideration must be given to the existing local environment. Lighting of signal controlled crossings shall be in accordance with BSEN 13201-1:2003.

2.2.4 The locations and types of illuminated signs, where required, shall be approved by the Traffic Engineer prior to the submission for a Section 38 agreement. The Street Lighting Engineer shall be consulted as to the type of illumination to be used on those signs which are required to be illuminated.

2.2.5 The positions of all columns and illuminated signs and bollards will be shown on the approved plan, however before installation the exact positions shall be agreed with the Street Lighting Engineer on site. Care shall be taken over the location of the column door to ensure that maintenance operations can be carried out safely and easily.

2.2.6 Columns shall generally be sited at the rear of the footway so as to avoid obstruction to pedestrian movement. In all cases the minimum clearance from the edge of carriageway to the face of the column shall comply with that recommended in Section 5 of BS 5489-1:2013. On residential developments, columns sited in service margins or grassed areas may be erected with a clearance of 800mm. In cases of doubt, the developer should seek clarification from the Street Lighting Engineer.
2.3 Lighting of Cycle Routes

2.3.1 Cycle routes shall be lit in accordance with the Institution of Lighting Engineers Technical Report No. 23 – Lighting of Cycle Tracks. Where after-dark usage is not likely to be high and a suitable alternative route is available which is lit, it is recommended that the cycle route should be unlit. It is further recommended that the lighting of any cycle route should be discussed with the Street Lighting Engineer prior to the design being undertaken.

2.4 Traffic Calmed Highways

2.4.1 Where road humps or cushions are used the lighting system shall conform to current standards as set out in BS 5489-1:2013 for that specific road type. It shall cover the approach to and the position of all traffic calming features.

2.4.2 Where priority is given to one direction of traffic over another (priority working) the feature shall be treated as a conflict area.

2.5 Non-Standard Installations – Conservation and Sensitive Areas

2.5.1 Whilst there is some flexibility to allow choice in the type of materials to be used, the City Council must impose some restriction in order that future maintenance costs, including the necessity to stock a multitude of replacement parts, are reduced to a minimum. Notwithstanding this, the City Council is prepared to consider schemes which utilise nonstandard highway lighting fittings where the developer considers that on aesthetic, or other reasonable grounds, a decorative or heritage-style lantern and/or column should be used. In all such cases the developer should make early contact with the Street Lighting Engineer to discuss the proposal. It should be noted that The City Council discourages the use of low level lighting due to the potential to be vandalised and developers wishing to utilise such forms of lighting should be aware that adoption of these forms of lighting may not be granted.

2.6 Commuted Sums

2.6.1 The City Council will require the payment by the developer of a commuted sum for any Heritage style lighting equipment, which will be calculated by the Street Lighting Engineer, to cover the increased maintenance and/or energy costs of all heritage street lighting items over a 15 year period.

2.6.2 The developer shall supply Kingston upon Hull, free of charge, 10% of that equipment installed (1 minimum if fewer than 10 lanterns installed) if non-standard equipment is approved and installed.
3 Adoption Procedure of Street Lighting

3.1 Prior to adoption of the highway the developer must submit the following to the Street Lighting Engineer in respect of the street lighting installation:

- The original completion and test certificates must be submitted as required by BS7671.
- When several lighting units with similar particulars are offered for adoption, one test certificate, together with a schedule of test results for each lighting unit may be submitted.
- Electrical test certificates which are current must be provided, i.e. the tests must have been carried out not more than 3 months before the roads are submitted for adoption and must show actual values measured during electrical tests.
- A specific as-built layout plan at 1:500 scale showing the position and identifying number of each street lighting unit and the routes and depths of any underground street lighting cable network must be provided. The unit identification numbers must be cross-referenced to the test certificates.
- The developer will remain fully responsible for the public lighting installation, including payment of energy charges and continuing maintenance, until the date of formal adoption.
- Warranties
- Relevant Risk Assessments

3.2 Following receipt of the documents listed in 3.1 the Street Lighting Engineer will arrange to inspect the installation to ensure that it fully complies with the Specification before being energised. Failure on the part of the developer to comply with any requirement may prejudice adoption. The developer will then be required to verify the adequacy of the works undertaken entirely at his own expense and to the satisfaction of the Street Lighting Engineer who will re-inspect at a later date to which a further inspection fee will be payable.

3.3 When the Street Lighting Engineer considers that the installation fully complies with the approved drawings and this specification he shall issue a completion certificate. If the installation is covered by a Section 38 or Section 278 Agreement the completion certificate will be sent to the Council Officer responsible for the Agreement, otherwise a copy of the completion certificate will be sent to the developer.
4 Statutory Undertakers and Service Utilities

4.1 Location of Plant/Apparatus

4.1.1 Public utility mains and services shall be laid within the highway boundary but not within the carriageway, unless there is no viable alternative.

4.2 Arrangement of Mains in a 2m Wide Footway

4.2.1 The preferred arrangement of electrical mains in a footway is:

- Low Voltage mains - offset 280mm from back of footpath at a depth of 450mm
- High Voltage mains - offset 450mm from back of footpath at a depth of 600mm

Developers are requested to adhere to this arrangement wherever possible. And that lateral clearances be considered as a minimum.

The following points should be noted:

- Industrial estate footway/link path widths may need to be increased to achieve the minimum lateral spacing when larger mains are used.
- Lighting columns to be sited at the rear of the footway as required by BS 5489.

4.2.2 Where a service margin is to replace a footway, the layout of mains must be agreed with the Private Street Works Engineer before the completion of a Section 38 agreement.
5 Programme and Inspections

5.1 Programme

5.1.1 In addition to any requirements within the Section 38 Agreement for the submission of a programme of work for road construction the developer shall advise the Street Lighting Engineer in writing when he intends to install any highway electrical equipment.

5.2 Inspections

5.2.1 At least 7 days notice shall be given to the Street Lighting Engineer by the developer in advance of his intention to install highway electrical equipment, in particular any installations below ground level, in order to allow the Street Lighting Engineer the opportunity to undertake an inspection of the installation before it is covered.

5.2.2 The developer shall confirm that the installation will take place by giving at least 24 hours notice of the installation of any works which will not be visible above ground. Failure to comply with this Clause may result in the developer having to excavate trial holes at his expense in order to confirm that the installation fully complies with this Specification.
6 Traffic Signs

6.1 Temporary Traffic Signing

6.1.1 Where works affect traffic movement on the existing highway network and where it is necessary in the interests of public safety elsewhere, then traffic safety measures for road works shall be implemented in accordance with Chapter 8 of the ‘Traffic Signs Manual’.

The developer must apply to the City Council’s Highway Network Management Team for a Roadworks Notice to gain permission from the Authority to work on The Highway. Under no circumstances will works on The Highway be permitted prior to a Roadworks Notice being issued.

6.2 Permanent Traffic Signs and bollards

6.2.1 In all cases, the provision of appropriate traffic signs on new developments will be a requirement for adoption. Any provision must comply with the ‘Traffic Signs Regulations and General Directions 2002 (Statutory Instrument No. 2002/3113)’ and be to the satisfaction of the Highway Authority Traffic Engineer, who will advise whether signs/bollards need to be illuminated.

6.2.2 Where traffic signs or bollards are required to be illuminated, details of the method of providing the electricity supply shall be submitted to the Street Lighting Engineer for approval.

6.2.3 The developer shall consult the Street Lighting Engineer regarding the type of illumination i.e. internal or external, to be used.
Part B - Equipment Specification

7 Introduction

7.1 Application

7.1.1 This Specification shall apply to highway electrical equipment installed on any road, link path, cycle route, or any element thereof, constructed or installed as part of a residential development, industrial estate, retail park or any area which is intended for adoption by the City Council as Highway Authority. Throughout Part B of this document references to ‘The Street Lighting Engineer’ shall include any other officer designated to act on behalf of the Street Lighting Engineer.

7.2 British Standard and British Standard European Specifications

7.2.1 The current British Standard or British European Standard Specifications shall apply in respect of all materials referred to in this Specification, including their storage and installation. Materials shall, where appropriate, be stamped with a third party verified product certification mark e.g. CE mark, together with the appropriate reference number.

7.3 Electrical Testing

7.3.1 Testing of the electrical installation is deemed to be the responsibility of the developer and shall be carried out in accordance with the current, relevant, British Standard or British European Standard Specifications by a competent person in compliance with the Electricity at Work Regulations 1989 prior to energising.

7.3.2 All results shall be recorded and submitted to the Street Lighting Engineer prior to an adoption inspection. The results can be recorded on the forms shown in Appendix I or similar in accordance with Part 7 of BS7671.

7.3.3 Where a British Standard or British European Standard Specification requires that materials are tested to ensure compliance with the relevant specification then an approved independent testing laboratory shall carry out such testing.

7.4 Works on Existing Highways

7.4.1 Wherever electrical works associated with a new road, link path or cycle route are to be carried out in an existing highway the developer shall establish, in advance of the commencement of works, the full requirements of the Highway Authority. It is advisable to undertake this exercise at least 8 weeks in advance of the intended starting date so that, if required, agreements under Section 278 of the Highways Act, 1980 can be prepared otherwise delays may be experienced. Concurrently, the Highways Authority can advise on the Highway Authority’s requirements in respect of the method of working, traffic control and signing.

7.4.2 The developer’s attention is drawn to the need, on his part, to ensure compliance with the requirements of the New Roads and Street Works Act, 1991. Before excavating in any existing highway, developers shall obtain any necessary licence(s) and must establish whether there is any existing statutory undertaker’s plant which will be affected.
Developers are advised of the need to comply with the requirements contained in the publication “Health and Safety at Work Act – Avoiding Danger to Underground Services” [HS(G)47]. Any apparatus located is to be protected at the developer’s expense and no pipe or cable shall be disturbed without the approval of the statutory undertaker.

Traffic management, incorporating appropriate safety measures, shall be carried out in accordance with Chapter 8 of the Traffic Signs Manual.

7.4.3 Highways in the vicinity of the works shall be kept free from mud, dust and debris as far as is reasonably practicable. Where contamination of a highway is unavoidable, appropriate signage and regular cleaning will be required.

7.4.4 Noise and vibration caused by the works shall be minimised by the best practicable means. It shall be the developer’s responsibility to ascertain and ensure compliance with any specific requirements in this regard.

7.4.5 Existing public highways shall not be used for the stockpiling and storage of materials and plant.

7.4.6 Blasting operations will not normally be permitted where they will have an effect on an existing adopted highway but where the developer has no practicable alternative to the employment of such techniques; the prior approval of the Highway Authority must be obtained through the Highway network Manager. Adherence to any, and all, requirements imposed shall be strictly observed. The developer will remain entirely responsible for ensuring compliance with all statutory requirements in respect of blasting operations.

7.4.7 In the event of default on the part of the developer in respect of any of the foregoing subsections, or any damage caused to an existing adopted highway, the developer shall be entirely responsible for the costs of rectifying the results of such default or damage and for meeting the costs of any claims which may result from the default, damage or rectification and/or repair.

7.4.8 The developer shall hold public liability insurance cover to a minimum of £5,000,000 in respect of any one third party claim. Where work is to be carried out in a highway maintainable at the public expense, the Highway Network Manager may require a copy of the developer’s safety policy and insurance certificate.

7.5 Non-compliance with the Specification

7.5.1 If the developer fails to comply with any requirement of this specification, adoption of the works will be prejudiced unless and until the non-compliance is rectified.

7.5.2 Where the developer has entered into a Section 38 agreement, non-compliance may result in the default procedures being invoked.
8. Street Lighting Specification

8.1 General

8.1.1 All materials and workmanship shall be in accordance with this specification and to the satisfaction of the Street Lighting Engineer.

8.1.2 The installer of the lighting installation must be NICEIC or ECA registered, be experienced in the installation of public lighting equipment and qualified to provide official completion and test certificates.

8.1.3 Where works are carried out to an adopted lighting installation e.g. as part of works under a Section 278 agreement, any new lighting units installed must be brought into use before the disconnection and removal of any existing lighting units. Where this is not practicable the developer shall arrange, with the approval of the Street Lighting Engineer, for a form of temporary lighting to be installed in order to maintain the existing lighting levels.

8.1.4 All equipment including LED, luminaires, drivers and PECUs shall be approved for use under the Balancing and Settlement Code (BSC), Unmetered Supplies Arrangement and shall have all necessary charge (UMSUG) codes.

8.1.5 All luminaires shall comply with the latest edition of British and European Standards and any subsequent amendments.

8.2 Lighting Columns and Brackets

8.2.1 Columns and brackets shall be manufactured from aluminium as detailed below and as stated in Appendix C:

- Circular hollow tubular aluminium extruded from a solid block of alloy AlMgSiO.5 with a satin brushed finish. Where road conditions require the use of passive safe lighting columns discussions should be held with the Council’s Street Lighting Engineer to agree the material to be used.

- Be only be purchased from manufacturer’s who are registered with either BSI Quality Assurance or Lloyds Register Quality Assurance Ltd., for the manufacture, supply and verification of lighting columns and bracket arms under their Quality Management Schemes (QAS5020/304, QSS 5020) to BS EN IS 9002. A copy of the accreditation documentation and Certificates of Conformity may be required in support of all columns used.

8.2.2 Comply with all relevant parts of BS 5649, BS EN 40 and amendments as per BD 26/04 together with the particular requirements of this specification and unless otherwise agreed to the table below.
Table 8

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Wind Velocity</td>
<td>25.2m/s</td>
</tr>
<tr>
<td>Site Altitude</td>
<td>52m</td>
</tr>
<tr>
<td>Topography factor f</td>
<td>1</td>
</tr>
<tr>
<td>Terrain Category</td>
<td>II for 8m columns and above; III for columns below 8m.</td>
</tr>
<tr>
<td>Rationalised wind loading region</td>
<td>Light</td>
</tr>
<tr>
<td>Partial safety factors on loads f</td>
<td>Class B</td>
</tr>
<tr>
<td>Horizontal Deflection Class</td>
<td>Class 3</td>
</tr>
<tr>
<td>Soil type</td>
<td>Poor</td>
</tr>
<tr>
<td>Road Signs</td>
<td>Refer to PD6547:2004 Table 3</td>
</tr>
<tr>
<td>Fatigue requirements</td>
<td>As BD26/04</td>
</tr>
</tbody>
</table>

8.2.3 All columns and brackets shall carry a unique identification mark which indicates the name of the manufacturer, year of production and manufacturer’s batch number. The identification mark shall be permanent, legible and clearly visible and shall be located within the base compartment of the column.

8.2.4 Unless stated in Appendix C, in residential roads the preferred method of mounting lanterns is post top however where brackets are required they shall be integral with the column (‘hockey stick’ type). On other road types where a separate bracket is fixed to a column, the assembly of the column shaft and bracket shall incorporate a mechanical locking system in addition to high tensile socket headed securing screws and it shall be possible to fix the bracket in any of 4 x 90º positions relative to the door opening. When correctly fixed, the design of the bracket shall not allow any movement of the bracket either vertically or horizontally. At the point of interconnection, the cross-section of the bracket shall, preferably, equal that of the column shaft. Brackets shall blend with their columns, in material, finish and colour and shall be as short as practicable.

8.2.5 Columns and brackets shall be designed by the manufacturer to meet the following parameters. The developer shall supply manufacturers with the information shown in Table 8 to enable the manufacturer to design the columns in accordance with BS EN 40 and shall when requested submit standard column data sheets to the Street Lighting Engineer.

8.2.6 Base compartments shall afford easy access to cable terminations and wiring. All electrical equipment mounted in the base compartment shall be securely fixed to a 15mm minimum thickness backboard which shall be of a non-hygrosopic material of sufficient size to accommodate any control gear and cable termination units. Doors, which shall be sealed to minimum IP33, shall be provided with an internal lug to enable earthing of the column door with M8 brass earth stud, together with a substantial and positive, triangular-headed, tamper proof lock. The locking mechanism shall be lubricated with grease immediately following
installation and if necessary prior to adoption. Two keys per 10 columns, with a minimum requirement of two keys shall be provided to the Street Lighting Engineer prior to adoption of the road. The earth terminal provided for columns and their doors shall comprise a brass bolt, size M8x30mm, complete with two nuts and two washers. The column shall have a cable entry slot 75mm in width x 150mm in length with the top of the slot 350mm below ground level.

8.2.8 The bases of aluminium columns, up to a minimum of 250mm above the proposed ground level, shall be protected by a factory applied system approved by the Council Street Lighting Engineer and have a minimum wall thickness of 3.2mm.

8.2.9 Door openings shall be reinforced in accordance with BS EN 40-3-1. Flush fitting doors, which shall be sealed to minimum IP44, shall be provided with two stainless steel triangular-headed locks. The locking mechanism shall be lubricated with grease immediately following installation and if necessary prior to the end of the defects correction period. The earth terminal provided for aluminium columns and their doors shall comprise a stainless steel bolt, complete with nut and two washers. The copper earth wire shall be installed between the two washers to ensure that the copper cable does not come in contact with the aluminium

8.2.10 All columns shall be provided with identification numbers as detailed on the approved plan. The number shall comprise a 50mm (75mm on roads subject to a speed limit greater than 40mph) high black numeral on a white square or rectangular background. The number shall be located approximately 3m above ground level (2m on roads with little pedestrian usage) and facing toward the carriageway.

8.2.11 Columns sited on footpaths, or in any area which does not have vehicular access, shall be of the hinged or folding type, as stated in Appendix C, in order that the column can be lowered into a safe area and maintained at ground level. The developer shall submit to the Street Lighting Engineer for approval details of the type of folding column he proposes to use but shall note access to electrical equipment should only be possible in the lowered position.

**Column and Bracket Installation**

8.2.12 Columns to have a root for planting to a depth as indicated by the middle range listed in Clause 5, Part 2 of BS5649, i.e.

- 5m column – 0.8m depth,
- 6m column – 1.0m depth,
- 8m column – 1.2m depth,
- 10m column – 1.5m depth,
- 12m column – 1.7m depth.

8.2.13 Column shall be erected as per the locations shown on approved drawing. Shall be placed in holes that allow a minimum of 150mm clearance all-round the column base for the entire excavated depth and be set on a 450 x 450 x 50mm concrete paving slab at the necessary level to obtain the correct planting depth.

8.2.14 Column foundations shall comprise grade ST5 concrete to bottom of cable slot, upon which a layer of Class B material to Clause 601 table 6/1 of the Specification for Highway Works is to be laid to within 200mm of finished ground level. Final 200mm to be backfilled with concrete grade ST5.
8.2.15 Were the final surface adjacent to the column is to be a material such as block pavers, bitumen etc. the final layer of concrete is to lowered by the thickness of the final surface material and the depth of Class B material reduced accordingly.

8.2.14 Columns are to be correctly aligned in the vertical position with door opening facing away from oncoming traffic and bracket arms and lanterns at right angles to the highway that is to be illuminated.

Traffic Sign Posts for Illuminated Signs

8.2.12 Posts for illuminated traffic signs shall generally comply with the requirements stated for lighting columns. Posts shall conform to BS873 and BS EN 10210.

8.2.13 The developer shall excavate and provide ST2 mix concrete complying with BS 5328 – 1:1997, foundations of sufficient thickness to firmly locate the column in the ground having regard to the ground conditions encountered and the column manufacturer’s recommendations. Any concrete foundation shall be finished 150mm below finished surface level.

8.2.14 Where ground conditions are poor or where agreed with the Street Lighting Engineer the developer shall install a sleeve foundation comprising a pipe set vertically in the ground into which the post is set.

8.2.15 50mm dia. PVC service ducting tubes shall be incorporated in all lighting column foundations terminating at the cable entry slot to enable the supply cable to enter the column. The ducts shall be black for a DNO service or orange for a private supply service. A stranded polypropylene or equivalent rot-proof material draw rope of 5KN breaking load shall be left through the ducting tube to enable the electricity supply cable to be drawn through.

8.2.16 Lanterns and brackets (where required) shall not be attached to the post until 24 hours after the concrete foundations are laid.

8.2.17 Any damage caused during installation to the protective system applied by the post manufacturer shall be made good immediately following column erection or when the lantern is fitted.

8.2.18 Where it is necessary to provide flanged base rather than rooted posts, the developer shall submit details of the concrete foundation and fixing details to the Street Lighting Engineer for approval prior to any work being undertaken on site.

8.2.19 All signs posts shall be provided with identification numbers as detailed on the approved plan. The number shall comprise a 50mm (75mm on roads subject to a speed limit greater than 40mph) high black numeral on a white square or rectangular background. The number shall be located approximately 3m above ground level (2m on roads with little pedestrian usage) and facing toward the carriageway.
8.3 Lanterns

8.3.1 Lanterns shall be:

The design and manufacture of luminaires shall be certified by the British Standard Institute as complying with BS 4533 and conform to BS EN 60598 and BS EN 60529 with a minimum IP66 rated optical assembly. The lantern must be supplied with a bowl enclosure stabilised to minimise loss of transparency due to weathering and exposure to ultra violet light and LM6 aluminium body finished in smooth grey (RAL 7035) or black. The canopy must incorporate a means of adjusting horizontal alignment. The lantern must have thermal fins for heat dissipation and the complete lantern should weigh no more than 12.0kg, with a maximum windage of 0.15sq m and impact rating shall be IK08 minimum in accordance with BS EN 62262:2002 complete with a 240V 50 Hz electronic DALI enabled driver (housed in a proven thermally managed compartment to reduce failures and extend the electronic component life).

- All proposed equipment shall be approved for use under the Balancing and Settlement Code (BSC) Unmetered Supplies arrangement and shall have all necessary UMSUG codes.

- Lanterns must also be suitable for post top or side entry mounting capable of being mounted 42mm to 60mm diameter side entry and 60 to 76 post top mounted without the need for separate spigot adaptors and be able to allow the fitment of front and back external glare shields to reduce unwanted spill when required.

- Where heritage or decorative lanterns are proposed the type of material used shall be approved by the Street Lighting Engineer.

- Fitted with a 7 pin (minimum) photo-electric control unit (Photocell or PECU) socket located on the canopy for the installation of a one-piece electronic PECU.

- Fitted with integral electronic control gear and complete with fuse holder and an appropriately rated cartridge fuse located adjacent to the terminal block which shall be capable of accepting a conductor of 2.5mm2.

- Have surge protection by means of a transient voltage suppression chip or equivalent designed to provide uniformity of light output in the event of individual LED failures and effectively control thermal management at an ambient temperature of 15°C.

- System power factor shall be greater than 0.85 at full power or when dimmed.

- Installed in accordance with the manufacturer’s instructions with no gap between the lantern and the shoulder of any bracket arm. The lantern shall also be installed at the correct design tilt and horizontal alignment and to ensure that the design ‘IP’ rating is maintained. All fixing bolts shall be mechanically tight. Where a torque setting is recommended for the fixing screws/bolts, a torque wrench shall be used to ensure that the requirements are met. All hinges, catches, captive screws and nuts shall be manufactured from non-corrosive material.

- Provided with vandal-resistant (polycarbonate or similar) glazing for those lanterns mounted below 8m.
• Be of side entry or direct column mounting type wherever possible. However, consideration may be given to the use of post top decorative lanterns in certain installations subject to compliance with the light output restrictions and the prior approval of the Street Lighting Engineer.

8.3.2 Side entry lanterns shall have a positive locking device so as to prevent the lantern turning on its axis.

8.3.3 Optical equipment controlling light distribution shall include high purity aluminium reflectors and/or prismatic refractors with smooth exterior surface or protected by hermetically sealed cover plates to prevent the accumulation of dirt and aid cleaning. Refractors totally enclosed within the lantern need not be sealed. All parts affecting optical performance shall be clean and correctly orientated. Photometric data shall be based on test results obtained from a verifiable laboratory using absolute photometry in accordance with LM-79-08.

8.3.4 Lanterns shall provide a light output ratio of 90%. The upward wasted light ratio [UWLR] of lanterns shall not exceed the recommended maximum for the environmental zone within which the development is located.

8.3.5 All lanterns shall be fully recyclable and have a minimum 10 year minimum warranty in which the lantern manufacturer agrees to either refund the cost of or repair or replace goods inclusive of all electrical equipment including the lantern body and all other elements that constitute the lantern.

8.3.6 In order to assist with future maintenance, the City Council requires that the lanterns used on roads which are covered by this specification shall be chosen from the approved list of lanterns given in Appendix B.

8.3.7 The developer shall supply Kingston upon Hull, free of charge, 10% of that equipment installed (1 minimum if fewer than 10 lanterns installed) if non-standard equipment is approved and installed.

8.3.8 All luminaires shall be supplied fully assembled with variable DALI enabled dimmable driver (ballast) and photo electric control cell rated at 20/20 lux.

8.3.8 All luminaires shall be delivered pre-wired with 8 meters of 1.5mm² 5 core arctic flex to BS7919 Table 44 with class 5 flexible plain copper conductors to BSEN 60228:2005, arctic grade Polyvinyl Chloride insulation and sheath coloured grey rated at 300/500 volts, -40°C to +70°C.

8.4 Traffic Sign lanterns and bollards

8.4.1 Signs to be high visibility retro-reflective to conform to “The Traffic Signs Regulations and General Directions 2002”. The use of traffic sign luminaires shall be employed only if mandatory and comply with BS EN 60598-1, BS 4533-102.1 and EN 60598-2-1 and shall provide a light distribution in accordance with BS EN 12899.

8.4.2 Post height as per requirements of Traffic Signs Manual. Where signs are located adjacent to footways or any point where pedestrians are likely to walk then heights to allow for minimum clearance between ground level and lowest edge of sign face of 2100mm. This height is to increase to 2400mm when located next to cycleways. In other locations away from pedestrians or cyclists (e.g. roundabouts) then a minimum clearance of 1.5m is required.
8.4.3 Illumination of sign faces to be achieved by means of LED low voltage technology lanterns complying with requirements of Section 4, BS873 and BS1788 and be manufactured from LM6-M aluminium. The use of solar energy to provide power to illuminate signs may be utilised with the permission of the Street Lighting Engineer otherwise all signs will be mains powered in the first instance.

8.4.4 Control gear shall be suitable for operation on either an electrical supply of 230 Volts, 50Hz ac or 24 Volt dc as required by the Street Lighting Engineer.

8.4.5 Gear trays shall be provided with a means of electrical isolation and/or disconnection by means of a cable restrained plug and socket which ensures that the earth terminal is the last to disconnect and the first to reconnect without removal of the gear tray.

8.4.6 Control gear for the lamps shall be securely attached to a galvanised steel gear tray, by means of stainless steel nuts, bolts and shake proof washers to ensure sound earth continuity and easy replacement.

8.4.7 In twin lamp units, the control gear shall be independent and separate so that in the event of a lamp failing, at least one lamp should continue to function.

8.4.8 Sign lanterns shall be supplied complete with a miniature one-piece electronic photocell unit as stated in Clause 8.6.1.

8.4.9 Traffic sign lanterns shall be obtained from Manufacturers approved by the Street Lighting Engineer.

8.4.10 All bollards shall be compliant with BS 8442 and independently verified to comply with BS EN 12767.

8.4.11 Illuminated bollards shall meet the luminance requirements of BS EN 12899 by means of high efficacy LED matrix which shall be mains powered and have a power consumption of less than 2 watts. The use of solar energy to provide power to illuminate bollards may be utilised with the permission of the Street Lighting Engineer.

8.5 LED Light Source

All light sources shall be LED, be supplied new and comply with the latest version of current legislation which must include EuP Directive 2005/32/EC, RoHS Directive 2002/95/EC, Weee Directive 2002/96/EC, EC Declaration of Conformity (CE Mark) and all related UK legislation. EC Declaration of Conformity certificate shall be provided and lamps shall have markings in conformity with the aforementioned legislation and any other mandatory markings ruling at time of supply.

8.5.1 Highways which are located in residential areas should be lit using LED “white light” sources at a colour temperature of 4000K with a colour rendering index code 7 (CRI range 67 – 76 or greater).

8.5.2 Maintained Luminous Flux at 25% rated life shall be greater than 90% (Lumen Maintenance Code 9) with LED flux and luminaire data presented for an ambient temperature of 15°C Celsius and light source data measured at a junction temperature of 25°C Celsius.
8.5.3 Lumen Maintenance life time shall be in accordance with LM80 or equivalent and extrapolated methodologies as per TM-21, current validation must be provided.

8.5.4 Individual LEDs shall be mounted below an individual lens within a self-contained module that can be replaced using basic tools. Lenses shall be manufactured from polycarbonate or PMMA acrylic thermoplastic.

8.5.5 Light source used in traffic sign lanterns shall be LED as stated in Appendix B.

8.5.6 All LEDs shall be from an approved manufacturer as per Appendix B. Should during the development period and prior to adoption technology progress to enable the required lighting levels to be achieved using a more energy efficient LED luminaire the developer shall replace the original with the lower wattage version.

8.5.7 LED’s shall be guaranteed for at least 100,000 hours of operation. Where lanterns have been in service for a period in excess of 2 years, the developer shall have lanterns cleaned prior to adoption and must provide replacement parts/equipment free of charge where any component fails to meet minimum guarantees or any extended warranties; it is therefore in the Developer’s interests to ensure that all component parts are available for the guaranteed life of the luminaire.

8.5.8 LEDs shall be compatible with the lantern used and must be fitted in the lantern prior to being correctly fixed to the column/bracket.

8.6 Control Gear

8.6.1 Photo-electric control units (PECU’s) shall:

- Be provided for all lighting units including traffic signs.

- Have a power consumption of 0.5 Watts or less under load with zero drift and be capable of operating between -20°C to +80°C as per European EMC Emission Directives

- Have a minimum protection rating of IP67, comply with BS 5972 and be manufactured to a quality level of ISO9002 or equivalent and conform to BS2011.

- Provide class 2 protection against electric shock and shall be either:
  - A one-part unit to fit a NEMA socket or grommet fixing.
  - A two-part unit with a separate detector and controller incorporating a test switch.

In either case the detector unit shall be constructed to provide protection to IP67 against the ingress of dust and moisture and shall be secured to the lantern with an effective weatherproof seal of at least IPX4.

- Be fully electronic with a switching mechanism capable of controlling a reactive lighting load of 10 amps on a 240V 50 Hz supply.
Be designed, in so far as is practicable, to fail in the on mode. If a triac or other semiconductor switching device is fitted, a method of ensuring that the load remains switched to the on state must be provided in the event of an overload destroying the device.

Have a minimum guaranteed life of 5 years from their date of manufacture and this date shall be indicated on each individual unit to the Street Lighting Engineer’s satisfaction. The guarantee shall not be insurance based and shall be based on testing and component mean time between failure rates. The supplier shall, when requested, provide such supportive testing records and/or written evidence, to support such life expectancy claims. Any units failing within the guarantee period shall be replaced, free of charge, by the developer, on a one-to-one basis inclusive of all costs associated with their replacement.

Be manufactured by a manufacturer approved by the Street Lighting Engineer, see Appendix B.

The switching regime shall be as stated in Appendix B. All units must be indelibly marked with the switch setting, the manufacturer’s identification mark, model number and the date of installation

8.7 LED Modules/Drivers

8.7.1 Drivers shall comply with EN61000-3-2:2000, EN61347-2-13:2006, EN61000-3-2-2001, BS EN 61347-1, BS EN 61347-2-1, BS EN 61347-2-8, BS EN 61347-2-9 and BS EN 60921:2004 and BS EN 609923:1966 and subsequent amendments as appropriate and be tap selected to specified operating voltage.

8.7.2 All LED drivers and dimming modules shall be contained within the lanterns housing and shall have voltage range of 180 – 250 volts and conform to BS EN 61347-2-9:2001, BS EN 60921:2004 and BS EN 609923:1996 and subsequent amendments.

8.7.3 The LED driver, operating at constant current, shall be housed in a separate gear compartment to LED modules. The driver shall have a minimum operating efficiency of 90%.

8.7.4 The driver shall be independently tested and EN-EC certified in accordance with EN60598-1:2008 and EN60598-2-3:2003 by an independent approval body recognised by the European Community; current validation certification must be provided.

8.7.5 The driver shall be tested in accordance with NEN-EN-IEC62471 (2006-07) for Photo-biological Safety and shall comply with Group 1 classification; current validation must be provided.

8.7.6 All terminals shall be shrouded to IP2X so that live parts cannot be accidently touched. They shall be fitted with group 1 classification, current valid certification must be provided.

8.7.7 Drivers shall be electronic with the capability of being altered to multiple output levels in electronic, stepless 1% increments via a PDA, central management system or similar device without having to change the driver.

8.7.8 Drivers shall be compatible with all other components including LED and PECU.
Drivers shall be stable power consumption over full operating voltage range.

Drivers shall indicate all wiring connections and operating voltages via indelible markings.

The LED driver shall be protected against overheating by an over-temperature sensing system and have surge protection of 6KV.

Failure rate of external control gear shall be included in the overall assessment of total life/failure rate.

Lumen Maintenance life time testing shall be in accordance with LM80 or equivalent and extrapolated methodologies as per TM-21; current validation must be provided.

8.8 Cut-Outs, Isolators, Fuse Holders and Fuse Links

Cut-outs shall incorporate a double pole isolation switch to BS5419 rated at 32 amps. Isolation switch shall be capable of being positively and visibly locked by means of padlock or locking bar and it shall not be possible to remove the fuse(s) unless the isolation switch is in the off position.

Cut-outs and fuse holders shall have moulded drip-proof housings providing IP22 protection.

Separate terminals for phase and neutral conductors manufactured from solid brass and electro-tinned shall be provided; be clearly labelled to differential circuits and phases. Incoming phase terminals shall be shrouded after all connects have been made. Shrouds shall be capable of removal for inspection or disconnection purposes not capable of accidental detachment or be push fit type.

- Comply with BS 7654 rated at 25 amps, capable of double pole isolation, fitted with fuses to BS88 and accepting cables up to 16mm².
- Be complete with any necessary extension box, glands or clips to enable the cable to be terminated and the steel wire armouring to be properly fixed and connected.
- Shall be securely fixed/fitted to the baseboard with non-corrodible screw fixings.

Cut-outs on private supply cables shall incorporate a lockable double pole isolator. In all other cases a lockable double pole isolator shall be incorporated within or installed immediately after the DNO cut-out.

Cut-outs for the supply of sub-circuits shall incorporate a second fuse link to protect the sub-circuit.

Fuse links shall be cartridge fuses complying with the requirements of BS 88, BS 646 or BS 1361. They shall be of high breaking capacity type and be of a value appropriate to the circuit requirements.
8.8.7 Secondary isolation in street lighting furniture shall consist of a double pole cut-out, incorporating a fuse carrier suitable for a fuse to BS 88 and a solid neutral link. They shall be wired to the Distribution Network Operator (DNO) cut out using double insulated 2.5mm² single core tails.

8.9 Wiring and Earthing

8.9.1 All Installations shall be earthed in accordance with the current IEE Wiring Regulations, BS 7671 and to recommendations of BS 7430, Earthing.

8.9.1 Wiring within the electrical unit shall have copper cores and shall be PVC/PVC sheathed 300/500V grade to BS 6004 unless otherwise agreed with the Street Lighting Engineer.

8.9.2 Conductor sizes shall be in accordance with the recommendations contained in the ILE Code of Practice for Electrical Safety in Highway Electrical Operations. The connection between the REC cut-out and the double pole isolator shall be made using double insulated ‘tails’ – minimum 2.5mm² CSA.

8.9.3 Circuit protective and equipotential conductors shall comply in all respects with the requirements of BS 7671.

8.9.4 A circuit protective conductor shall connect the earth terminal on each luminaire to the main earth terminal block mounted on the column back board.

8.9.5 An earth terminal block shall be fixed to the baseboard adjacent to the cut-out and shall be a three-way type capable of accepting a cable size up to 25mm².

8.9.6 A main protective bonding conductor shall have a cross-sectional area not less than half the cross-sectional area required for the earthing conductor of the installation and not less than 6 mm². (BS7671, Section 544.1.1). Where PME conditions apply the earthing conductor of a street electrical fixture shall have a minimum copper equivalent cross-sectional area not less than that of the supply neutral conductor at that point or not less than 6 mm². (BS7671, Section 559.10.3.4).

8.9.7 All exposed conductive parts, as described in BS 7671, shall be bonded to the main earth terminal using an equipotential bonding conductor of not less than 6 mm² cross sectional area. This shall be increased, if necessary, to conform to the DNO’s requirements. Access doors shall be bonded using flexible or tri-rated cable.

8.9.8 All earth conductors shall be copper insulated cabled with green and yellow coloured PVC with all metallic components of equipment including column, lantern and gear tray etc bonded together to form a continuous earth path to the earth stud of the column.

8.9.9 All street lighting and other electrically supplied street furniture shall be earthed and bonded in compliance with BS 7430 where all earth cables shall be connected via a brass main earth terminal (MET) capable of terminating cables of 1.5mm² to 16mm² cross sectional area (CSA).

8.9.10 A permanent label to BS 951, with the words “Safety Electrical Connection – Do Not Remove” shall be permanently fixed in a visible position as stated in BS 7671 Section 514-13.
8.9.11 It is essential to avoid damage whilst installing cables in lighting columns, bracket arms, etc., and shall not be exposed to damage during maintenance operations, thus all wiring shall:

- Be routed clear of equipment affixed to the base board
- Be installed in a neat and workmanlike manner
- Be handled so as not to damage the sheathing of the cables when being pulled through brackets,
- Be installed so as not to impede opening of door(s) or access to equipment
- Shall be clamped in the lantern
- Be fitted with heat protective sleeves where necessary in the lantern
- Retain the outer sheathing to as near as possible to individual terminals
- Provide sufficient clearance for the door lock

8.10 Electricity Supplies

8.10.1 Lighting units shall, wherever possible, have unmetered, individual phase supplies from the DNO/IDNO LV underground mains network. The supply service at nominal 230V, AC 50Hz, single – phase shall terminate at a cut-out which complies with Electricity Supply Industry Standard 12-19. Internal wiring between the terminal block in the lantern and the components in the base of the column shall be PVC insulated and sheathed cable of 300/500 volt grade having a conductor size of not less than 2.5mm².

8.10.2 Where columns are remote from DNO mains network and following approval by the Street Lighting Engineer, supplies shall be taken at convenient points (feeder control pillars) and distributed to lighting units by private cable network. The DNO will provide a supply within the highway boundary but not to a central reserve or traffic island. Lighting units (either columns or signs) sited in these areas will require a private cable supply which can be readily isolated in the near vicinity.

8.11 Private Underground Cables.

8.11.1 When authorised for use by the Street Lighting Engineer, private underground cables shall:

- Be PVC or XPLE insulated, steel wire armoured, PVC sheathed to BS 6346 with stranded plain copper conductors, 600/1000V grade to BS 6346, or split concentric cable as agreed with the Street Lighting Engineer. All conductors shall be of equal cross sectional area and of such size as to comply with current IEE Wiring Regulation, BS7671. Where a 24 volt supply cable is installed to feed bollards or traffic signs the minimum conductor size may be reduced to 2.5mm² subject to the approval of the Street Lighting Engineer.

- Unless agreed with the Street Lighting Engineer all cables shall be 3 core (live, neutral and earth). The cable shall be special “Street Lighting Cable” and shall be marked as such and shall have the cores coloured as brown (live), blue (neutral) and cables yellow/green for continuous earth bonding PVC insulated single core copper of minimum 6mm² CSA 600 volt grade conforming to BS 6004.

- Have ‘BASEC’ approval and be produced by a manufacturer with Certificate of Assessed Quality Management to BS5750.
- Underground jointing on loops between lighting units, feeder pillars, illuminated signs etc. will not be permitted. Illuminated signs or bollards shall be fed by cables from lighting columns or feeder pillars. Under no circumstances must cables feeding a lighting column be looped through a sign or bollard.

- Cables shall be laid slightly 'snaked' in trenches and have a minimum length of 2 metres left as a loop at all street lighting furniture points. Shall not be laid when the ambient temperature is at or above a temperature of 0°C and has been above this temperature for the previous 24 hours or precautions approved by the Street Lighting Engineer have been taken to maintain the cable above this temperature.

8.11.2 No more than three cables shall terminate at a lighting unit and no more than two at an illuminated sign or bollard.

8.11.3 Private 5-core, three-phase sub mains may be laid between feeder pillars.

8.11.4 All cables and cable ducts shall be laid on a bed of sand 100mm deep and covered with a sand layer of equal depth. A yellow, self-coloured PVC or plastic tape, not less than 0.1mm thick and 150mm wide with the wording “STREET LIGHTING CABLE” printed along the full length occupying not less than 75% of its available length and occurring at least at 1m intervals, shall be laid within the backfilling material approximately 250mm vertically above the cable or duct line.

8.11.5 The Street Lighting Engineer shall be advised, at least 7 days in advance, by the developer of any proposed installation of cable or cable ducts in order that inspection of the cable or duct may be undertaken before it is covered.

8.11.6 Cables shall be individually terminated and secured at switches, cut-outs and other electrical apparatus by means of an armour securing clamp or an aluminium compression type gland complying with BS 6121 or BS EN 50262 and a gland plate. The armour securing clamp or compression gland and plate assembly shall incorporate at least one non-ferrous earthing terminal. All glands shall be shrouded overall with PVC sleeves and CET system terminations shall be suitably protected.

8.11.7 All cable terminations shall be provided with a non-ferrous label or tag onto which is indelibly marked the cable size and the origin or destination of the cable run.

8.11.8 Earth electrodes shall be provided at the supply point (feeder pillar) and penultimate unit of each private circuit and if necessary at additional points in order to obtain the necessary test results. They shall comply with Engineering Recommendation G12/2 published by the Electricity Association. The earthing system components shall comply with BS7430 and installed to BS7671; the rods shall be cast gun metal with phosphor bronze bolts. The terminal point shall be protected by a purpose made inspection pit complete with a heavy duty cover and frame.

8.12 Ducting System

8.12.1 The type of ducting system to be installed i.e. partially ducted or fully ducted together with approved manufacturers shall be stated on the approved drawing.

8.12.2 In order to facilitate future maintenance all private cables shall be installed in a ducted system which shall have draw chambers installed at major changes of direction and at the ends of each road crossing.
8.12.3 In fully ducted systems the arrangement of ducting and cable access chambers shall be so constructed that any cable can be installed or replaced without the need for any further excavation in the carriageway or footway.

8.12.4 Cable ducts shall be a minimum of 100mm nominal diameter for road crossings and 50mm in footways and sized in accordance with the recommendations in BS 7671. They shall be pliable, non rigid, plain, high or medium density, smooth bore polyethylene with a minimum wall thickness of 5mm or twin wall duct to BS EN 50086.2.4 and coloured orange with the words “STREET LIGHTING” painted in 9mm lettering along the length of the duct at intervals of not more than 1m. When laid, the wording shall be uppermost and all lengths will be jointed or sleeved to give a continuous smooth bore.

8.12.5 Ducts should be impervious to water, impact resistant, capable of being laid at temperatures down to -100°C and sufficiently flexible to follow undulations in the trench bottom. They shall be of sufficient strength to not require concrete surround or granular or selected backfill at the depths laid.

8.12.6 Where ducts are installed for use by the DNO they shall be installed generally in accordance with this section however the duct shall be coloured red and no intermediate chambers are required between the DNO main or supply point and the cable termination point.

8.12.7 Ducts shall be swabbed through prior to drawing-in the cable(s). On completion of the cabling the duct shall be left with a pigmented stranded polypropylene or equivalent, rot proof material draw rope of 5KN breaking load and having a design life of not less than 20 years. Ends of ducts not terminated at an access chamber shall be sealed to prevent the ingress of water.

8.12.8 Access chambers (minimum dimensions 450 x 450mm) shall be modular and of sufficient size to enable easy access to the cables having regard to their depth. The units shall be manufactured from high-density polyethylene, stackable and with preformed cut-outs for the cable duct entries. The developer shall submit details of the type/manufacturer of the access chambers he proposes to use for approval by the Street Lighting Engineer.

8.12.9 Chamber covers and frames shall be manufactured from ductile iron to BS EN 124 and shall be at least class C250 (please refer to Standard Detail for alternatives, depending on the location of the cover and frame). All covers and frames shall be designed to carry the loading appropriate to the installed location. Cover frames shall be fully bedded on mortar and accurately set for level and position, if necessary on a 225mm thick brickwork plinth, and aligned with the nearest adjacent kerb or building.

8.12.10 Excavation around chambers and manholes shall be backfilled with fill material complying with BS 1377 Part 2, properly compacted. Where mechanical compaction is impracticable, the excavation shall be backfilled with mix ST2 concrete complying with BS 5328 – 1:1997 and of 150mm minimum thickness

8.13 Trenches for Cables and Cable Ducts

8.13.1 All excavations shall be made with vertical sides unless otherwise approved by the Highway Authority. The sides of trenches and pits shall be adequately supported at all times so as to maintain the stability of the adjacent ground. Support shall conform to CP 2003 Earthworks Part 2 - Trenches, Pits and Shafts.
8.13.2 Trenches shall be excavated to the depth shown on the standard detail in order to give a depth of cover of approximately 450mm in verges, footways and open ground and 750mm under carriageways. The width of the trench shall be kept to a minimum.

8.13.3 Adequate precautions shall be taken to prevent water collecting in excavations. Whenever water collects in an excavation it shall be pumped out and the bottom of the excavation allowed to dry before cable or duct laying commences.

8.13.4 Backfilling shall be undertaken immediately after the laying, inspection and surrounding of cable(s) ducts using fill material complying with BS 1377 Part 2.

8.13.5 The reinstatement of all trenches shall conform to the appropriate section of the New Roads and Street Works Act, 1991 Specification for the Reinstatement of Openings in highways and the requirements of this document in respect of trench reinstatement except that the first 200mm depth of backfill shall not contain any material having a nominal size exceeding 40mm and that the developer shall spread and compact the backfill material evenly so as not to dislodge, disturb or damage the cable or cable duct. No power rammers shall be used within 300mm of any cable or cable duct.

8.14 Feeder Pillars

8.14.1 A list of approved manufacturers may be stated in Appendix B.

8.14.2 The location of feeder pillars shall be agreed with the Street Lighting Engineer on site prior to installation. Where the feeder pillar is sited in soft landscaping areas and it is not possible to park a vehicle immediately adjacent, the Street Lighting Engineer may require the construction of a hard standing for use by maintenance vehicles.

8.14.3 Feeder pillars shall be constructed from not less than 3mm thick steel. They shall be sealed to minimum IP65 on the doors and IP45 on the vent louvers. They shall include a full size backboard of varnished marine plywood at least 15mm thick or other approved non-hygroscopic material. Alternatively, a purpose-designed equipment mounting system may be used. The entry for cables shall be via the roof.

8.14.4 Doors shall be fitted with tamper-proof “O locks”, all locks being identical in pattern. The locking mechanism shall be lubricated with grease immediately following installation. Two sets of keys shall be provided to the Street Lighting Engineer prior to the adoption of the installation.

8.14.5 Where directed by the Street Lighting Engineer, ventilation shall be provided to prevent the build-up of condensation and in such cases the feeder pillar shall be protected by vermin proof screens.

8.14.6 Protection against corrosion shall be by hot-dip galvanising to BS EN ISO 1461, the minimum coating thickness to be in accordance with Table 2 thereof.

8.14.7 All doors are to be provided with an earth strap in accordance with clause 8.10.7, above.
8.14.8 The developer, designer shall submit details of the feeder pillars which are proposed for use in the installation to the Street Lighting Engineer for approval before work on the installation commences.

8.14.9 Feeder pillars shall be mounted on a 250mm thick foundation of ST2 mix concrete complying with BS 5328 – 1:1997. They shall be rooted or provided with fixing bolts to enable the unit to be securely located. Unless stated in Appendix B, after completion of the cabling, any void under the feeder pillar base shall be filled to 25mm below the door with rounded aggregate, maximum size 14mm, and sealed overall with a cold pour compound of an approved type to prevent the ingress of moisture from below. A spare 100mm diameter cable duct shall be provided through the concrete surround from the base of the feeder pillar.

8.14.10 Feeder pillars sited in grassed areas, a 600mm width of hard surfacing shall be laid with the surface flush with the ground across the width of the feeder pillar in front of the door. The other sides of the feeder pillar shall be similarly surrounded with hard surfacing 200mm in width. All hard surfaced areas shall slope away from the feeder pillar.

8.14.11 The feeder pillar shall be a minimum of 110mm x 150mm x 700mm size but shall be sufficient to accommodate:

- The incoming supply cable including cut-out.
- A lockable double pole isolator [if not included in the cut-out].
- Any contactor and/or photocell relay.
- A distribution board for all highway electrical feeds including sufficient spare capacity to accommodate at least one extra circuit.
- All necessary fuses and the like.
- At least 25% spare space on the backboard upon completion.

8.14.12 Where larger [double door] feeder pillars are required the following additional equipment shall be installed:

- Heater
- RCD
- Interior light
- 13A Socket

8.14.13 Distribution fuse boards of the HRC type shall be provided with an external earth, phase barriered and colour coded. They shall be fitted with the same number of live and neutral bus bar terminals as there are outgoing circuits plus at least one spare way.

8.14.14 A circuit diagram and labelling showing details of interconnection of equipment and the connection of cables to and from the pillar, all indelibly drawn or engraved on a material not subject to damage by the environment or normal use, shall be securely fixed internally to each feeder pillar after completion of the installation.
8.14.15 An earth system shall be provided in each feeder pillar. It shall accept the incoming earth facility from the supply authority onto an earth bar or terminal strip and interconnect all outgoing cable earth connections and the bonding of the feeder pillar. The earthing facility shall accommodate up to 25mm² conductors. Where required by the Street Lighting Engineer, a suitably rodded external earthing system as specified in Clause 8.12.10, shall also be provided, independent of and in addition to, any earthing system provided by the incoming supply authority/company.

8.14.16 All feeder pillars shall be fitted with a durable warning sign, fitted externally and in a prominent position, indicating “DANGER 415 VOLTS” or “DANGER 240 VOLTS” as appropriate and a ‘lightning flash’ in black on yellow.

8.15 Electrical Equipment Fixed to Buildings

8.15.1 Where approval has been given under Clause 2.1.4 for highway electrical equipment to be fixed to buildings the following Clauses apply.

8.15.2 Cables fixed to the surface of a building shall be PVC sheathed cables or ‘Hituf’ cable or other alternative approved by the Street Lighting Engineer. The colour of the cable sheath shall be such as to blend with the colour of the building or structure. In environmentally sensitive areas, cables may need to be painted to match the colour of the building. Surface cables shall be protected by means of galvanised steel conduit or cable shield up to 2.5m above ground level. Mains supplies shall be terminated in mini feeder pillars sited in the highway and the conduit made off into this.

8.15.3 All terminations of surface cable are to be completed using glands of approved manufacture. The making-off of such glands shall only be carried out by suitably qualified personnel.

8.15.4 The use of junction or termination boxes shall be restricted to those locations adjacent to the wall brackets where it is necessary to terminate the surface cable and to provide a heat resistant flexible cable [within a flexible conduit if necessary] from the box to the lighting unit.

8.15.5 Cables shall be supported on the building surface using approved saddles, the spacing of which shall conform to the recommendations of BS 7671.

8.15.6 The dimensions of the base plate of wall brackets must be kept to a minimum having fixed centres generally not greater than 200mm in the vertical or horizontal planes. All brackets shall be fixed with 4 bolts of sufficient size for the anticipated loadings. Fixing details and calculations of loading from a Structural Engineer must be submitted to the Street Lighting Engineer prior to approval being given for the installation to take place and independent test certificates for the fixings shall be submitted after installation.

8.15.7 The internal surfaces of all fixing holes drilled into walls or other structures shall be sealed with an approved silicone sealant prior to the insertion of the fixing bolts.

8.15.8 All wall brackets shall be installed to provide the designed mounting height of the lantern above ground level.
8.15.9 Electricity supply cables shall be terminated in a weatherproof control box of minimum size to accommodate the cut-out and any control or isolation equipment.

8.15.10 Wiring between the control box and the wall bracket shall be carried out using cables specified in clause 8.10.1 above and they shall have a minimum conductor size of 1.5mm². All cable glands shall be fitted with PVC shrouds.

8.15.11 Control boxes shall be constructed of galvanised steel or corrosion resistant alloy or ABS or GRP. They shall be sealed to a minimum IP54. Doors shall be fitted with tamper-proof locks, if possible, of the same pattern as used for columns. The control box shall incorporate a backboard of hardwood or other non-hygroscopic material onto which the control equipment, service cable and cut-out can be firmly fixed.
APPENDIX A – Schedule of Proposed Lighting Installation Equipment
(To be completed by the Developer for approval)

Name of Development: ___________________________________________
Proposed Development at:_________________________________________
Developer:______________________________________________________
Street Lighting Contractor:_________________________________________
Civil Engineering Contractor:_______________________________________

DETAILS OF PROPOSED PUBLIC LIGHTING INSTALLATION
1. Does this development form part of a larger development?__________
2. Will the street lighting on this development be installed in phases?_____
3. No. of Phases____ No. of lights: on this phase _____ on whole development____

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SIGNED_________________ ON BEHALF OF____________________ DATE_______
KINGSTON UPON HULL CITY COUNCIL

APPENDIX B

DESIGN SPECIFICATION FOR STREETLIGHTING AND ILLUMINATED SIGNS

Selected List of Street Lighting and Traffic Signs Equipment

In order to assist with future maintenance, The City Council requires that the lanterns used shall be chosen from the current approved list of lanterns unless the Street Lighting Engineer has deemed otherwise.

Lanterns (Primary and Principle Roads)

Urbis, Indo, Philips, ASD Lighting or Holophane with LED illumination.

Lanterns (Residential, Industrial Estate and Amenity Areas)

Urbis, Indo, ASD Lighting, Philips or Holophane with LED illumination.

Any other types will be assessed by the Street Lighting Engineer on an ad hoc basis.

Lanterns (Paths and Footways)

Urbis, Indo, ASD Lighting, Philips or Holophane with LED illumination.

Alternative Functional and Modern Lanterns

To be approved by the Street Lighting Engineer.

Heritage Lantern and Other Lanterns (All Areas)

To be approved by the Street Lighting Engineer. Please note that Heritage lighting may incur a commuted sum to be paid by the Developer to Hull City Council to be determined by the Street Lighting Engineer.

Dimming Equipment (All Areas)

To be approved by the Street Lighting Engineer however all PECU shall be fully electronic, preset and not capable of adjustment, have a negative differential of 1 to 0.5 and shall switch on when the ambient dusk lighting has reached a minimum of 20 lux and off at 20 lux and be DALI enabled.

Units for traffic signs shall be set to switch on at a level of 100 lux and off at 100 lux.

Please be aware that there may be a requirement for lights to be switched to part night operation before adoption.

Type A and B traffic Sign Lighting, Bollard and Other Traffic Sign Lighting (All Areas)

LED unless otherwise agreed with the Street Lighting Engineer.

Feeder pillars

To be approved by the Street Lighting Engineer.
Kingston upon Hull City Councils preferred mounting height and type of Columns:

**Residential Roads and Subsidiary Roads**
6 Metres, aluminium tubular column

**Paths and Footways**
5 or 6 Metres (mid hinged if vehicular access impractical/not possible), aluminium tubular column

**Industrial Estate Roads and Car Parks**
6 or 8 Metres, aluminium tubular column

**Main Traffic routes**
8, 10 and 12 Metres, aluminium tubular column

**High speed and Dual carriageways**
12 and 15 Metres, aluminium tubular column

**Miscellaneous and other locations**
To be submitted for approval by the Street Lighting Engineer.

**Alternative Column Sizes**
To be submitted for approval by the Street Lighting Engineer.

Please note that in some instances columns may require a black or green colour finish. The type of material(s) and/or method of applying colour finish shall be agreed with the Street Lighting Engineer.

**Type of sign posts:**

**All areas**
Tubular steel hot dip galvanising to BS EN ISO1461:1999 and PVC coated by fluidised bed method, the colour of the finish to be agreed with the City Council.
KINGSTON UPON HULL CITY COUNCIL

APPENDIX D

DESIGN SPECIFICATION FOR STREETLIGHTING AND ILLUMINATED SIGNS

Energy and Maintenance

1. The Developer shall remain responsible for the whole installation including three yearly cleaning and lamp changing (evidence to be retained and made available on request) replacement in the event of accident or vandal damage, etc., until the date of formal adoption of the installation.

2. In the event of an emergency situation arising prior to adoption, such as vehicular accident damage, column doors missing etc, and when the Developer cannot be contacted within 15 minutes, the City Council reserves the right at its sole discretion to arrange for its Street Lighting Department to be dispatched to make safe and to recharge the Developer with the costs incurred.

3. The developer will liaise with the local district network operator (DNO) to ensure all energy charges are covered and paid for until the adoption has been completed and the asset has been transferred to The City Council.

4. The developer will not enter into any agreement with an energy supplier that would/will go beyond the date of adoption.

5. To transfer energy supply costs to Hull City Council the developer must furnish the MPAN or GMPRN reference number to Hull City Council together with a full inventory of all equipment fed by the supply in question to enable the transfer.
Kingston upon Hull City Council

Design Guide and Specification for New Developers

KINGSTON UPON HULL CITY COUNCIL

APPENDIX E

DESIGN SPECIFICATION FOR STREETLIGHTING AND ILLUMINATED SIGNS

Painting

When required painting shall comply with the following:

Any access doors shall be removed to enable the edges of the door and the exterior of the item normally covered by the door to be painted. All removable attachments to items to be painted shall be removed prior to painting and replaced upon completion of painting. Generally these will comprise column number plates, litter bins, banding tape and small signs and notices. The correct unit number plate must be replaced within one working day of completion of painting.

Preparation

All surfaces to be painted must be free of dampness, grease, frost etc, and shall be cleaned down by scrubbing using a stiff bristled brush, clean cold water and a detergent and finally rinsed down with clean cold water. All areas of rust, scaled and flaking paint must be scraped, wire brushed and abraded to bright metal, if necessary using mechanical tools to form a tight edge and a patch prime coat applied before the two main coats. All preparation work shall be completed to the satisfaction of the Council’s Representative before the application of a further coat of paint.

Paint Application

All paint shall be applied by brush only and should be well brushed into the surface of the metal and all parts shall be completely covered with a film of the specified systems and thickness. Application shall be as recommended in the paint manufacturer’s Product Data Sheets. Product data sheets are to be submitted at the time of formal adoption or on request. Paints shall comply with the appropriate British or European Standard. All work involving a particular coat of paint shall be completed to the satisfaction of the Council’s Representative before the application of a further coat of paint. Each coat of paint shall be of a different colour but the same colour shall be consistently used for any particular coat.
KINGSTON UPON HULL CITY COUNCIL

APPENDIX F

DESIGN SPECIFICATION FOR STREETLIGHTING AND ILLUMINATED SIGNS

Competence and Accreditation

1 The installer of the lighting installation must be NICEIC or ECA registered, National Highways Sector Scheme accredited and experienced in the installation of highway electrical equipment and qualified to provide official completion and test certificates.*

2 Supply method statements including risk assessments and copies of the relevant cards to the Street Lighting Engineer before any works be undertaken for proposed adopted civil, electrical and illuminated works within Kingston upon Hull.

Note:-
- provided installers can demonstrate their intention to move towards Sector Scheme accreditation, then they will be approved. With effect from 1 August 2012, installers will have to have accreditation to the National Highways Sector Scheme for the Installation of Highway Electrical Equipment and Supporting Works (www.ukas.com)
KINGSTON UPON HULL CITY COUNCIL

APPENDIX G

DESIGN SPECIFICATION FOR STREETLIGHTING AND ILLUMINATED SIGNS

New Technologies and Energy Saving Equipment

1. Dimming is to be installed in all new developments where appropriate and other energy saving/control equipment may, at the discretion of the Street Lighting Engineer be required as part of the lighting installation.

2. Further details will be provided by the City Council when the design is submitted or upon request from the Street Lighting Engineer.

3. New technologies and energy saving equipment may be installed only after discussion with and acceptance from the Street Lighting Engineer.
KINGSTON UPON HULL CITY COUNCIL

APPENDIX H

DESIGN SPECIFICATION FOR STREETLIGHTING AND ILLUMINATED SIGNS

Sign Plates and Banners

1. Sign plate(s) with a total projected windage area in excess of 0.3 sq.m shall not be affixed to lighting columns unless approval has been sought from the Street Lighting Engineer.

2. Banners shall not be affixed to lighting columns unless approval has been sought from the Street Lighting Engineer.
### PUBLIC LIGHTING INSPECTION AND TEST REPORT FOR INTERNAL WIRING TO COLUMN/SIGN

**SITE LOCATION:** ………………………………………………………………

**DEVELOPER:** …………………………………………………………………

**ELECTRICITY SUPPLY POINT:** …………………………………………………

**CIRCUITS:** ………………………………………………………………………

**EARTHING SYSTEM:** ……………………………………………………………

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**Date of Test:** ……………………………………..

**Drawing Number:** ………………………………………...

The above installation has been tested and inspected and at the date of the test the results shown above proved satisfactory.

**Signed:** …………………………………………

**Date:** ………………………………………

**For and on Behalf of:** …………………………………………
# PUBLIC LIGHTING INSPECTION AND TEST REPORT FOR INTERNAL WIRING TO COLUMN/SIGN

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Date of Test: ..................................................  Drawing Number: ..................................................

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Signed: ..................................................  Date: ..................................................  For and on Behalf of: ..................................................