

Highways Guidance External Operators - Attachments (Self- Powered or Powered Apparatus) to Lighting Columns/Street Furniture

Purpose

The purpose of this Highways Guidance for External Operators is to enable competent External Operators to determine where they are permitted to safely apply additional loading Self-Powered or Powered Apparatus (i.e. cameras, data sensors, ANPR, CCTV, bus detection, telecommunication , festive decorations and air quality monitoring sensors) to predominantly street lighting columns and may include other Street Furniture (e.g. Illuminated Sign Posts and traffic signal posts subject to structural testing). BS EN40 checks must be undertaken where columns have not been specifically designed for additional wind loading. Installations must be maintained and removed by External Operators in accordance with the Authority's Safe and Operational requirements and are enabled, managed and monitored in the most effective and efficient manner (as set out in Appendix 1, 2 and 3).

This Guidance does not give permission to any External Operator to install, maintain or remove any attachments; a separate Legal Agreement or Licence Agreement is required before any work takes place.

Introduction

This Highways Guidance has been developed for External Operators by HCC's Highway Electrical Community (HEC) and approved by the Highways Service Board (HSB) on 21 July 2023. The intention is to work with External Operators to embed this approach as an addendum to Licence Agreements or within Legal Agreements.

Lighting columns are a common feature in the urban and sub-urban landscape providing residents, pedestrians and road users with light to increase security and road safety, and to reduce crime and the fear of crime.

Given their number and convenient placement, it is not surprising that there is often a desire to use lighting columns to mount other equipment and decorations. However, it must be remembered that lighting columns are structures designed using a process set out in the British and European Standards, BS EN40, and have a specific and limited structural capacity. HCC's street lighting columns are designed to support themselves and the lantern with very limited additional load bearing capacity. As such there is no guarantee that a lighting column will have sufficient capacity to safely accept new attachments that increase the structural loads.

Where new attachments are proposed to be added to existing lighting columns, evidence must be provided to show that the loads on the lighting column, including those from the attachment, do not exceed its structural capacity allowing for appropriate safety factors. In preparing this evidence, an BS EN40 check must be carried out and verified by a structural engineer, to determine the original structural capacity and to make an assessment of any reduction in strength due to existing attachments, corrosion, vandalism, impact damage or any other deterioration.

Additionally, to ensure the attachment is safely powered, the column may be drilled to pass the cable through to the proposed attachment.

Key Points for Consideration

Early engagement is fundamental for success therefore, sharing of the External Operator's forward plans/programmes with Highway Electrical Community (HEC) will enable synergies for co-ordination/integration with the Authority's Safe and Operational Strategy. This strategy is the bedrock of HEC inspection, testing and refurbishment programmes and aligns with Operational Strategy for the Inspection, Testing and Maintenance of Street Lighting Assets.

Whoever instigates the erection of attachments, be it the External Operator, or its appointed contractors (hereafter referred to as the 'Operator') that body assumes the main responsibility for Health and Safety. The Operator must ensure that the correct application process is followed and that all attachments are correctly supported and, where applicable, electrically safe and as such do not present a potential hazard to the public.

Works in the public domain must be compliant with Construction, Design and Management (CDM) Regulations. These regulations place the responsibility and a legal duty on the person organising or project managing these works for ensuring the right people are engaged on the various aspects of the work.

The Operator must take reasonable steps to ensure that the organisation or individual they propose to appoint (their appointed contractor) with regard to the design, installation, maintenance and operation of any attachments is competent. This applies to any party involved within the design, specification and construction process of temporary or permanent works. The competency of staff carrying out site surveys requiring access to the lighting column base compartment and of installation contractors should be taken as belonging to a suitable professional organisation such as the Highway Electrical Registration Scheme (HERS)/National Highway Sector Scheme NHSS 8.

Column attachments such as signs, hanging baskets, seasonal decorations, banners, radio equipment, CCTV and public transport information are invariably installed at places with maximum exposure to users, and lighting columns are the most common form of support chosen to display these.

Older lighting columns which may be in less than prime condition can suffer sudden and catastrophic failures, sometimes with tragic results. The risk of personal injury following failure of a lighting column is intrinsically linked to numbers of people using the space; any additional load imposed on a lighting column increases the risk of failure and so of injury. The Operator must demonstrate that any attachments made to a lighting column will not compromise its structural integrity.

The specification for new lighting columns is not required to include for any attachment and so many columns do not have any additional structural capacity to take new attachments. Where the specification and design does accommodate an attachment, these are usually traffic signs with a surface area of 0.3m^2 , so even new lighting columns should not be expected to carry more than this. Since 2002 HCC has specified columns up to 6m with 0.3m^2 additional wind loading and 8m up to 0.6m^2 additional wind loading with a design life of 25 years. Older lighting columns are less likely to be able to accommodate attachments, because internal corrosion is likely to have reduced the strength of the column.

A BS EN40 design check is the only method of demonstrating the column has the capacity for additional loading and must be used in all cases where there is no evidence of additional loading capacity.

It should also be considered that a vast majority of the county's street lighting assets are powered via the DNO's unmetered supply which operates under an unmetered supply agreement. Each asset has a declared load in kWh. This process is administered by Elexon, and each asset is issued a UMSUG code to allow the meter administrator to calculate the load on behalf of the

energy provider. To ensure there are no breaches in obtaining electricity illegally, all proposed Powered Apparatus must have the relevant UMSUG code and be declared on the Operators Asset Management System. The Operator must provide a copy of the written energy agreement for procurement and payment to their energy provider.

Background Due Diligence for Attachments

The Authority's Street lighting by material of lighting columns comprise: Steel 62%, Aluminium 16%, Concrete 15%, Cast Iron 2% and Other (e.g., composite, wood clad steel) 5% for circa 115,000 street lighting columns.

There are two completely different methods applied to determine the structural integrity of columns and the capacity for additional loading. "Structural testing" is routinely carried out on a six yearly basis to determine the remaining life span of the column and to verify it is safe and operational. BS EN40 design checks means; the standard that sets out the requirements concerning the design and inspection of columns according to their installation area, permissible loads, and material strength. i.e., to determine the capacity for additional loading or not.

Due to the fact each column will require drilling all columns must undergo a BS EN40 design check to determine the column is suitable for carrying the additional loading proposed.

Further analysis for the use of existing illuminated signposts for attachments still requires undertaking. Currently around 1/3rd of the illuminated posts has been tested and budget constraints are affecting further progress.

Risks and Mitigation

The individual circumstances of each installation must be considered properly. Columns may need structural testing to confirm their ability to accept additional loading from the attachment. This involves a process of calculating the wind loads on the column, lantern and any attachments in accordance with British Standard BS EN40 and is included as part of the mitigation process appended to this document.

In addition to the checks on the lighting column, the structural assessment will comment on the suitability of different lighting column forms to accept the proposed attachment. For example, it is generally, not recommended that attachments are added to folding columns. These are often used where there is restricted access or where there are electricity cables overhead making access to the lantern impractical in a Mobile Elevating Work Platform (MEWP). Impeding the raise and lower operation can prevent a column being accessed as intended.

Existing columns that have an expired structural test must be structurally tested prior to attaching any additional load to the column.

Mid hinged columns specifically are designed to be balanced to limit the pull-down load on the lowering rope. Adding attachments will unbalance the moving part of the column and may result in the column becoming dangerous to operate as it may lower uncontrollably and strike or trap the operator.

Legal Obligations

Section 178 of the Highways Act 1980 enables the highway authority to control the erection of apparatus on or over the highway, including attachments by way of a licence or legal agreement and there will be no charges levied by the Authority. For the avoidance of doubt this guidance still

complies with Institution of Lighting Professionals *Professional Lighting Guide 06 Guidance on Installation and Maintenance of Seasonal Decorations and Lighting Column Attachments*. This covers a variety of issues which may be governed by the guidance conditions, such as time limitations, emergency disconnections, repairs and the like. This typically requires the Operator to indemnify the Authority against any and all claims which may arise as a consequence of the installation, in which case liability is unlimited. The Authority will require, evidence of the Operators Public Liability insurance, typically to a value of at least £10m, but applicants should appreciate that they are potentially exposed to claims beyond that value.

All asset owners have a responsibility to ensure that their assets are maintained in a safe and reliable condition and that everyone involved is competent in respect of the duties they must perform. Specific legal duties may relate to some lighting applications such as highways. This includes the Health and Safety at Work Act 1974, Electricity at Work Regulations and Construction, Design and Management Regulations.

Local highway authorities have a statutory duty to ensure that their highway networks are in a safe and reliable condition. The Highways Act 1980 sets out the main duties of highway authorities in England and Wales. In particular, Section 41 imposes a duty to maintain highways that are maintained at public expense and Section 97 empowers provision, maintenance and alteration of street lighting.

Strategy and Proposal

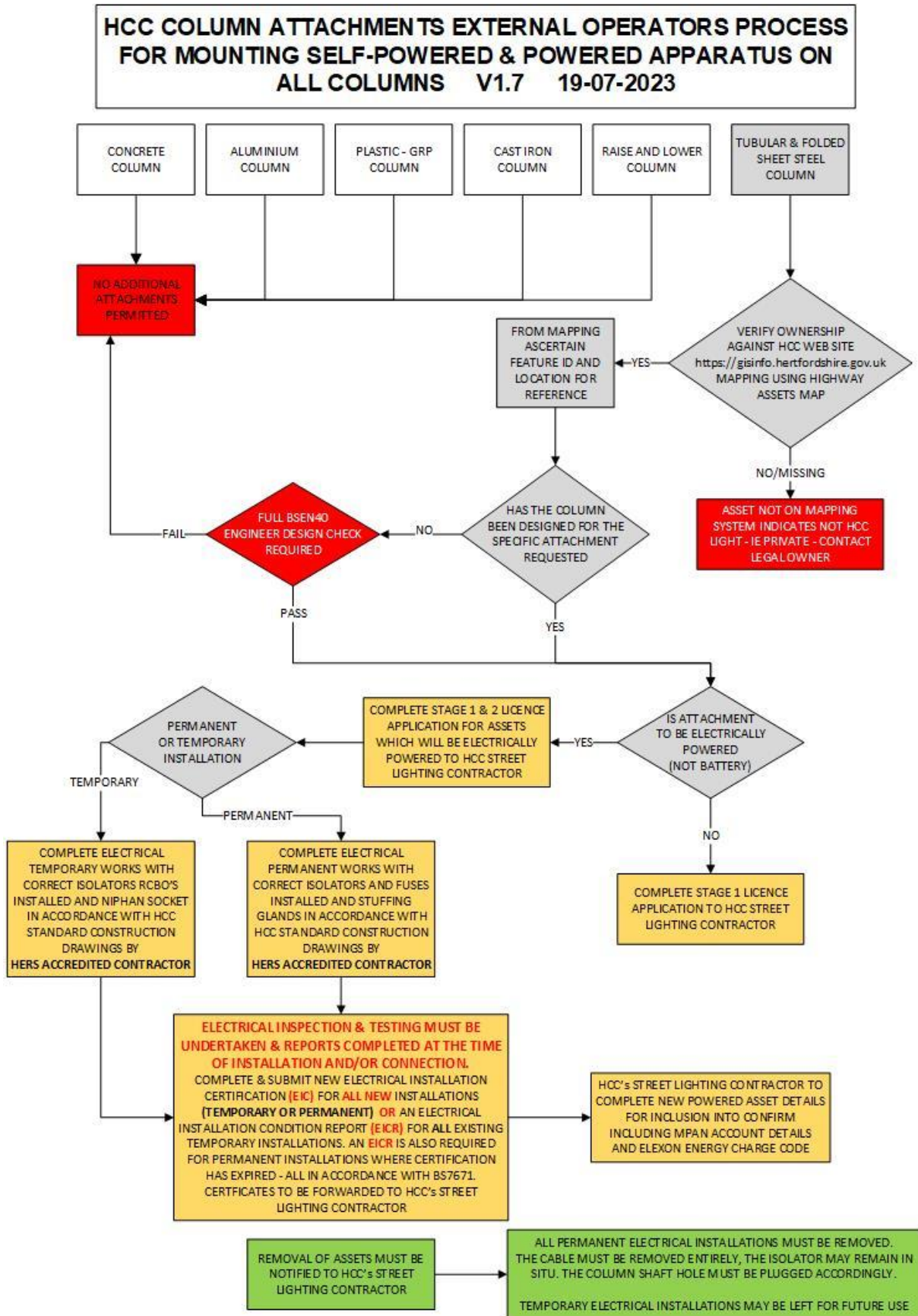
The Authority's strategy is to enable Operators to attach equipment to highway assets however, Operators must follow a structured approach to ensure its own safe and operational strategy is not compromised.

To allow Operators to install additional loads to tubular steel or folded sheet steel columns which are structurally rated "green" and have no other attachments.

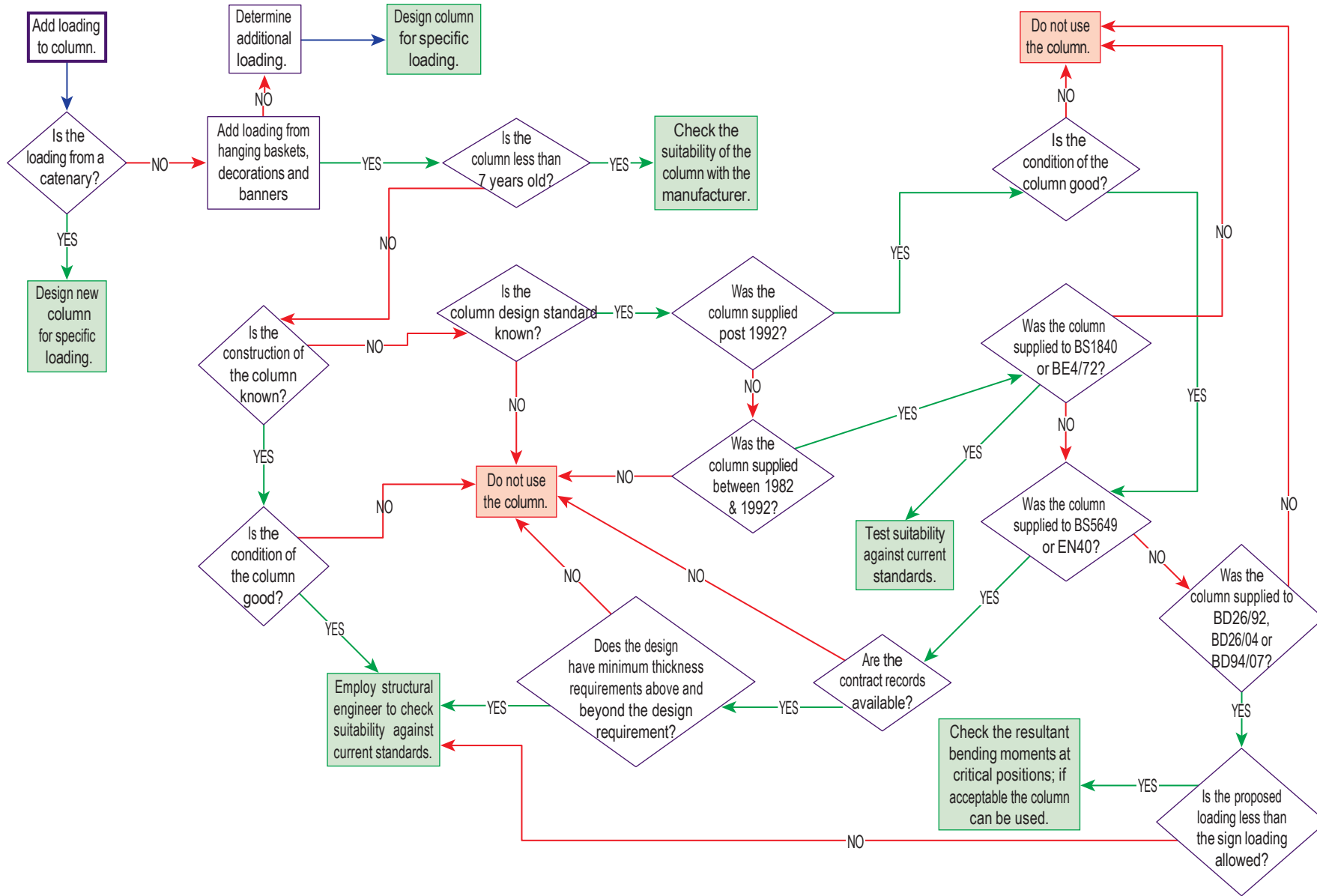
Columns that have expired their structural test date must be retested prior to any attachments being fitted that are permitted under this Guidance.

For the avoidance of doubt a BS EN40 design check must be undertaken by a suitably qualified structural engineer unless the column has been specifically designed for the additional loading.

Appendix 1 Attachment Flow Chart Process



Appendix 2: Additional load flow chart



Appendix 2

Appendix 3 Column Attachment Process

1. Demonstrate competency, knowledge and experience and a Safe systems of Work including the Authority's required insurances, RAMS and traffic management plans (including to request from HCC Network Management a permit to work on the highway).
2. Under no circumstances shall the leaning or affixing ladders or access equipment to HCC highway assets be permitted whilst installing or removing attachments.
3. The Operator must determine column/post ownership of street lighting columns (and other street furniture) via <https://gisinfo.hertfordshire.gov.uk> (Highway Asset Maps).
4. All installations utilising the county's street lighting columns and street lighting furniture as a mounting structure must be notified to County Councils street lighting contractor.
5. All Operators installations must be undertaken by Qualified Engineer(s) employed by HERs registered companies to ensure site specific traffic management plans (including to request from HCC Network Management a permit to work on the highway), site specific risk assessments, site specific method statements and individual operatives hold valid HERs cards.
6. The Operator must conduct a desktop survey of any street lighting columns (and other street furniture) potentially identified as being utilised for any proposed attachments. Where there is a Legal Agreement, the Operator will be provided access to the Electrical Testing Ltd (ETL) EasyWebSL 5.0 portal. This will be assisted by the Authority's Term Maintenance Contractor when applicable. Verification to include that the structural tests are in date and that there are no other reported/identified defects. Tubular steel lighting and folded steel columns classified on the portal rated green and with no attachments will be considered for attachments.
7. All columns shall be "green" rated. Refer to appendix 1.
 - 7.1. Leaning columns must Not be used.
 - 7.2. Attachment mounting heights must be set at 2.3m AGL (Above ground level) for footways and 2.4m AGL for cycleways (in accordance with HCC Highways Place & Movement Design Guide, Part 4, Chapter 17, Section 5 Sign Mounting) and not to obstruct the door access to the street lighting column.
 - 7.3. Concrete, Aluminium or Cast-Iron columns are **not** suitable and must **NOT** be used.
 - 7.4. Illuminated signposts (galvanised tubular steel and folded steel only) may be used subject to structural tests being in date and BS EN40 checks being conducted.
 - 7.5. Additional loading shall comply with Appendix 1 Attachment Process.
 - 7.6. If there is any doubt "Additional Loading" shall comply with (ILP PLG-06 Appendix 2) – Additional Loading Flow Chart which is appended to this document in Appendix 2. This clearly defines two distinctive routes to checking the column/post for additional

loading either check with the column manufacturer for suitability or employ a structural engineer to check against BS EN40.

8. The Operators staff shall conduct onsite, ground level, visual structural survey. Street Furniture Temporary/Permanent Attachment Deployment Risk Assessment must be completed by the Operator. This form along with survey photographs must be retained and available for auditing the Authority's Street lighting contractor.
9. Any street lighting column defects identified by the Operators staff or contractors during survey, installation, or removal are to be reported to the Authority's Street lighting contractor. Defects such as missing doors, leaning column, or hanging equipment to be reported by calling 0300 123 4047.
10. If during survey, installation, or removal the Operator discovers a situation requiring emergency response for example a knocked down or a potentially "live" column then the Internal Operator must inform the Authority's Street Lighting Contractor immediately by calling 0300 123 4047. The Internal Operator must take the appropriate step to keep public away until Authority's Street lighting contractor attends site.
11. As part of the Operators survey, the column door is to be opened to conduct an electrical assessment, to ascertain suitability for the Operators proposed equipment. Any new electrical risks identified such as damaged or missing parts of DNO cut-out to be notified to the Authority's Street lighting contractor and subsequent authorisation will be required before the Operators work can commence.
12. The Operators staff will carry out a Risk Assessments for each installation and the relevant Health and Safety requirements e.g., traffic management.
13. All equipment to be installed in compliance with manufacturers guidelines.
14. No ladder will be leant against the column. All access, if required, will be via self-supporting "A-frame" stepladder, Skywinder or Mobile Elevating Work Platform (MEWP).
15. All electrical work to be carried out by a Qualified Engineer and in line with the current IET Wiring Regulations BS7671 or its successors, (Currently 18th Edition). This will include fuse discrimination between the main incoming supply, the column luminaire, and any outgoing sub circuits to the Operators equipment. This includes details of where and how electrical supplies (if any) are to be taken from and a detailed plan indicating the fixing points, route of lighting span, circuit protection and isolation points.
16. Protection against electric shock has been considered by the Authority in accordance with PLG-06 (7.4). Due to the potentially dangerous situations where catenary cables are being proposed, only **SELV** circuits shall be permitted from any HCC Powered Asset.
17. In accordance with **Section 178 of the Highways Act**, any catenary shall be placed so as to avoid undue obstruction and interference with users of the highway and at least 6.0m clear of the highest point of the public highway (BS7671 reg 708.521.7.3) (including a publicly maintainable precinct or similar) or 3.5m clear of the highest point of a footway or similar.
18. The catenary shall be designed and erected and maintained with due regard to a comprehensive risk assessment. Such risk assessment shall take particular account of the erection, maintenance and removal of the catenary and the effect of and on all types of traffic that will pass under or nearby the catenary. Proof of compliance with such may be required by the Authority prior to granting the consent and at any point in the duration of the consent.

19. Wherever possible the same electrical fittings used by Authority's Street lighting contractor will be used for all electrical installation work undertaken by the Operator to maintain a common standard.
20. New Electrical Installation Certificate will be completed for all new electrical installations, and Electrical Installation Condition Report – EICR test certificates for permanent electrical installations, and copies forwarded to the Authority's Street lighting contractor.
21. On removal of equipment the Authority's Street lighting contractor will be notified, and any relevant photographs submitted.
22. Expert advice or assistance may be requested by the Operator from the Authority's Street lighting contractor in situations where the Operators staff do not feel competent to carry out what has been requested or which differs from the tasks outlined here. The Authority's Street lighting contractor **is under an obligation** to assist to provide technical guidance and advice where requested.
23. Alternative options include self-supporting posts and new street lighting columns specifically designed to safely accommodate attachments.
24. Further alternative options could be Traffic Signal Posts subject to Term Contractor Traffic Signals Team approval HertsITCC@Ringway.co.uk
25. Illuminated Signposts will be permitted subject to valid structural tests or BS EN40 design checks.

Definitions

"Authority" means Hertfordshire County Council;

"DNO" means the Distribution Network Operator;

"BS EN40" means the standard that sets **out the requirements concerning the design. and inspection of poles** according to their installation area, permissible loads, and material strength. APPLICABILITY. This applies to the following poles only:
Straight lighting columns to support luminaires up to 20 meters;

"Equipment" means the Operators equipment including [antennae and cables] and any equipment ancillary thereto;

"HERS" means Highway Electrical Registration Scheme the National Highway Sector Scheme 8 (NHSS8);

"Operator" means, the external organisation applying for the approval to attach third party equipment to HCC assets including their appointed contractors, administration, and advisors;

"Non-Powered Assets" means non-illuminated signposts or poles;

"Powered Apparatus" means mains powered attachments that have an electrical connection from a DNO supply or internally fed circuit from HCC's Powered Assets;

“Powered Assets” means Hertfordshire County Councils Street lighting columns, high masts, illuminated signs, traffic signals, feeder pillars or private cable network;

“Qualified Engineer” means; a person whose name has been entered on to the Register with the Highway Electrical Registration Scheme (HERS) following an application by a Registered Organisation and has a valid HERS card issued under the Electrotechnical Certification Scheme by the JIB following registration by the Administrator that the holder of the card has been assessed as Competent by his employing Organisation to carry out work at the appropriate competency level as defined in the National Highway Sector Scheme 8 (NHSS8) Training Specification;

“RAMS” means risk assessments and method statements;

“Safe Systems of Work” means risk assessments, method statements (RAMS);

“Safe and Operational” means the procedures approved in writing from time to time by the County Council governing the installation maintenance and removal of the third part attachments Equipment on the Street Furniture;

“Self-Powered Apparatus” means solar, wind or battery powered attachments that have no electrical connection to the grid or internally fed circuit from HCC’s Powered Apparatus.

“SELV” means separated extra-low voltage. An extra-low voltage system which is electrically separated from Earth and from other systems in such a way that a single fault cannot give rise to the risk of electric shock;

Supporting Information

This document is subject to periodic review. If the Operator requires any clarification regarding this guidance, they must contact HCC’s Highways Operations Senior Asset Manager & Team Leader via Highways Customer Services: Highways.CustomerServices@hertfordshire.gov.uk

If the Operator is seeking a licence agreement or to provide a program of works or removal of works, please contact HCC’s term maintenance contractor currently streetlighting.herts@ringway.co.uk

This Guidance for External Operators- Attachments (Self-Powered and Powered Apparatus) to Lighting Columns/Street Furniture is owned by the HEC and is subject to periodic review.