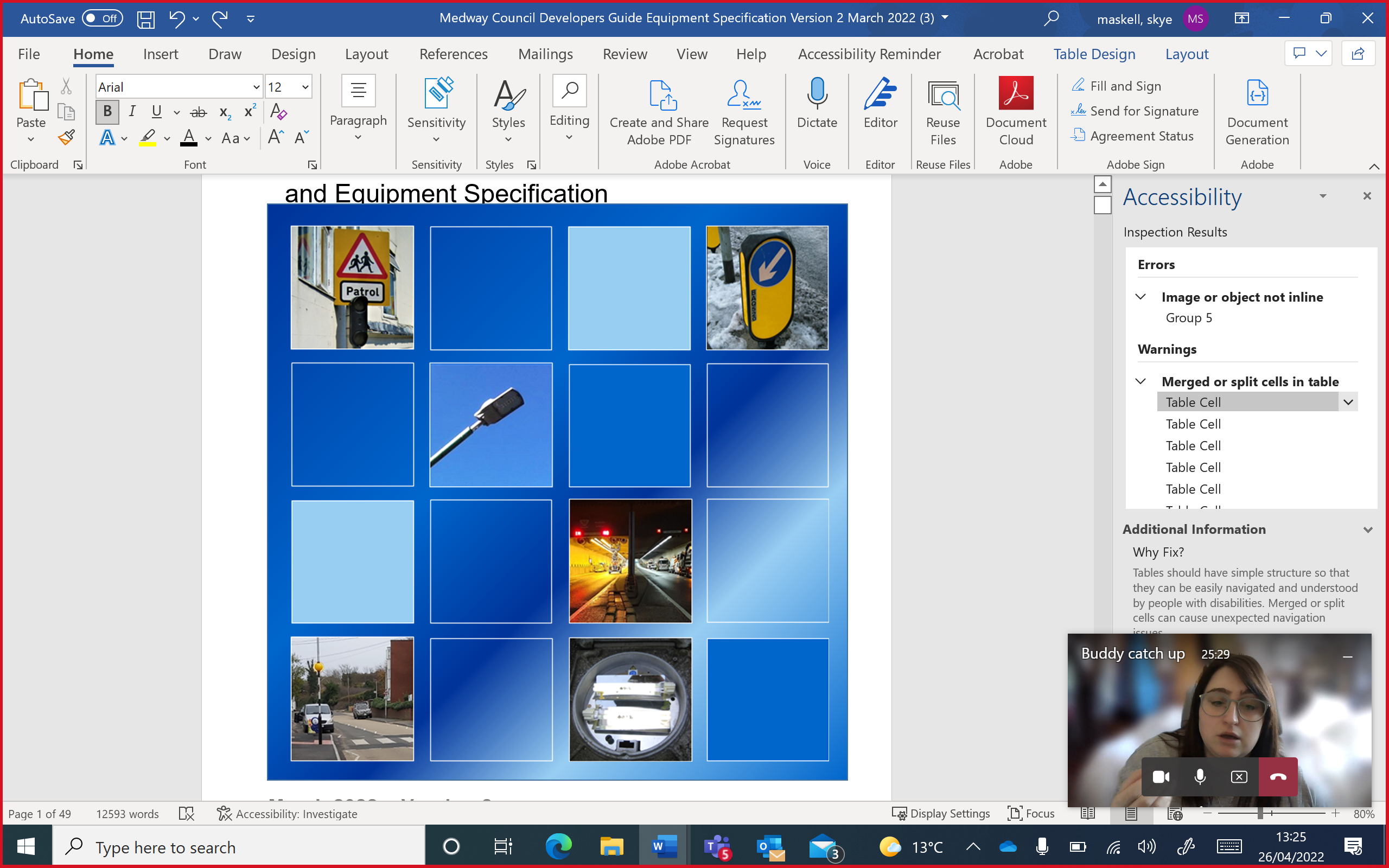
Highway Lighting Developers Guide and Equipment Specification



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Date: March 2022, Version: 2

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# Introduction

Medway Council recognises that street lighting is an integral part of the road and footway infrastructure and is important to all users of these networks. Installing any type of street furniture on the public Highway can cause problems, whether they are obstructed by trees, overhead lines, vehicle accesses or cause concern to local residents. This document is a guide for Developers, Residents and Highway users in Medway. It provides guidance on all aspects of lighting in Medway to ensure a consistent approach to providing good quality and energy efficient lighting that shall benefit Residents and Highway users for many years to come.

This guide has been produced in order to overcome some general issues where they relate to street lighting, illuminated bollards or signs etc. However, it should not be viewed as a “be-all and end-all” guide as each site will have its own unique set of circumstances, which will dictate the final scheme design.

This document is guidance only and should not be construed as legally binding on Medway Council. The guidance has been prepared without the benefit of legal advice and will be updated and subject to change. You should obtain your own independent legal advice on the agreements referred to within this guidance at your own cost. This document is not intended to replace the Code of Practice Well-Managed Highway Infrastructure, government and national policies, industry guidelines, Manual of Contract Documents for Highway Works, any good industry practice relating to powered apparatus or any and all successor standards or relevant lighting standards or codes of practice.

All lighting equipment used in Medway shall be of an approved type and specification. Details of Medway Councils standard equipment are included at the end of this document; it is the designer’s responsibility to propose the relevant equipment suitable for the site.

# Lighting Design Guidance

The lighting design shall comply with the lighting levels, uniformity and other parameters of current and relevant lighting standards and higher than recommended lighting levels should be avoided.

The lighting installed is considered to be a long-term investment to an area. Good quality lighting will benefit residents and Highway users for many years and producing a good quality lighting design at the early stage is critical.

Lighting designs shall be carried out under the supervision of and signed off by a competent lighting Engineer qualified to minimum IEng and MILP.

The Developer shall provide at their own expense a street lighting design and installation which shall conform in all respects with the current recommendations for road lighting in the UK including BS5489-1:2020, PD CEN/TR 13201-1:2014, BSEN 13201-1:2014, CIE 115:2010 and EN 12665, incorporating any specific lighting design standards contained in this design guide, and/or as directed by Medway Council. The design and extent of the scheme is to be agreed with Medway Council, as is the equipment to be installed on a particular development. The design layout plan and calculations shall be submitted to Medway Council for approval.

Street lighting must be planned as an integral part of an estate layout. They should not cause undue obstruction to the passage of pedestrians, be vulnerable to accidental vehicle damage, cause nuisance to house owners by way of intrusive light from siting streetlights, too close to the front of houses or obscured by trees.

Before starting any design work the lighting designer shall propose to Medway Council the proposed lighting class for all affected roads using the lighting class selection tool on the check list spreadsheet, along with evidence as to why the level of lighting proposed is applicable. The designer shall also agree with Medway Council the types of equipment needed i.e. traffic bollards, traffic signs etc.

Lighting class requirements for both new and any affected roads shall be determined by the Network Hierarchy as detailed in the Code of Practice Well-Managed Highway Infrastructure.

It is the Developer’s responsibility to position streetlights to ensure there is no disruption or distress caused to new or existing residents affected by the lighting design. The designer shall contact all affected residents and include details of agreements with residents for checking as part of the lighting design. Re-positioning of streetlights at the request of residents shall be at the Developers cost, even if Medway Council have agreed to the location.

The submitted design shall, as a minimum include, all details listed on the ‘Medway Council Street Lighting Check List’ Spreadsheet.

[www.medway.gov.uk/downloads/download/467/street\_lighting](http://www.medway.gov.uk/downloads/download/467/street_lighting)

Private and Highway lighting shall be designed independently of each other and lighting in one area should not be used to supplement the other.

## Lighting Reality

Computer generated lighting design calculation in Lighting Reality format and information demonstrating compliance with all the relevant quality characteristics indicated for the respective Lighting Class must be provided in accordance with BS EN13201. This information must be provided for each variation of the calculation field, e.g. bends, irregular shapes etc. and each one must be referenced to the layout plan to indicate clearly the area covered.

## Design Checking Fee – Section 38 and 278 Street Lighting

The fee for checking proposed lighting designs includes a fixed price per site plus an additional amount for every 50m of road to be lit, rounded up to the nearest 50m. The fees change each year, in line with Medway Council’s fees and charges regime and the Developer shall be advised of the fee costs upon submission of the initial proposals. Some sites including complex designs such as roundabouts may need specialist checking work and these would be priced individually. Fees for alterations to the design after Approval in Principle (AiP) shall be charged on the same basis for the affected area.

Please note that a design submission shall be rejected unless all information listed on the “Check list and lighting class selection” spreadsheet, which can be found at the link below, has been included with the submission. Other than the initial evaluation, the design will not be checked until the checking fee has been received.

[www.medway.gov.uk/downloads/download/467/street\_lighting](http://www.medway.gov.uk/downloads/download/467/street_lighting)

The design checking fee includes for up to two checks of a submitted design. If AiP is not given after two submissions, then the checking fee will need to be paid again.

# Design Approval

Once the design is checked and agreed “Approved in Principle” AiP shall be given to the design. The design will then remain in the ownership of the Developer until the site is fully adopted by Medway Council see section 23 Adoption of Apparatus. Changes may be made to the AiP design by resubmitting the scheme, see section 2.2 Design Checking Fee – Section 38 and 278 Street Lighting.

The lighting design checking is a paperwork exercise that will not normally include a site visit. Sufficient details should therefore be provided to allow this.

The Developer shall be responsible for the accuracy of the submitted details provided and any errors found in the design or specification, after AiP, shall be corrected by the Developer before adoption.

As the design is based on drawings with limited details, the Developer shall ensure that the streetlight positions are reasonable and conform to good engineering practices, the streetlights should be positioned so that they are not susceptible to vehicle damage or cause obstruction.

The Developer shall need to reapply for approval of the design for any changes to the design including, but not inclusively, for the following reasons:

* changes to the lighting requirements;
* changes to the areas proposed to be adopted;
* changes to the layout of the site;
* streetlights blocking proposed accesses;
* streetlights positioned in front of windows;
* alterations requested by residents;
* changes in legislation;
* position of trees and vegetation;
* there is a period of one years or more between approval of the street lighting proposals and implementations of the proposed works.

Medway Council is not the designer and the approval process only checks for quality of the lighting to be provided and that the specification of the equipment, as reasonably practical, conforms to the requirements of Medway Council.

# Lighting Design Standards

## Design Risk Assessment

Once the lighting class has been determined the designer should visit site and provide evidence that a risk assessment based on the parameters indicated in BS5489 has been done. If, as a result of the risk assessment, it is felt that the lighting class should be changed, either up or down one class, the reasons should be stated on the Risk Assessment.

## Strategic Route and Main or Secondary Distributor Network

The selection process for M Class roads is covered by BS5489 which should be adhered to.

## Subsidiary Roads Including Pedestrian Areas, Footpaths and Cycle Tracks

The selection process for lighting of Subsidiary Roads is covered by BS5489 which should be adhered to.

BS EN13201 and BS5489 make recommendations regarding the scale of lighting in relation to the surroundings. The choice of mounting height shall take account of these recommendations. The lighting uniformity should be no less than 20%.

## City Centre and Town Centres

The selection process for lighting of city and town centres is covered by BS5489 which should be adhered to.

An alternative style of lantern and/or column, from standard equipment, shall be considered and proposed in town centres or local shopping areas to enhance the area see paragraph 24.1. The style of lighting shall be agreed with Medway Council prior to any design work commencing.

## CCTV

The designer shall identify during the site survey any areas covered by Public CCTV and confirm with Medway Council that the area is a designated CCTV area and the extents.

## Conservation and Sensitive Areas

For the purposes of this document Sensitive Areas are defined as:

* Conservation Areas, Scheduled Ancient Monuments, Listed Buildings, and their settings.
* Non-statutory historic or heritage areas and older urban regeneration areas.

All areas have a unique character and it is important that lighting arrangements are tailored accordingly, rather than being “standardised”.

Retention and enhancement of the architecture, historic or landscape character of the area should be taken into consideration when determining lighting requirements whilst ensuring that the assessed level of Highway safety is achieved. Lighting improvements should form an integral part of the environment.

The views of interested outside bodies (e.g. historic societies) should be sought to ensure that the appropriate environmental and lighting design solutions are achieved.

There are a number of conservation areas within Medway and the declaration of a conservation area does not, by itself, establish a need for period or ornate style lighting. Where any proposals affect lighting in Conservation Areas then the designer shall consult with Medway Council and the Conservation officer prior to any design work commencing.

Where there is existing conservation style lighting in an area, this will be maintained on a like for like basis where possible.

Prior to designing for a conservation area the following should be considered:

* replacement cost;
* location;
* class of road;
* lighting levels;
* adjacent equipment;
* the type and style of the adjacent properties;
* the geography and history of the location;
* respect important views;
* respect the scale of neighbouring buildings;
* colour temperature.

The colour temperature of the light source in conservation areas may be reduced to 2700k depending on the area, this should be discussed and agreed with Medway Council before any design is carried out.

Developers may wish to enhance new developments, with ornate style lighting, this should be discussed and agreed with Medway Council before any design is carried out, see section 24.1 Alternative Equipment.

Further information, regarding conservation areas within Medway, is available on our website at:

www.medway.gov.uk/info/200150/planning\_guidance/145/conservation\_areas\_in\_medway/1

and

[www.medway.gov.uk/info/200147/applying\_for\_planning\_permission/129/conservation\_areas\_and\_listed\_buildings](https://www.medway.gov.uk/info/200147/applying_for_planning_permission/129/conservation_areas_and_listed_buildings)

## Lighting of Pedestrian Subways

Subways, and the approaches to them, can be intimidating at night if they are not carefully designed and provided with good street lighting. Lighting should be designed and installed in accordance with BS5489.

Subways should be designed to allow flexible switching arrangements, providing different levels of illumination during the day and night to cope with extremes of daylight from a very bright sunlit day to a dark overcast night. Contrary to normal street lighting practices high levels of illumination must be provided in subways during daylight if users are to feel safe entering and passing through the subway.

To further reduce the reverse black hole effect and make the entrance and exit of subways more attractive and inviting, attention should be paid to the approach lighting to the subways with particular attention being given to a gradual reduction in lighting levels from those inside the subway to normal street lighting levels outside.

Subways in rural areas or entering unlit areas may not require lighting. Further advice can be provided on application.

## Environmental Zones

In addition to lighting to BS5489 and selecting the most suitable equipment to produce a high-quality lighting design the ambient luminance of the surrounding area shall also be considered. Four environmental zones are now internationally recognised, and the designer shall be required to show that control of overspill light is limited to the level required by the environmental setting.

Zone E1 – National Parks and Areas of Outstanding Natural Beauty

Road in Zone E1 include National Parks, Areas of Outstanding Natural Beauty, Sites of Special Scientific Importance and Other Dark Areas. National Park boundaries are defined under the National Parks and Access to the Countryside Act 1949.

Zone E2 – Areas of Low District Brightness (Rural Areas outside Zone E1)

Roads in Zone E2 rural areas are defined as those outside major towns but includes villages and small towns within Medway. As a rule, these areas are defined as being those within “the Countryside”.

Street lighting provision in Zone E2 areas should be carefully considered to minimise the impact on the environment.

Residential areas of villages and settlements within a Zone E2 area are generally provided with lighting in accordance with the relevant minimum British Standard applicable to the type and use of the adopted Highway.

Adopted footpaths and cycle tracks shall only be lit where there is high night-time use, fear of crime issues and no alternative route.

On roads between villages and settlements in Zone E2 areas, lighting will only be provided where there is a known night-time road safety problem that cannot be controlled by other methods, such as improvements to the carriageway delineation, reflective road studs, carriageway markings and improved signing. An integral approach should be used to develop proposals which best balance safety and environmental considerations.

Zone E3 – Areas of Medium District Brightness (Low Crime Urban Locations)

Roads in Zone E3 areas include all urban residential local access roads and footpaths.

As a rule, replacement streetlight schemes in Zone E3 areas may be lit to the levels originally provided at the time of adoption.

New lighting schemes shall be lit to the required lighting class and standard for the road.

Zone E4 – Major traffic Routes, High Crime Urban Areas and Town Centres

Roads in Zone E4 areas are classed as Areas of High District Brightness (Major Traffic Routes, High Crime Urban Areas and Town Centres). This will generally include Major traffic routes including all A, B and C class roads and contain all strategic routes, main / secondary distributor, and link roads. Generally, all Zone E4 areas shall be lit to the British Standard relevant at the time.

New lighting schemes shall be lit to the required lighting class and standard for the road.

# Diversity Impact Assessments (DIA)

The Developer must provide a DIA for any changes to lighting to assess the impact this may have on Highway users and properties.

It should be noted that following the Medway Council Street Lighting Policy and this Developers guide should satisfy the requirements of a DIA. However, there will be sites where positioning of lighting columns or the levels of lighting will have a greater impact on the environment for some users of the Highway or adjacent properties, it is these areas that need to be detailed in the DIA. Further information can be found at the following sites,

[www.equalityhumanrights.com/en/equality-act/protected-characteristics](https://www.equalityhumanrights.com/en/equality-act/protected-characteristics)

and

[www.legislation.gov.uk/ukpga/2010/15/section/4](https://www.legislation.gov.uk/ukpga/2010/15/section/4)

# Conflict Areas

Conflict Areas should be lit using the guidance in the ILP’s Professional Lighting Guide 02 “The Application of Conflict Areas on the Highway”.

The designer should identify the need for Conflict Areas and its limits, whilst carrying out their site visit Risk Assessment.

## Pedestrian Crossings

Pedestrian crossings include both signalled controlled crossings and uncontrolled crossings. Pedestrian crossings shall be lit in accordance with the ILP’s Technical Report TR12 “Lighting of Pedestrian Crossings” In summary:

Signal controlled crossings on traffic routes shall be lit to the appropriate ME lighting class using ‘negative contrast’ lighting, as long as the road is lit to the recommended level for 40m either side of the crossing.

or

If the location of the crossing is within an area which can be regarded as a Conflict Area, in which case the suitable C Class for the road should be used along the controlled area or 40m either side of the crossing, whichever is greater.

Where ‘positive contrast’ lighting is provided on Zebra crossings supplementary luminaires shall be mounted on an extended beacon pole with the beacon mounted mid post.

# Attachments and Electrical Connections

Lighting units shall be designed and installed to carry the loads or electrical equipment of any attachments to be fitted at the time of installation.

Existing Highway electrical equipment, due to its design, construction, or structural condition, may not be structurally adequate to support the additional weight or electrical equipment required for additional attachments.

The Developer shall provide all necessary structural and/or electrical design details to Medway Council for approval.

Further details can be found in the Highway Lighting Policy, A Guide to – Attachments and Electrical Connections at the following link

[www.medway.gov.uk/downloads/download/467/street\_lighting](https://www.medway.gov.uk/downloads/download/467/street_lighting)

# Festive Lighting

It should be noted that some lighting equipment in Medway is used to mount and/or feed Festive lighting. Festive lighting tends to be installed in the main town centres. The lighting designer should check that the streetlights need to be adapted for Festive lighting before starting the lighting design.

# Existing Street lighting

The Developer shall evaluate the existing lighting in the area surrounding a development and where the level of lighting, as a result, of the development falls below the lighting class required, then the proposed lighting design shall be extended to include all affected roads. The extended design shall clarify either that the existing lighting meets the required lighting class or the designer shall provide details of proposed the works to bring the lighting up to the required lighting class.

The Developer may need to alter or replace lighting at junctions and adjacent to new properties over the length of any development abutting an existing public Highway. In all cases, there must be a logical tie in between the existing and new lighting.

# Reusing Existing Equipment

Generally, all equipment shall be installed as new.

Existing Highway columns and posts shall not be moved or repositioned due to the risk of damage to the protective coatings or structural damage that may be caused during the extraction and reinstallation.

Existing columns and posts may be reused or re-sited with prior agreement from Medway Council, however this may require certification from the equipment manufacturer that the equipment is, once removed from the ground, in a suitable condition for reuse.

Other equipment such as lanterns, sign plates and sign lights that meet the current equipment specification may be reused with the agreement of Medway Council, the Developer may be required to provide information including condition reports, method statements for removal and photos of the equipment before it can be reused.

## Removal of Existing Equipment

There will be occasions where equipment will need to be removed from existing lighting columns or signposts, the Developer shall ensure the integrity of the existing unit is not compromised including:

* Signposts should be capped to prevent water entering the unit.
* Any holes left in the unit due to removal of equipment should be sealed with grommets.
* All redundant internal and external electrical components should be removed including the lighting unit.
* The isolation method may require updating to suit the revised use of the unit.

# Temporary Lighting

Where existing Highway lighting is removed, not functioning as intended or removed then the Developer shall install a temporary lighting system.

The levels of illumination of the existing Highway shall be maintained at a level not lower than the original lighting system until the date of adoption by Medway Council.

Prior to the design and installation of any temporary lighting the Contractor shall ascertain the existing lighting levels through either a desk top exercise using Lighting Reality software or on-site measurements. All temporary lighting shall comply with British and European Standards current at the time. However, where Medway Council deems it suitable the lighting levels shall not be less than those measured on site.

All temporary electrical equipment shall be installed by a competent person and regularly inspected in accordance with BS7671.

Where the Developer proposes to use either temporary lighting, or temporary supplies or cable networks, the Developer shall submit their proposals to Medway Council for their approval. The Contractor shall not proceed until the temporary lighting proposals have been approved by Medway Council.

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

The use of generators and portable lighting rigs shall only be considered by Medway Council where there are no practicable alternative methods of temporary supply available.

Where the use of generators or portable lighting rigs has been approved by Medway Council, the Developer shall provide a maintenance schedule for checking the operation and refuelling of the generators or portable lighting rigs. Generators shall be of a type and positioned to reduce noise disturbance to a minimum.

# Positioning Lighting Equipment

Streetlights shall be positioned to ensure that the lighting scheme provides the best coverage of the adoptable Highway area. The Developer shall avoid placing streetlights in corners, on traffic islands or where light may be aimed unnecessarily towards bedroom windows. Streetlights shall not cause obstruction to vehicle crossings or the passage of pedestrian traffic.

Streetlights and equipment are only to be installed on land adopted, or to be adopted as public Highway, by Medway Council.

Highway lighting shall not be positioned so as to provide lighting to private areas such as access roads or garage areas, Highway lighting should only be used to light the adopted Highway.

Streetlights shall be erected at the back of the footway or dependant on road speed as shown in BS5489, unless agreed otherwise by Medway Council.

## Equipment Mounted on Buildings

Equipment mounted on buildings must include written, legally binding permissions to attach and maintain such equipment to be contained with the land registry deed for each affected dwelling. These must be capable of being assigned to future owners.

## Trees

Trees shall be considered when designing lighting schemes. The following observations must be adhered to by scheme designers and maintenance operatives when considering streetlight locations:

* Streetlights should be sited mid-way between trees, deviation from design criteria should be identified on any submission.
* Where there is an alternative location, away from the tree, then utilise this location and reconfigure the design accordingly.
* It may be possible to locate a streetlight underneath the tree canopy, but it must be at least 1m clear above the lantern and that this space will not be encroached upon at a later date.
* When locating streetlights amongst trees lanterns must be clearly visible when standing at the mid-point between streetlights.
* On new developments the Highway lighting should be designed first, and the planting fixed afterwards.
* The inevitable growth in height and spread of any trees should be considered.
* Consult an arboriculturist (where appropriate) in relation to the above issues.

## Bushes/Hedges

Whilst low level vegetation will not block light from the lantern, it will prevent future maintenance by blocking the access door. Units should be positioned away from existing or proposed vegetation where possible.

Streetlights within Highway planted areas shall have a minimum 0.75m x 0.75m wide hard surface at the base of the unit to prevent vegetation obstruction and 0.75m wide path with supported edges to the exit of the vegetated area for access and maintenance.

## Overhead Power Lines

Positioning equipment below overhead lines should be avoided wherever possible. Where there are no alternatives, national guidance should be followed when designing lighting schemes near lines including G39 and ILP GP10: “Safety During the Installation and Removal of Lighting Columns and Similar Street Furniture in Proximity to High Voltage Overhead Lines”. Designers should also consult with the owner of the overhead lines. The Developer / designer shall provide Risk Assessment and Method Statements including details of how risks have been mitigated including positioning equipment away from the lines, warning signs attached to streetlights and the use of hinged posts.

## Telephone Poles and Overhead Lines

Wherever possible streetlights should be positioned to avoid conflict with overhead lines and poles such as BT. Clearances between streetlights and poles should be considered in line with the owner’s policy. Where conflict is unavoidable there must be sufficient clearance to enable access to all equipment.

## Vehicular Accesses / Gateways

Streetlights must not be positioned in a manner that blocks existing or proposed access, gateways or any other form of access to a property. Normally (but not always) locating streetlights on property party lines will avoid this. Streetlights must not obstruct site lines for vehicles entering onto the Highway. See also “A Guide to - Alterations to Street Furniture” in Medway Council Highway Lighting Policy.

[www.medway.gov.uk/downloads/download/467/street\_lighting](https://www.medway.gov.uk/downloads/download/467/street_lighting)

# Reducing Street Clutter

Medway Council are keen to reduce street clutter the following should be considered when designing schemes to reduce street clutter:

* Signs should only be provided where a clear need has been identified and should be minimal and sympathetic to the environment.
* Avoid clutter by reducing sign size and by combining signs on fewer structures.
* Avoid overuse of warning signs as this can dilute their effectiveness - they should only be installed where there is an identified hazard or road safety problem.
* For 20mph speed limits and zones, the number of signs and traffic calming features could be reduced.
* The correct length of post should be used, such that the top of the post does not extend above the sign.
* A minimum unobstructed footway width of 2m is recommended.

# Signs and Traffic Bollards

Only signs that are required to be illuminated by The Traffic Signs Regulations and General Directions 2016, and any subsequent amendments, shall be illuminated. Directional or other information signs would not normally be illuminated. Depending on size, lit and non-lit signs should be attached to streetlights wherever possible.

Details of wiring signs and bollards can be found in section 16 Electrical Design.

The specification of signs and bollards can be found in section 24 Equipment Specification

## Traffic Islands

When designing a traffic island, the designer shall carry out a risk assessment to ensure the island is the correct design and that the correct equipment is used for the location and it can be installed and maintained safely. The risk assessment shall consider the following:

* requirements of the Traffic Signs Regulations and General Directions 2016;
* illumination requirement for traffic signs;
* impact on pedestrians using the island;
* intended or expected use of the island;
* CDM regulations relating to safe working environment;
* quality of existing Street lighting;
* speed of the road;
* geometry of the carriageway and advanced visibility;
* direction of travel (headlights picking up non illuminated bollards);
* alignment of the road (horizontal and vertical);
* other equipment on the island;
* road traffic collision history.

## Traffic Island Types

The following three island types are typical of the types of islands that may be found or installed in Medway and the equipment that would typically be installed for each type. Each location shall be carefully considered, and the designer shall submit proposals based on national guidance and the following. It is possible that an island design does not fall within these guidelines and the equipment used shall need to be designed and approved separately.

Where it is assessed that the island does not require a refuge island indicator then the island shall be considered to be a standard island.

All Islands on roads over 40mph shall be passive safe, islands on 40mph and under roads may also require passive safe equipment dependant on the location. The designer should consider this when submitting the scheme for approval.

Passive safe equipment shall be used in accordance with section 15 Passive Safe Equipment.

## Standard Traffic Islands

The following is a guide to the equipment required on “Standard” traffic Islands which tend to be standalone islands.

Standard traffic islands tend to have two traffic bollards and a fixed signpost with two 600mm keep left sign plates.

## Pedestrian Refuge Islands

The following is a guide to the equipment required on pedestrian refuge Islands.

Pedestrian refuge Islands tend to have two traffic bollards and a fold down 4m post with two 600mm keep left signs and a white high-level globe.

Traffic islands are considered to be a pedestrian refuge where there is a dropped curb or walkway through the island and dropped curbs at each side of the road. However, these islands do not automatically require a refuge island indicator (high level globe). A refuge island indicator shall be considered where the island and high level keep left signs are obscured due to the road layout or changes in the roads level such as over the brow of a hill or in a dip in the road so that the forward visibility is obscured.

Fold down pedestrian refuge posts should be used on traffic islands for maintenance purposes. Consideration should be given to the position of the post so that when lowered it does not obstruct pedestrians using the crossing point or vehicular traffic. However, if the only option for the safe operation and maintenance is to lower the post across the island then this should be the preferred option.

## Splitter and Separation islands

The following is a guide to the equipment required on a splitter Islands.

Splitter islands include islands at the exit of roundabouts and on larger junctions, in some cases the traffic will be split and travel on both sides of the island. Splitter islands do not tend to need a high-level signpost of refuge beacon, but the islands do need to be conspicuous,

Splitter islands may be adequately conspicuous due to other equipment on the island including traffic signals, Belisha beacons, reflective direction signs or due to the road layout including road hatching markings. After considering the above, generally, a traffic bollard is sufficient on a splitter island.

## Traffic Island Bollard Types

## Reflective Non-illuminated - 300mm Bollards

Non-illuminated reflective bollards should be considered as the first option for all roads 40mph or below.

## Solar Powered - 300mm Bollards

The majority of traffic bollards on roads 40mph or below can be non-illuminated; however, where there is a need for lit bollards then the first consideration should be solar powered bollards.

Where there is a combination of non-lit and solar bollards in one location then they shall all be the same style and from the same manufacturer.

## Illuminated Bollard - 300mm

24 volt lit bollards should only be considered where non-lit or solar bollards cannot be used. 230v equipment shall not be used for traffic bollards or traffic island equipment.

## Illuminated Bollard - 600mm

600mm lit bollards are used on roads with speeds over 40mph. Plain faced version would normally be lit due to the road speed. A 600mm reflective non-illuminated bollard can be considered where there is no street lighting.

Table Examples of traffic Island equipment

|  |  |  |  |
| --- | --- | --- | --- |
| **Road Speed / Passive Safe** | **Bollard** | **Visible Location** | Obscured Location  **(due to road geometry)** |
| Non passive safe on roads 40mph or less. | 2x reflective non-Illuminated keep left bollards | 1x Signpost with 2x 600mm externally illuminated keep left signs | 1x Refuge island indicator including globe and 2x 600mm externally illuminated keep left signs |
| Passive safe on roads 40mph or less. | 2x reflective non-Illuminated keep left bollards | 1x Passive safe signpost with 2x 600mm internally illuminated keep left signs | 1x Passive safe refuge island indicator including globe and 2x 600mm internally illuminated keep left signs |
| Passive safe on roads 50mph or over. | 2x 600mm Illuminated keep left bollards | 1x Passive safe signpost with 2x 600mm internally illuminated keep left signs | 1x Passive safe refuge island indicator including globe and 2x 600mm internally illuminated keep left signs |

# Passive Safe Equipment

## Passive safety columns

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

Electrical disconnection of Passive Safe Columns shall be according to the manufacturer’s guidelines.

The designer shall consider BS EN 12767 and make recommendations as part of the lighting design submission.

Passive safe columns shall be supplied by the column manufacturer specifically for the NAL socket and location, columns and posts shall not be cut by the contractor.

## Passive Safe, Traffic Islands

Passive safe equipment should be considered at all locations and its use will depend on several factors; however, generally passive safe equipment would not normally be used on roads 40mph or less.

Equipment on island on roads subject to speeds 50mph or over shall be passive safe. The specification of passive safe equipment shall be proposed by the designer and approved by Medway Council.

# Electrical Design

The Developer shall use a competent electrical designer to design for all works in accordance with BS7671. The electrical designs shall be signed off by the electrical designer and details of the designer’s competency shall be submitted with the proposals for approval. Medway Council staff are not electrical designers, the competency of the developer’s electrical designer will be checked as part of the approval process.

## Electricity Supplies

Generally street lighting shall be fed via an unmetered I/DNO main supply network.

I/DNO engineering policies may require a private network to be installed e.g. roundabouts or a remote location. In this instance a feeder pillar sited near an available I/DNO supply shall be used to feed a private network run to the units on the scheme.

All private cables shall use a loop in loop out arrangement. Cable joints will not be permitted.

Where the source of a private cable network is a unit with a I/DNO supply or where a fused sub-circuit is required, then the outgoing circuits shall be protected by a fused double pole isolator from the Charles Endirect Ltd LSI-System range or similar approved.

Cables to illuminated signs shall be fused at the point of supply and separate from other circuits feeding street lighting units.

Earth Electrodes shall be installed to meet the requirements of BS7671 and the local I/DNO.

## 24-volt Supplies

All lit signposts, lit bollards, and refuge island indicators, sited on traffic islands, the central area of roundabouts, dual carriageways or in vulnerable location shall be fed on a 24-volt supply.

A 24-volt transformer shall be fitted in the nearest streetlight or specified supply point. Where fed via a streetlight, the streetlight shall be fitted with a twin fuse isolator with one fuse (suitable size for the streetlight wattage) and one 4amp fuse for the 24-volt transformer. The 24-volt system does not need to be fused to the island. The termination point shall be identified as 24-volt supply. Additional alterations may be required to the supply point if space in the unit is restricted due to other components.

The feed cable to the island should be in min 2.5mm 3 core SWA to the signpost or refuge island indicator. The feed cable shall be earthed at the 230v end only.

## Wiring

The electrical installation shall comply with IET 18th Edition Wiring Regulations (BS 7671) and requirements of the local Electricity Supply Company. Only harmonised SWA cable should be used for single-phase supply.

A combined fused double pole lockable safety isolator shall be provided and fitted to the baseboard in each lighting unit and wired into the lighting circuit so that the lamp and control gear may be readily isolated from the mains supply without interference to the I/DNO’s equipment.

All exposed and extraneous conductive parts (including the lantern and door) shall be earth bonded. The main earthing copper conductor tail from the earth terminal block shall be either 6mm² or equal in cross sectional area to the incoming phase conductor, whichever is the greater as shall the earth bond from the earth block to the streetlight earth. The earth bond from the earth block to the door earth shall be 4mm² copper with length as short as possible to minimise possibility of being trapped when door is closed but long enough to permit the door to be rested on the ground against the streetlight post without strain. Other earthing shall be in accordance with IET 18th Edition Wiring Regulations (BS 7671) subject to a minimum size of 2.5mm2.

The internal wiring shall conform with BS6004:2000, BS6500: 2000 and BS7211: 1998 or European equivalents as applicable. 1.5mm2 non-hygroscopic 3 core flex cables shall be used for up to 6m streetlights and 2.5mm2 non-hygroscopic 3 core flex cables for above 6m.

The cable between the I/DNO and private isolator shall be 6mm double Insulated Stranded, Plain Annealed Copper. BS 6004 Blue/Grey Brown/Grey - Single insulated BS7211 Green/Yellow.

## Lighting in Private Areas

The electrical design shall exclude the supply details for lighting in private areas. These areas will not be adopted by Medway Council and therefore the private cable network should be remote from any Highway cable network. The private network shall be installed and maintained by the owner of the private area and could be fed from a landlord metered supply, a separate meter or via a private unmetered supply agreement.

## Private Cables Networks, Terminations, Ducting and Marker Tape

All private cables shall be XLPE insulated stranded plain copper conductors, PVC insulated, steel wire armoured, PVC sheathed 600/1000v grade to BS5467 or European equivalent and be terminated into cut-outs primarily for use in streetlights using suitable glands and with brass sleeves fitted under armouring of cables.

Private cables shall have an adequate cross-section, for 230 volt the minimum size shall be 6mm2 three core and for 24 volt the minimum size shall be 2.5mm2 2 core.

Ducting for private cables shall be 110mm (O.D) x 94mm (I.D) manufactured from polyethylene and coloured orange. Where the ducting is only being used for a private street lighting network then the duct shall be coloured orange and embossed with ‘STREET LIGHTING CABLE’.

Plastic marker tape shall be laid above all cable runs and shall be 150mm wide yellow self-coloured polyethylene not less than 0.1mm thick. Where the trench is only being used for a private street lighting network the tape shall include the wording ‘CAUTION’ and ‘STREET LIGHTING CABLE BELOW’ along its full length. For mixed private networks e.g. street lighting and supplies to street furniture the tape shall include the wording ‘CAUTION’ and ‘ELECTRIC CABLE BELOW’ along its full length.

I/DNO ducts are black in colour and generally supplied by the I/DNO or ICP carrying out the works.

## Disconnection of Existing Private Supplies

The disconnection of existing private supplies shall be carried out in accordance with the IET 18th Edition Wiring Regulations (BS 7671) and requirements of the local Electricity Supply Company and all other regulations or safe working practices. This guidance is in addition to the above and relates to the disconnection of an existing electrical Highway lighting unit including columns, signs and bollards that are on a private supply network from another Highway lighting unit:

* The status of the supply for example private or I/DNO should be confirmed before starting work. I/DNO cables shall be disconnected by the DNO or an approved ICP.
* Where possible all disconnected private cables shall be removed from the ground.
* Where it is not practical to remove private cables from the ground, cables should be completely removed from the unit to be removed and an approved method of termination should be made to the cable end (compound joint or heat shrink). A tag/label should be fixed to the disconnected cable giving details of where the feed was supplied from, when it was disconnected and by whom. No unterminated cables shall be abandoned and buried in the ground.

## Electrical Connections to Highway Equipment

Medway Council as the Highway Authority, under the Electricity at Works Regulations is the “duty holder” responsible for the safety and security of an electrical installation, including any item of apparatus connected to Highway equipment. Before any connections are made to Highway equipment Medway Council shall be consulted and permission obtained.

There is no reason why a third party cannot make its own arrangements with Electricity Companies for a temporary or permanent supply, subject to the usual Highway and planning approvals. Further information can be found in the “A Guide to - Attachments and Electrical Connections” in the Medway Council Highway Lighting Policy document.

[www.medway.gov.uk/downloads/download/467/street\_lighting](https://www.medway.gov.uk/downloads/download/467/street_lighting)

# Adaptive Lighting

Under normal circumstances, street lighting in Medway shall operate from dusk to dawn, only in special circumstances shall street lighting be switched off for part of the night.

The lighting designer shall consider dimming and profiling on all lighting schemes, the proposed lighting design shall give details of what dimming levels, if any, are being recommended, where and why. The following should be considered:

* general use of the area;
* remote footpaths;
* light nuisance to local properties;
* existing lighting not conforming to current standards;
* 24 hour amenities such as schools or Leisure facilities;
* education and halls of residents;
* night-time accidents;
* lighting installed for road safety schemes;
* areas of high crime;
* areas classed as conflict areas.

The number dimming settings per road shall be limited and simplified as far as possible, for example it is not acceptable to apply a different regime to each streetlight. In most situations it should be possible to use just one adaptive lighting profile for all streetlights in a road, unless there is a change in the road layout, change of lighting class required or for garage areas and footpaths.

Adaptive lighting proposals and details shall be submitted in accordance with Medway council’s Adaptive Lighting guidance which can be found at the following link,

[www.medway.gov.uk/downloads/download/467/street\_lighting](http://www.medway.gov.uk/downloads/download/467/street_lighting)

# Remote Monitoring (Central Management System CMS)

All lighting schemes shall be designed with the Medway Council approved CMS system installed (Telensa) and it shall be operational when the units are first connected. CMS shall be used to apply any adaptive lighting regimes applicable to the lighting design.

The Telecell ID numbers shall be provided to Medway Council during the installation process by phone or email giving the location and equipment details for each unit. A Telecell ID sticker shall be placed on the column isolator for future reference. The CMS Telecells shall be connected to the Medway Telensa Network. Equipment specification can be found in section 25.3 CMS System.

CMS is not currently being proposed in lit signs and bollards.

# Shielding

In many cases light pollution can be mitigated relatively easily, for example by the careful positioning and angling of light fittings to avoid spillage, avoiding over-lighting and by dimming and profiling at times of night when impacts are likely to outweigh benefits.

Light intrusion into windows should be avoided by positioning streetlights away from properties, good lighting design and by using the correct light output and optics.

On new developments any streetlights within 3m of a window shall be fitted with a physical rear or side shield or a specifically designed optic capable of restricting backlight from the lantern as agreed by Medway Council.

# Ecology

Lighting designers should consider the impact on the environment and wildlife when designing lighting schemes.

Special planning requirements, results of ecology surveys, known foraging corridors and nesting sites or roosts should be highlighted to Medway Council before lighting designs are submitted so that the impact on the ecology can be mitigated in accordance with national guidance and as far as practicably possible.

Advice has been published by the ILP [Guidance Note 8 Bats and artificial lighting](https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/) where it is known that bats are present on or near any development or lighting scheme.

# Architectural and Public Realm Lighting

Architectural and Public Realm Lighting includes all lighting that is generally designed to provide enhancement to the environment and may include spot lighting, lighting to features or structures and accent lighting to seating or pathways. The cost to install and maintain architectural lighting is high and approval to install such lighting should be agreed by Medway Council before any design work is undertaken.

The actual style of architectural or public realm lighting is subjective and at the notion of the designer, however, the designer should consider a number of factors in the final design before proposing the scheme to Medway Council including:

* Who will be responsible for the maintenance of the new equipment?
* What is the projected cost to maintain the equipment over its expected life and is this funding available?
* LED equipment is specialist, are existing contractors capable of maintaining the equipment, including cleaning and testing in accordance with the site conditions and manufacturer’s recommendation.
* Equipment will become obsolete and discontinued over a short time; how will fittings be maintained/replaced in the future.
* LED equipment will last around 3 to 5 years what is the exit strategy for removal or complete replacement as the equipment starts to fail.
* Consider single light solution, for example one failed fitting in a run of three will look worse than a single fitting not working as the fault will not be so obvious.
* Consider down lighting rather than up lighting as this causes sky glow. In subways and tunnels ‘down’ and ‘up’ light from a high position is preferred as LEDs in the footways will cause discomfort glare to pedestrians and are difficult to maintain and keep clean.
* How will equipment be maintained, installed, repaired and replaced under CDM2015, considering some locations will have heavy pedestrian and vehicle traffic.
* Consider how equipment can be removed and replaced. Do not bury equipment in the ground, as this is harder and more disruptive to replace.
* The wattage and switching of architectural equipment is unpredictable, it is therefore not suitable for an unmetered supply. The costs associated with installing a metered supply, higher energy costs and standing charges, should be considered.
* When and how will equipment be switched on and off for example will it be lit all night or only part of the night, used every night or only weekends? How will the lighting be switched and controlled?
* Consider Festive lighting and how architectural lighting will be integrated; will it be part of the Festive lighting or will the architectural lighting be switched off during the Festive period.
* Extra-low voltage (50volt AC or 120volt DC) power supplies will be used for any equipment underground and should be the first consideration for any equipment above ground.
* Lighting in trees should only be considered as a short-term solution due to movement and growth of the trees and environmental issues. Medway Council’s Tree Team should be consulted where lighting is attached to trees.
* Designers should consider slip and trip hazards that may be caused by the fittings.

# Installation

## Erection of Streetlights

Installation and erection shall be carried out in compliance with the manufacturer’s specification and all national guidance, standards, Codes of Practice, statutes, and regulations.

Compartment doors, wherever practicable shall be positioned so that a maintenance operative shall face oncoming traffic. Hinged streetlights should have adequate clearances for lowering and that maintenance access is within an adopted Highway area.

Streetlights shall be erected at the back of the footway, or dependant on road speed, as shown in BS5489 unless agreed otherwise by Medway Council.

## Street Works Permit

The efficient co-ordination of street works is one of the most important aspects of street works legislation, benefiting street authorities, undertakers and road users alike. The New Roads and Street Works Act 1991 (NRSWA) sets out the objectives of the coordination function. Further information can be found here.

<http://www.medway.gov.uk/info/200226/road_permits_and_licences/826/apply_for_a_street_works_permit>

In addition to the requirements of The New Roads and Street Works Act 1991, the Developer shall notify Medway Council before starting work on site including works on any existing lighting or on the existing Highway.

## Contractor – Competence

Guidance is provided in the Code of Practice Well-Managed Highway Infrastructure; evidence of competence shall be provided on request. A copy of this document can be downloaded here,

[www.ciht.org.uk/ukrlg-home/code-of-practice](https://www.ciht.org.uk/ukrlg-home/code-of-practice/)

## Alterations to Equipment on the Existing Highway – Including S278

To minimise disruption and the safety of existing Highway users, Medway Council may, at its discretion, carry out any lighting works on the existing adopted Highway network on behalf of the Developer, this will be at the Developer expense using the Medway Council Term Maintenance Contract.

## Special / Cranked Roots

All options for alternative column foundation must be exhausted before the approval of a cranked root column/post is provided.

Where cranked roots are approved the unit shall be labelled as agreed with Medway Council, the labels shall show as a minimum the root type, the direction and length of the cranked root.

# Adoption of Apparatus

Once equipment has been installed it is the Developer's responsibility to ensure the operation and maintenance of that equipment including cleaning and inspection and electrical testing in accordance with the design parameters, Code of Practice Well-Managed Highway Infrastructure and statutory law. This maintenance must continue until Medway Council formally accepts the equipment and adds it to its inventory.

Street lighting should be installed and in full working order before dwellings are occupied, any disputes with occupiers shall be referred to the Developer for resolution. It is the Developer’s responsibility to ensure all purchasers are aware of the likely positions, height and style of the street lighting equipment before any sale.

Unmetered energy arrangements with the Network Operator (I/DNO) must be made and maintained by the Developer until the equipment is formally accepted onto Medway Council inventory.

Medway Council shall only adopt LED equipment into maintenance, where sites have been constructed with non-LED lighting then this lighting shall be changed to LED prior to adoption.

## Adoption into Maintenance

Requests for units to be adopted into maintenance must be accompanied by an accurate as-built drawing matching the approved design, a detailed inventory, valid electrical test certificates for all equipment and evidence (if applicable) of maintenance completed.

Once a request to accept the lighting installations (and required information) has been received, an onsite inspection shall be carried out. Any departures from the design shall be notified to the Developer. Incomplete sites shall not be accepted, unless originally designed as a phased installation, only an entire site or complete phase shall be adopted.

## Site inspection

The inspection shall be carried out or organised by Medway Council’s Adoption team. Medway Council shall check the site and if acceptable Medway Council shall adopt the units into maintenance, including energy costs. The site inspection shall include:

* equipment installed as per the approved drawing;
* equipment is to the agreed specification;
* as built drawings have been supplied;
* all units are numbered;
* electrical test certificates have been supplied to medway council;
* all units are in full working order;
* all redundant equipment has been disconnected and removed;
* installations checked for damage or manufacturing defects;
* equipment installed to correct specification;
* where changes to the original design have taken place these changes have been agreed by the lighting team and where applicable by the road safety team;
* any problems with off-site lighting installations caused by the development have been resolved.

If any equipment does not meet the above criteria, the site shall not be taken into maintenance. Maintenance of equipment shall remain with the Developer until all outstanding issues or recommendations have been undertaken and a further site inspection has been carried out, repeat site inspections may result in additional fees being charged.

# Equipment Specification

All lighting equipment used in Medway shall be of an approved type and specification. Details of Medway Council’s standard equipment are detailed in section 25 Standard Equipment Specification; it is the designer’s responsibility to propose the relevant equipment suitable for the site. The specifications provided are generic, deviations from these combinations or specifications can be proposed for approval, where the site requires non-standard equipment, for example, twin fuse isolators shall be required where lit equipment is attached to columns.

All works shall be in accordance with IET 18th Edition Wiring Regulations (BS 7671) and Manufacturer’s instructions.

The proposed specification, along with any deviations shall be provided for approval by Medway Council prior to carrying out any design work.

## Alternative Equipment

Alternative equipment may be proposed by the Developer to enhance the site, this may include decorative or conservation style columns and/or lanterns. The manufacturer of the enhanced equipment must be an established street lighting manufacturer and approved by Medway Council. The warranty for the alternative equipment shall be no less than the warranty for standard specification equipment (min 10 years for lanterns). Commuted sums may apply for the use of non-standard equipment see 24.2 Commuted Sums.

Where the Developer proposes to specify alternative equipment to the standard Medway Council specification then the designer shall submit to Medway Council the proposed equipment including supporting documentary evidence such as photographs, drawings and product warranty costs and the like. Comparison designs should be carried out between non-standard equipment with standard specification equipment to ensure the proposed equipment is of comparable performance. No designs should be carried out until the equipment has been approved by Medway Council.

## Commuted Sums

Subject to the agreement of Medway Council, where standard specification equipment is not used, a commuted sum shall be calculated and agreed prior to the granting of technical approval. The commuted sum shall be payable to Medway Council prior to adoption of the completed scheme.

The commuted sum will be calculated at 50% of the complete replacement and installation cost of the higher standard item/s at the Medway Council contract/material cost at the time of technical approval.

Where a higher standard of materials is installed without the agreement of Medway Council and/or where a commuted sum has not been paid, then adoption of the lighting shall not be granted. The ongoing maintenance of the lighting system shall then be the responsibility of the Developer or their appointed managing agents.

## Equipment Innovation

With the rapid technology changes in street lighting, particularly with the development of LEDs, Medway Council hold the right to request a redesign of a submitted scheme or an already “Approval in Principle” design where changes in technology will mean energy, environmental or maintenance savings can be made over the life of the installation.

Medway Council shall only adopt LED equipment into maintenance, where sites have been constructed with non-LED lighting then this lighting shall be changed to LED prior to adoption.

## Raising and Lowering or Mid-hinged Streetlights

Fold Down (Base or Mid-hinged) Streetlights shall be used where a maintenance platform vehicle cannot reach the lantern, normally 3m from the carriageway including footways, where the streetlight is at the rear of a right-angle parking areas or where placing equipment below overhead lines is unavoidable. Care must be taken to ensure there is sufficient clearance to enable the streetlight to be lowered, and raised again, without obstruction. When in its lowered position the streetlight shaft should not obstruct Highway users and the lantern should be directly accessible from an adopted Highway area.

## Feeder Pillars

Where possible feeds to islands or other equipment should be sub fed from a convenient streetlight. Where feeder pillars are used, they shall be of an approved design and from an approved manufacturer. The first consideration should be given to the manufacturer supplying the feeder pillar prewired with all electrical equipment fitted. Feeder pillar specification details can be found at 25.7 Feeder Pillars.

## Finish, Corrosion Protection and Painting

Generally, new streetlights will be brushed aluminium and will not require painting. Where streetlights are required to be coloured the first option shall be factory preparation and painting.

Where new galvanised lighting units require painting then they shall be prepared and painted at the factory using a long-life paint system such as PPG PSX700 or similar approved by Medway Council. Any damage to the surface shall be made good before adoption.

The proposed RAL colours will depend on the location and shall be submitted as part of the design package.

All traffic signposts are to be galvanised, regardless of what other additional finishes are applied.

## Identification Numbers

All Highway lighting equipment shall be numbered for identification purposes.

Columns and Signs

Reference plates used on post units shall be fixed using two (top and bottom) 9mm Nylon 6/6 White/Natural UV stabilised heavy duty cable ties of suitable length for installation, utilising a cable tie Installation tool/gun cable tie tensioning tool and located 2.5m above ground on columns and as high as practically possible on signposts. The reference plates shall be Charles Lighting Ltd Enplates Ref: EPP (numbers) and EPV-05/Medway/W Enplate for a five-digit number or EPV-06/Medway/W Enplate for a six-digit number.

The format for columns is three letters and the number for example ABC 1. Signs are three letters and three numbers normally starting in the 500 range for example ABC501.

Traffic Bollards

Reference plates used on all traffic bollard types and shall be drilled and fixed using four stainless steel blind rivets, one located in each corner. There shall be one reference plate on the rear of the bollard. The reference plates shall be Charles Lighting Ltd Enplates Ref: EPP (numbers) and EPV-06/Medway Enplate for a six-digit number.

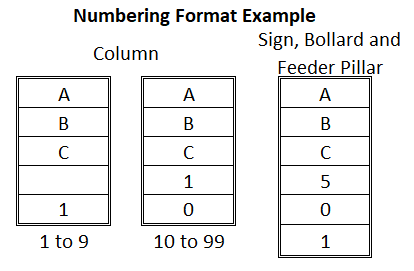
The format for traffic bollards is three letters and three numbers starting in the 500 range for example ABC501.

Feeder Pillars

Reference plates used on all feeder pillars shall be fixed using four stainless steel blind rivets, one located in each corner or shall be fixed using a solvent-free 2-part apoxy adhesive. There shall be one reference plate located on the front surface or the door. The reference plates shall be Charles Lighting Ltd Enplates Ref: EPP (numbers) and EPV-06/Medway Enplate for a six-digit number.

The format for feeder pillars is three letters and three numbers normally starting in the 500 range for example ABC501.

Numbering Format Example



Reference plates shall face across the road or as agreed with Medway Council. Where the carriageway passes on either side of a sign or column then two reference plates shall be used. Where possible reference plates shall be placed so as to be visible to the night scout vehicle. Where signs are attached to lighting columns then both the sign and the column shall be numbered.

## Sign Plates

Illuminated signposts shall have the sign fitted at min/max height of 2.1m to the bottom edge of the sign face and 2.3m to the bottom edge of the sign plate on cycleways. The light unit shall be 50mm above the sign plate.

Sign plates on existing and new columns should not exceed 0.3m2, however it may be possible to fit larger sign plates. For existing columns, the column shall be structurally tested and the additional loading calculated. For new columns, the column manufacturer shall be contacted and confirmation provided that the sign plate size is acceptable.

## Door Locks

Pudsey Diamond Anti Vandal Bolts M8 hex pin door locks are standard throughout Medway and all Highway equipment should be fitted with this specification lock. Aluminium streetlights shall have double door locks (top and bottom).

## Demountable Equipment - Retention Sockets

Equipment that is vulnerable to vehicle impact, requires to be replaced urgently or is on a wide load route should be installed in demountable sockets.

This would typically include posts on islands and Belisha beacons. The preferred manufacturer of sockets is [www.NAL.ltd.uk](http://www.NAL.ltd.uk) who can assist with equipment and foundation specifications. Consideration should be given to the type of isolation and plug and socket used depending on the site and supply voltage.

Sockets shall be of cast steel construction, to BS EN10340 Steel castings for Structural Uses, grade: GS240 and shall be:

* galvanised on all internal and external surfaces;
* the socket shall be capable of withstanding impact forces to steel posts with a wall thickness up 6mm;
* designed to take incoming and outgoing electrical cables;
* installed in accordance with the guidelines set out by the manufacturer;
* provided with supporting calculations proving it is fit for purpose.

Passive safe posts shall be supplied by the column manufacturer specifically for the demountable socket and location, columns and posts shall not be cut by the contractor.

## Streetlight and Signpost Design and Materials

All posts and brackets (where required) shall conform to the requirements of British Standard BS5649 (EN40 Parts 1 to 6). K-factor for wind loading shall be 1.8.

Structural design of all street lighting posts shall include for a sign of 5kg weight and 0.3 square metres surface area, mounted 2500mm above ground level and eccentrically 300mm.

Street lighting columns shall generally be aluminium with post top mounting lanterns, double arm columns shall have stub brackets. Signposts, decorative and hinged columns may be aluminium, hot dip galvanised with or without factory paint finish as agreed with Medway Council.

# Standard Equipment Specification

The equipment specified below is the standard specification to be used in Medway. The information below includes recommended lantern and column height combinations. The design process shall identify the best combination for each location. Deviations from these combinations or specifications may be acceptable where the site requires non-standard equipment but shall be submitted to Medway Council for approval before any design work is carried out.

Due to the rapid changes in the development of LED lanterns, the designer should confirm with the manufacturer that the details below are correct before submitting a scheme for approval.

## Colour Temperature

All lanterns shall be LED with a colour temperature of 3000k for 5m and 6m columns and 4000k for columns 8m and above. However, it is possible that some roads may have a mixture of column heights e.g., where there are 10m columns interspersed with 5m or 6m columns below overhead mains, in these cases the road classification should be used so that the section of road is the same colour temperature. As a rule, M Class designs should be 4000K.

Conservation area and non-standard luminaires may require a different colour temperature sympathetic to the area including 2700k for conservation areas. The specification for non-standard luminaires shall be approved by Medway Council before any designs are started.

Lanterns should be angled at 5 degrees above horizontal, however Zero degrees is preferred on footpaths or in environmentally sensitive zones.

Table **Information to be provided for each scheme or location.**

| LED drive current | LED colour temperature |
| --- | --- |
| Optic setting | Fuse size |
| Adaptive lighting levels and times | Isolator specification |
| Column height | Lantern manufacturer Ref Number |
| Mounting type shall be specified as ‘M76’ for 76mm post-top mounting and ‘M42’ for 42mm side-entry fixing | Lantern tilt/angle (5 degrees or zero) |

Table Recommended Column Height / Lighting Class

| ****Road Class**** | ****Speed**** | ****Lighting Class**** | ****Suggested Height**** |
| --- | --- | --- | --- |
| P - Residential |  | P2 | 6/8m |
| P - Residential |  | P3 | 5/6m |
| P - Residential |  | P4 | 5m |
| P - Residential |  | P5 | 5m |
| P - Residential |  | P6 | 5m |
| M - Motorway & Dual Carriageway | ≥ 50 mph | M1 | 10/12m |
| M - Primary & Main Distributor |  | M2 | 10m |
| M - District Distributor |  | M3 | 8m |
| M - Local Distributor |  | M4 | 6/8m |
| M - Minor Traffic Routes |  | M4 | 6m |

## Standard Lantern

The standard LED lantern used shall be the Isaro Pro manufactured by Thorn. All lanterns shall be equipped with CLO (constant light output), 7 pin NEMA socket for CMS control and the lantern body and spigot colour shall be RAL 9007.

The designer shall use the following table as guidance when selecting the size of lantern and number of LEDs.

The maximum flux level shall not be exceeded for each option. The required flux level shall be achieved and controlled using the CMS system. For example, the flux level of a lantern may be reduced at switch on to achieve the required level of lighting on the road and then reduced further during the night to achieve the adaptive lighting requirements.

Table Standard lanterns

| ****Lighting Class**** | ****Lantern Size**** | ****Max Flux**** | ****Mounting Height**** |
| --- | --- | --- | --- |
| P Residential | Thorn Small Isaro Pro 12 led | 2500 | 5m |
| P Residential | Thorn Small Isaro Pro 24 led | 3300 | 5m |
| P Residential | Thorn Small Isaro Pro 24 led | 5000 | 6m |
| P Residential | Thorn Small Isaro Pro 36 led | 8000 | 8m |
| M Traffic Routes | Thorn Small Isaro Pro 36 led | 10500 | 8m |
| M Traffic Routes | Thorn Large Isaro Pro 48 led | 15200 | 10m |
| M Traffic Routes | Thorn Large Isaro Pro 60 led | 19000 | 10m |
| M Traffic Routes | Thorn Large Isaro Pro 72 led | 23000 | 12m |

## CMS System

All standard street light lanterns shall be fitted with a 7 pin Nema socket and a Telensa T2E1N-G-3 - ETSI 5 pin NEMA Grey Dimming telecell with GPS. Dimming options shall be controlled by the CMS system.

Decorative lanterns that cannot be fitted with a NEMA socket shall use ‘T2E1T-G-1 - 2 Part telecell with switching and dimming’ and an ‘ANT-S-TW-E - Twig antenna’ or as agreed with Medway Council.

Signs and bollards shall not be fitted with CMS.

## Isolators

The standard isolator used in Medway is the Charles Endirect Ltd ref: L3/SFLNE/K3 and is suitable for most lighting situations. Alternative isolators shall be specified from the same manufacturer depending on the application for example a twin arm column would require a L3/S2FLNE/K3.

Table 5 Fixed lighting columns

#### **Street Lighting Columns**

|  |  |
| --- | --- |
| ALC 5m Aluminium | Aluminium Lighting Company, 5.1m 145x3 base conical column with double door locks.  Column Order Code: MC80920 |
| ALC 6m Aluminium | Aluminium Lighting Company, 6m 145x3 base conical column with double door lock.  Column Order Code: MC79126. |
| ALC 8m Aluminium | Aluminium Lighting Company, 8m 165x3 base conical column with double door lock.  Column Order Code: MC8PT165. |
| ALC 10m Aluminium | Aluminium Lighting Company, 10m 177x3 base conical column with double door lock.  Column Order Code: MC10PT177. |
| ALC 12m Aluminium | Aluminium Lighting Company, 12m 199 x 3 base conical column with double door lock.  Column Order Code: MC12PT199. |

Table 6 Hinged lighting columns

#### Standard 5m Fold Down Lighting Column

|  |  |
| --- | --- |
| Fold Down Aluminium | Aluminium Lighting Company, 5m Echalon conical column with double door lock. |
| Mid Hinge Galvanised | Stainton LEVEN mid hinge 4.7m Galvanised Mid Hinge, Planted Root.  Column Order Code: Leven 4.7 MK 2. Reference SC0389 |
| Base Hinge Galvanised | Fold Down 4.7m Galvanised Base Hinge  Stainton TYNE 4.7m.  Column Order Code: 4.7m Standard Tyne R/L column. Reference SC0385 |

Table 7 Double arm lighting columns

#### Standard Double Arm Lighting Columns

|  |  |
| --- | --- |
| ALC 8m Aluminium with Dual Bracket | Aluminium Lighting Company, 8m 165x3 base conical column with double door lock.  Column Order Code: MC8PT165.  Double Arm Bracket Code: MCCBD-150-60-100 |
| ALC 10m Aluminium with Dual Bracket | Aluminium Lighting Company, 10m 177x3 base conical column with double door lock.  Column Order Code: MC10PT177.  Double Arm Bracket Code: MCCBD-150-60-100 |
| ALC 12m Aluminium with Dual Bracket | Aluminium Lighting Company, 12m 199 x 3 base conical column with double door lock.  Column Order Code: MC12PT199.  Double Arm Bracket Code: MCCBD-150-60-100 |

Table 8 Sign posts 230v

#### Illuminated Signpost 230 volt

|  |  |
| --- | --- |
| Post 3m | C U Phosco 3m Forest Tubular Steel Column with rooted base, 140mm diameter base, 76mm shaft. Hot dip galvanised.  Column Order Code: FR2503T01 |
| Post 4m | C U Phosco 4m Forest Tubular Steel Column with rooted base, 140mm diameter base, 76mm shaft. Hot dip galvanised.  Column Order Code: FR2504T01 |
| Single sign light | Simmonsigns LED lamped LUA Grey Sign light Head complete with factory fitted Microstar 2000, 35 lux photocell. 76mm LUA Single Post Top Bracket.  Lantern Order Code: LUAINTG/E2/MS035  Bracket Order Code: LUAPTS76G |
| Double sign light | 2x Simmonsigns LED lamped LUA Grey Sign light Head complete with factory fitted Microstar 2000, 35 lux photocell. 76mm LUA Double Post Top Bracket.  Lantern Order Code: 2 x LUAINTG/E2/MS035  Bracket Order Code: LUAPTD76G |
| Isolator | Isolator: Charles Endirect Ltd ref: L3/SFLNE/K3 or L3/S2FLNE/K3 |

Table 9 Sign posts 24v

#### Illuminated Signpost 24 volt

|  |  |
| --- | --- |
| Post Galvanised | C U Phosco Forest Tubular Steel Column with rooted base, 140mm diameter base, 76mm shaft. Hot dip galvanised. |
| Single Sign Light | Simmonsigns LED 24 volt LUA Grey Sign light with factory fitted 24v Microstar 2000, 35 lux photocell. 76mm LUA Single Post Top Bracket.  Lantern Order Code: LUAINTG/E2/MS03524  Bracket Order Code: LUAPTS76G |
| Double Sign Light | 2 x Simmonsigns LED 24 volt LUA Grey Sign light with factory fitted 24v Microstar 2000, 35 lux photocell. 76mm LUA Double Post Top Bracket.  Lantern Order Code: 2 x LUAINTG/E2/MS03524  Bracket Order Code: LUAPTD76G |
| 24v Isolator | Isolator: Charles Endirect Ltd ref: L3/SLNE/K3 (24VAC) |
|  | 24 volt AC 10 amp transformer. Order code TRANS822AC |

Table 10 Signpost 24 volt Passive safe.

#### **Illuminated Signpost 24 volt Passive safe**

|  |  |
| --- | --- |
| Post Passive safe | Simmonsigns Passafe 3m Demountable Post c/w wiring loom for single or double Invinca signs.  Post Order Code: DMPCIC4MG 3m termination cable |
| Base | Simmonsigns Passafe Base c/w Passafe flange & 25m ground cable with IP68 detachable socket assembly.  Base Order Code: DMPPSBASEASS25 |
| Single Sign Light | 600mm (or 750mm for high-speed road) LED lamped 24v translucent reflective Invinca internally illuminated sign diagram 610 KEEP LEFT back  mounting c/w Microstar 24v 70 lux photocell. Grey  Sign Order Code: INVL7GV61024MS07024  Bracket Order Code: 1 set. VAR/114/U |
| Double Sign Light | 600mm (or 750mm for high-speed road) LED lamped 24v translucent reflective Invinca internally illuminated sign diagram 610 KEEP LEFT back  mounting c/w Microstar 24v 70 lux photocell. Grey  Sign Order Code: 2 no. INVL7GV61024MS07024  Bracket Order Code: 1 set. VAR/114/U/BB |
|  | 24 volt AC 10 amp transformer. Order code TRANS822AC |
| 24v Isolator | Isolator: Charles Endirect Ltd ref: L3/SLNE/K3 (24VAC) |

Table 11 Traffic Bollards

#### **Non-Illuminated Traffic Bollard 300mm (Weebolflex)**

|  |  |
| --- | --- |
| Keep Left or Plain | Simmonsigns Black Weebolflex with 3M diamond grade panels, double aspect diagram 610 Keep Left or Plain. |

#### Solar Illuminated Keep Left Traffic Bollard 300mm (Solaboll)

|  |  |
| --- | --- |
| Keep Left | Pudsey Diamond Solaboll with black molded body, single aspect Keep Left (Diagram 606), and Ground Battery Box |

**Non Illuminated Traffic Bollard 300mm (Visaboll)**

|  |  |
| --- | --- |
| Keep Left or Plain | Pudsey Diamond Visabol with black molded body, Keep Left or Plain single aspect. |

#### **Illuminated 600mm Traffic Bollard 24 volt**

|  |  |
| --- | --- |
| Body Keep Left or Plain | Simmonsigns CONTOUR 600mm single aspect traffic bollard, diagram 610 Keep Left or Plain. Bollard Order Code: CF610/1/3 |
| Base | Simmonsigns Global LED base light 10 x 1 watt c/w glands, 24V Base Order Code: GLO/LEDL2/G24 + photocell |
|  | 24 volt AC 10 amp transformer. Order code TRANS822AC |

Table 12 Refuge Island Indicators

#### **Refuge Island Indicator 24 volt**

|  |  |
| --- | --- |
| Post Fold Down | Stainton TYNE 4.7m Galvanised fold down column.  Column Order Code: 4.7m Standard Tyne R/L column. Reference SC0385 |
| Globe | 24v White Globe  Simmonsigns Centrenol White Globe, LED, 24v, with photocell.  Globe Order Code: MODU/CIC/76/PC |
| Single Sign Light | 1 x Simmonsigns LED lamped 24 volt LUA Sign light with factory fitted 24v Microstar 35 lux photocell. 76mm Single Through Bracket.  Sign Light Order Code: LUAINTG/E2/MS03524  Bracket Order Code: 76mm Single Through Bracket LUATBS76G  Sign Plate Order Code: 1 No. 600mm Keep Left (Diagram No. 610) sign plate |
| Double Sign Light | 2 x Simmonsigns LED lamped 24 volt LUA Sign light with factory fitted 24v Microstar 35 lux photocell. 76mm Double Through Bracket.  Sign Light Order Code: 2 x LUAINTG/E2/MS03524  Bracket Order Code: 76mm Double Through Bracket LUATBD76G  Sign Plate Order Code: 2 No. 600mm Keep Left (Diagram No. 610) sign plate |
| 24v Isolator | Isolator: Charles Endirect Ltd ref: L3/SLNE/K3 (24VAC) |
|  | 24 volt AC 10 amp transformer. Order code TRANS822AC |
|  | All refuge island indicators shall be installed in NAL Duckfoot bend sockets |

Table 13 Belisha Beacons

#### **Post Top LED Belisha Beacon**

|  |  |
| --- | --- |
| Post | Black C U Phosco 3m Forest Tubular column with 76mm shaft and rooted base. Hot Dip Galvanised and painted.  Column Order Code: FR2503001 |
| Option 1 Zebrite | ZEBRITE Belisha Beacon  Zebrite Traffic Safety Solutions 76mm Post Top ZEBRITE configuration for 76mm post.  Globe Order Code: ZEB010 for 76mm post |
| Option 2 MODUBEL | MODUBEL Belisha Beacon  Simmonsigns MODUBEL 76mm, 4m cable and 24v 2 amp transformer.  Globe Order Code: MODU/BEL/076 |
| Isolator | Isolator: Charles Endirect Ltd ref: L3/SFLNE/K3 |
| Painting | Belisha Black Finish. White bands at 300mm centers |
| Planting Socket | All Belisha beacons shall be installed in NAL Duckfoot bend sockets |

#### **Mid Post Belisha Beacon and Zebra Lantern**

|  |  |
| --- | --- |
| Post | C U Phosco 6m column with 76mm shaft and spigot for post top luminaire. Hot Dip Galvanised finish.  Column Order Code: FR2506001 |
| Lantern | Thorn Isaro Pro ZC optic, CLO, PN7, RAL 9007 with Telensa T2E1N-G-3 - ETSI 5 pin NEMA Dimming telecell with GPS. |
| Option 1 ZEBRITE | ZEBRITE MID POST  Zebrite Traffic Safety Solutions 76mm Mid Post ZEBRITE configuration.  Order Code: ZEB020 for 76mm post. |
| Option 2 MODUBEL | MODUBEL Belisha Beacon  Simmonsigns MODUBEL 76mm mid post mountable beacon assembly suitable for fitting to 76mm posts. Supplied complete with LED gear trays, 4m cable and 24v 2 amp transformer.  Order Code: MODU/MP/076 |
| Isolator | Isolator for Belisha Pole: Charles Endirect Ltd ref: L3/S2FE/M3+BW20  Isolator for Street Light that is to feed Belisha Pole: Feeder lamp column to have L3/S2FNE/M3(1D)+BW20 |
| Painting | Up to Belisha beacon black finish. White bands at 300mm centers on pole |
| Planting Socket | All Belisha beacons shall be installed in NAL Duckfoot bend sockets. |

## Feeder Pillars

Feeder pillars should be specified from the Charles Endirect or Pudsey Diamond range and be of a suitable size for the site requirements. The electrical specification should be designed and specified by feeder pillar manufacturer. Depending on the specification, the feeder pillar should be supplied to site prewired with all equipment fitted and tested in accordance with the design specification. The details of the equipment along with the design should be submitted to Medway Council for approval.

Considering the number of variations, it is not possible to specify standard feeder pillars for use in Medway, each location should be individually designed considering the following:

* coloured black RAL 9005 powder coating finish or dependent on location;
* larger pillars fitted with a hasp and staple for a padlock;
* paving slabs laid to provide a hard standing in front of the pillar;
* location, not installed in positions vulnerable to vehicle impact;
* anti-Vandal Bolts M8 hex pin locks;
* size and number of outgoing terminations;
* isolator type and rating;
* space for transformers, as required;
* provision of an I/DNO cut-out and meter;
* anti-condensation heater, only where electronic components are fitted;
* tamperproof thermostat;
* panel Light and Switch;
* 13A Socket and RCD.

For unmetered feeder pillars, all connected equipment must have an unmetered charge code.

A socket outlet, light and heater can only be specified where a metered supply is installed. All Feeder pillars over 2kw shall be metered supply.