PUBLIC LIGHTING

PART 8 APPLICATION

NENAGH HISTORICAL & CULTURAL QUARTER

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CONTENTS

Project Details:

Project:	Nenagh Heritage Buildings, Nenagh, Tipperary
Client:	Nenagh Town Council, City Hall, Anglesa St., Cork, Co. Cork
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NENAGH HERITAGE BUILDINGS

1. Introduction:

This report will outline the design intent for the proposed public lighting realm scheme for Banba Square, Nenagh, Co. Tipperary and Nenagh Castle.

This report outlines the lighting proposal as developed by Varming Consulting Engineers to provide adequate illuminance to meet all regulations and requirements as follows;

To provide adequate illumination to contribute toward the safe use of the access roads and pathways for vehicular and pedestrians.

- Minimise lighting pollution on surrounding areas and neighbors.
- Reduce glare on pedestrians and other users of the access areas.
- Use of highly efficient artificial lighting to reduce energy consumption.
- Use of advanced lighting controls to control lighting illuminance during dawn and dusk.
- Minimise impact of lighting columns on existing architecture.
- Highlight existing landscapes and sculptures within Banba Square.
- Emphasize the structural and architectural elements of Nenagh Castle.

2. Development Description

- A proposed upgrade of the existing Nenagh Banba Square. The proposal will also include all other site development works necessary to enable development.
- A proposal to install in-ground up-lighting system to highlight the external features of Nenagh Castle.
- A proposal to upgrade the public lighting system within the Courtyard carpark.
- A proposal to install in-ground up-lighting system to highlight the Gaol Complex external walls and to improve the visitor experience for the Gaol Complex.

3. Codes & Standards

The complete installation will be required to meet the following regulatory standards and policies:

- S.I. No. 291 of 2013: Safety, Health and Welfare at work (Construction Reg. 2013)
- ETCI National Rules for electrical Installation ET101-2008
- BS 5489-1:2013 Code of Practice for the design of road lighting
- IS EN 13201-1 & 2 -2015
- IS EN 13201-5-2015 S2 & ME4A
- CIBSE Lighting Guide 7
- Guidance Note 08/18:Bats and artificial lighting in the UK (Bat Conservation Trust, 2018)
- Bats & Lighting Guidance notes for: Planners, engineers, architects and developers (12/2010)
- ILP Guidance Note 01:2020 Guidance note for the reduction of obtrusive light.

4. Banba Square

The public lighting design concept for the proposed development is to provide adequate illuminance for vehicular and pedestrian access merging from the main road. The lighting levels shall be compliant with all the relevant standards and guidelines while complementing the Architecture of the development.

The design of the public lighting includes low energy LED lighting throughout. Energy efficient light fittings are a key element in reducing the developments energy consumption. Controls of the lighting shall be done in order to limit light pollution and will also have dim with sunrise and increase in light level with sunset.

LED lighting and fibre-optic sources can be used to highlight architectural features with much lower energy levels being required to deliver the desired impact.

High quality optics selected around the ecologically sensitivity areas of the development have also been a key part of the concept design.

Ergonomic lighting columns shall be utilised to reduce the impact to the architectural district court building in the background of Banba Square.

In-ground uplighting shall be used to enhance the existing sculpture within the centre of Banba Square.

With the addition of benches and other seating arrangements for Banba Square, additional in-ground lighting at the benches will be considered to provide a nice ambiance for the public to enjoy.

Figure 1 In-ground uplighters

It is envisaged the design proposals would meet Best Practice criteria to provide a “Low Brightness” approach to lighting thus ensuring that an energy efficient scheme can put in place from the outset.

Night time lighting of buildings will be limited to a dusk to midnight controls system.

Building/monument lighting schemes should in general be designed to switch-on at dusk with photo-cell control and be switched off at mid-night using a timeclock or part night photocell.

The daytime appearance of luminaires, electrical cables and associated equipment is an important consideration, designers shall try to conceal fittings behind shrubs, trees or building features so they don't become an eyesore in the day time.

These same lighting columns also contain facilities to include power supplies, water supplies and socket outlets for markets and other public use features.

Figure 2 HESS Shadowlights

HESS SHADOWLIGHTS 4 X 6W LED SPOTLIGHTS 5NO. MODULES PER LIGHTING COLUMN


Figure 3 Hess Light

Below is an example of the dimming profile to achieve maximum efficiency for Banba Square.

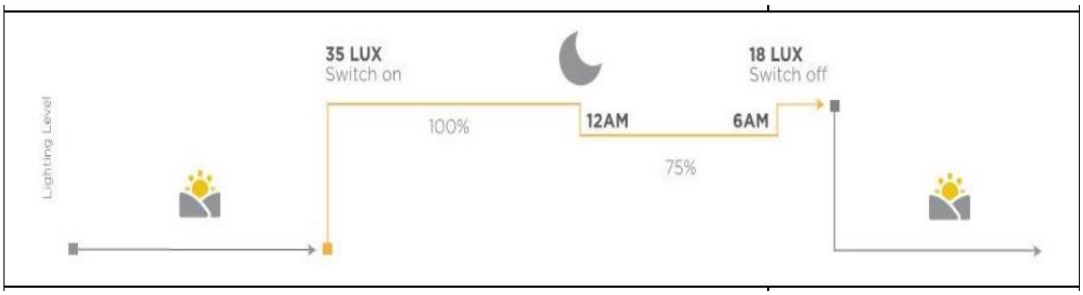

Figure 4 Dimming Profile

This dimming profile shall provide enough lighting to ensure public safety and deter criminal activity at night.

Typical lighting levels that would be expected to receive for 10 lux levels due to the area being shared by both people and vehicles.

5. Courtyard Carpark

The public lighting design concept for the proposed development in the Courtyard Carpark is to provide adequate illuminance for vehicular and pedestrian access from the main road. The lighting levels shall be compliant with all the relevant standards and guidelines while complementing the backdrop of the castle.

The design of the public lighting includes low energy LED lighting throughout. Energy efficient light fittings are a key element in reducing the developments energy consumption. Controls of the lighting shall be done in order to limit light pollution and will also have dim with sunrise and increase in light level with sunset.

Ergonomic lighting columns shall be utilised to reduce the impact to the architectural castle in the backdrop of the carpark. These same lighting columns also contain facilities to include power supplies, water supplies and socket outlets for markets and other public use features.

It is envisaged the design proposals would meet Best Practice criteria to provide a “Low Brightness” approach to lighting thus ensuring that an energy efficient scheme can put in place from the outset.

Night time lighting of buildings will be limited to a dusk to midnight controls system.

The daytime appearance of luminaires, electrical cables and associated equipment is an important consideration, designers shall try to conceal fittings behind shrubs, trees or building features so they don’t become an eyesore in the day time.

HESS 230 City Elements 35W LED LIGHTING COLUMN


Figure 5 Hess Light Fitting

Figure 6 Hess City Elements Light

Below is an example of the dimming profile to achieve maximum efficiency for the Courtyard Carpark.

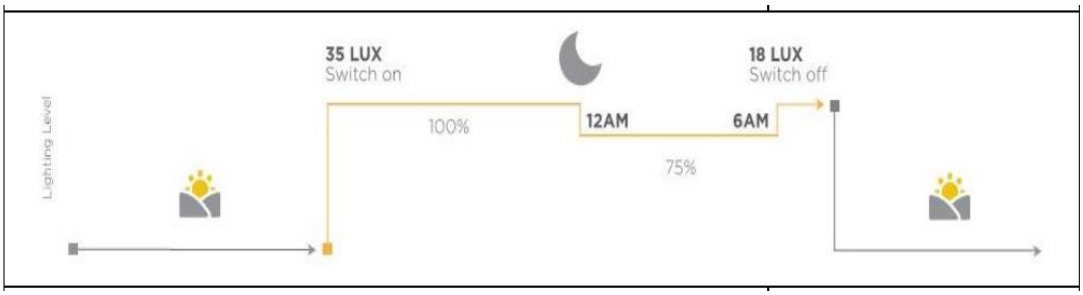

Figure 7 Dimming Profile No.2

This dimming profile shall provide enough lighting to ensure public safety and deter criminal activity at night. This shall also help staff and locals return to their cars if parked overnight.

Typical lighting levels that would be expected to receive for 20 lux levels.

6. Nenagh Castle

The illumination scheme for the castle will predominantly employ warm white lighting, strategically emphasizing the architectural features and overall aesthetics of the structure. The beam control system will meticulously factor in considerations such as dark skies, light overspill, potential impact on nocturnal animal activity and overall mitigation of light pollution. All lighting schedules will be pre-set and incorporate astronomic control, ensuring automatic adjustments based on changing sunrise and sunset times.

Additionally, the lighting system will offer the flexibility for colour changes, reserved exclusively for special events. These colour variations will be pre-programmed in accordance with dates stipulated by the council. To facilitate seamless management, the control system is equipped for remote access, allowing oversight and adjustments from the council's offices when necessary.

In addition to lighting cabling shall be required to connect the lighting and provide power for the castle. This shall be routed in underground PVC ductwork within the gravel. In order to get across the proposed bridge the underground cabling shall run within the metal trusses of the bridge.

Below photos are examples of similar castle in-ground lighting systems which we hope to implement as part of this development:

Figure 8 Carlingford Castle Lighting System

Figure 9 Rock of Cashel Lighting System

Figure 10 Rock of Cashel Colour Change Lighting System

7. Gaol Complex

The external façade shall be lit in a similar manner and control to the external façade of Nenagh Castle.

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Additionally, the lighting system will offer the flexibility for colour changes, reserved exclusively for special events. These colour variations will be pre-programmed in accordance with dates stipulated by the council. To facilitate seamless management, the control system is equipped for remote access, allowing oversight and adjustments from the council's offices when necessary.

Additionally, a dimming profile can be utilized to assist with the control of the light fittings where possible. This can be done to minimize the impact of light pollution and also provide safe routes.

Figure 11 Dimming profile for Gaol and Castle

8. Underground Works

There would be underground works associated with the installation of the in ground luminaires.

The depth at which the services will be buried is approx. 300mm and will be buried within PVC ductwork. Then the ducting will be backfilled in with similar soil and earth as is existing in the castle grounds.