



**Loughrea Fire Station,
Athenry Road, Loughrea, Co Galway**
PUBLIC LIGHTING REPORT

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1-0 INTRODUCTION

This report by Coffey Consulting Engineering will outline the design intent for the public lighting design for the proposed development at Loughrea Co. Galway.

The report details the preliminary lighting design of the development, including:

- Providing adequate illumination for both pedestrians and vehicles.
- Minimise light pollution on the surrounding areas and neighbours.
- Reduce glare on users.
- The use of high efficiency LED lighting technology.

The complete installation shall be in accordance with all relevant Irish and European Standards, including:

- IS 10101:2020 - National Rules for Electrical Installations;
- S.I. No. 291 of 2013: Safety, Health and Welfare at Work (Construction) Regulations 2013;
- IS EN 13201-2:2015 Road Lighting – Part 2: Performance Requirements;
- IS EN 13201-3:2015 Road Lighting – Part 3: Calculation of Performance;
- IS EN 13201-4:2015 Road Lighting – Part 4: Methods of Measuring Lighting Performance;
- BS 5489-1:2013 Code of Practice for the Design of Road Lighting. Part 1: Lighting of Roads and Public Amenity Areas;
- Galway County Council Public Lighting Technical Specification & Requirements
- ESB Networks National Code of Practice for Customer Interface
- ESB Networks – Housing Schemes: Guidebook for ESB Networks Standards for Electrical Services
- Recommendations for Site Development Works in Housing Areas, DoEHLG
- Ecologist's recommendations

2-0 EXTERNAL LIGHTING DESIGN

It is proposed to install new 6 metre high lighting columns and 27W LED luminaires throughout the scheme, as per the drawing 5237-BLD-100.

The lighting levels are noted on the drawing 5237-BLD-102.

Proposed Light Fittings

The preliminary lighting design is based on the following light fittings:

Akra



Construction: Die-cast aluminium. IP66 and IK08 rated.
 Driver and LED modules are accessible for maintenance and replacement
 Lens: Tempered glass
 Finish: Black as Standard
 Luminaire: 60W & 150W LED. 4,000K.
 Life: L70 B10 >100,000 hours @25°C
 Height: 8 metres

Durostar



Construction: Die-cast aluminium. IP66 and IK08 rated.
 Driver and LED modules are accessible for maintenance and replacement
 Lens: Tempered glass
 Finish: Grey RAL 9006
 Luminaire: 70W LED. 4,000K.
 Life: L70 B10 >100,000 hours @25°C
 Height: 8 metres

General Data

Dimension in metres, angles in degrees.

Grid Origin: 4.71m x -36.99m

Area: 361.94m x 374.34m

Sample Spacing: 1.50m x 1.50m

Type A Akra 150W LED

Type B Akra 60W LED

Type C Durostar 70W LED Forward throw optic

Type D Durostar 70W LED Street optic

Please note that the design will be developed during the detailed design stage and the exact position and manufacturer of the light fittings may change, however the overall lighting installation will comply with the Standards listed in Section 1.0.

The preliminary calculations were carried out using Lighting Reality software. Results below and on the drawings 15109-BLD-101 and 15109-BLD-102.

| Luminaire Reference | Type | Location | | | Angle | Tilt | Cant | Outreach |
|---------------------|------|----------|--------|--------|--------|-------|------|----------|
| | | X | Y | Height | | | | |
| 1 | C | 46.00 | 107.40 | 8.00 | 328.00 | 5.00 | 0.00 | 0.00 |
| 2 | B | 75.90 | 88.50 | 8.00 | 153.00 | 15.00 | 0.00 | 0.00 |
| 3 | B | 82.30 | 86.50 | 8.00 | 65.00 | 0.00 | 0.00 | 0.00 |
| 4 | B | 93.40 | 80.80 | 8.00 | 65.00 | 0.00 | 0.00 | 0.00 |
| 5 | A | 70.40 | 76.90 | 8.00 | 153.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | |
|---|---|-------|-------|------|--------|------|------|------|
| 6 | A | 72.00 | 71.20 | 8.00 | 245.00 | 0.00 | 0.00 | 0.00 |
| 7 | A | 95.40 | 63.40 | 8.00 | 245.00 | 0.00 | 0.00 | 0.00 |
| 8 | D | 92.00 | 36.60 | 8.00 | 91.00 | 0.00 | 0.00 | 0.00 |

The preliminary light levels are:

- Average: Carpark – 20.26 lux, Yard – 22.90 lux
- Minimum: Carpark – 6.00 lux, Yard – 6.00 lux,
- Uniformity: Carpark – 0.12 lux, Yard – 0.08 lux,

A formal lighting submission shall be made to Galway County Council prior to installation on site. Refer to Section 4.0 for further details.

3-0 ECOLOGY

Optics/ shields/ cowls shall be installed where necessary, in consideration of wildlife (e.g. bats) and to prevent unnecessary up lighting or illumination of nearby trees, buildings etc.

The site lighting design will be developed further during the detailed design stage, taking on board any further recommendations from the Ecologist/ LCC.

4-0 FUTURE DESIGN SUBMISSION TO GALWAY COUNTY COUNCIL

In accordance with Galway County Council Public Lighting requirements, a formal design submission, shall be made to Galway County Council for approval, prior to the installation of any public lighting, or associated columns/ poles, ducts etc. on site.

The formal submission will include the following, as required:

- Lighting performance modelling calculations by Lighting Reality® in soft format. The cover shall show:
 - The identity of the lighting designer;
 - The project name;
 - The lighting classification designed to;
 - The combined maintenance factor for the luminaire and how it was derived.
- Lighting Reality® report in PDF format.
- CAD drawing in soft format showing the following information:
 - The site boundary;
 - All landscaping details;
 - All services;
 - All private areas to be hatched and identified;
 - Individually numbered columns with icons of a size to allow accurate assessment of column positions;
 - PL Ducts and Cable Access Chambers;
 - Individually numbered micro pillar locations;
 - ESB cabinet locations;
 - Individually numbered single line circuit diagrams;
 - All duct, column foundation or any other detail shall only show LCC approved versions;
- Technical specifications for the proposed equipment, including TM21 and LM80 reports.
- Written details outlining the OEM warranty and the procedure for transferring warranty to GCC after the project is taken in charge.
- Voltage drop calculations for each circuit.
- Lantern details including number of LEDs and drive current must be provided.
- Energy calculations including the designed dimming regime.

APPENDIX I - 5237-BLD-100 PUBLIC LIGHTING LAYOUT

APPENDIX II - 5237-BLD-101 PUBLIC LIGHTING CALCULATIONS

APPENDIX III - 5237-BLD-102 REALITY LIGHTING CONTOURS