



PUBLIC LIGHTING

DESIGN CALCULATIONS REPORT

ESTUARY WAY

Rev: P01

Date: June 2024

LINKED PRACTICES

VARMING CONSULTING ENGINEERS LTD. ARE LINKED TO
STEENSEN VARMING INTERNATIONAL
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Project Details:

Project:	Estuary Way Housing Project
Client:	Cork City Council, City Hall, Anglesa St., Cork, Co. Cork
Architect:	O'Mahony Pike Architects, 1, S. Mall Cork, Co. Cork
M&E Consultant:	Varming Consulting Engineers 3, Eastgate Rd, Castlevew, Little Island, Co. Cork

ESTUARY WAY HOUSING PROJECT

1. Introduction:

This report will outline the design intent for the proposed public lighting scheme for the Estuary Way Housing Project, St. Michaels Drive, Mahon, Cork city.

This report outlines the lighting design 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

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
- Housing Scheme: Guidebook ESB Networks Standards for Electrical Services
- 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)
- Cork County Council Public Lighting Technical Specification.
- Cork City Council Exterior Lighting Design Requirements Revision 10

2. Development Description

The proposed development will consist of the construction of 38 no. temporary accommodation modular houses each with private garden and all associated site development works, services provision, road infrastructure, landscaping/public realm works & 15 no. car parking spaces (all on-street car parking spaces).

3. Design Concept

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.

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

4. Detailed Design

The design proposes to use 5 No. Luminaires mounted on 6m columns within the site all equipped with a wide street optical distribution beam.

Proposed luminaire design layout as per drawing 24XXX-VCE-ZZ-ZZ-DR-PL-0001

Public lighting will be turned on/off by a photocell mounted on luminaires.

Lighting Dialux Calculations:

Residential Lighting – Internal Road:

- The Average Horizontal Illuminance is 7.5 Lux ($E_m \geq 7.5$ Lux) P3 to be compliant.
Average achieved: 11 lx
The Minimum Horizontal Illuminance is 1.5 Lux ($E_{min} \geq 1.5$ Lux) P3 to be compliant.
Minimum Illuminance achieved: 2.26 lx
The Minimum Uniformity is 0.2 Lux ($U_0 \geq 0.2$) P2 to be compliant.
Uniformity achieved: 0.21

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Luminaires:

Type EX-1 Philips Luma BGP713 78W IP66 and IK09 Rated. Aluminium Die-cast Body
Lumen Output: 8600lm
Mounting height: 6m
No. in Project: 5
Residential Lighting


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5. Grid Results

5.1. Lux Isolines

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- Internal Road:



ISOLINES:

- 2.0 lx
- 4.0 lx
- 6.0 lx
- 8.0 lx
- 10.0 lx
- 12.0 lx
- 14.0 lx
- 16.0 lx