

AtkinsRéalis



CORK NORTHWEST REGENERATION; PHASE 3C

MEP Engineering Report & Energy Statement (Part L Requirement)

Cork City Council

27 March 2026

23 Units Housing Development & Associated Works

Contents

1.	Public Lighting Design	4
1.1	Public Lighting Design Standards	4
1.2	Health & Safety	5
1.3	General Public Lighting Design Requirement	5
1.3.1	Obtrusive Lighting	6
1.4	Lighting Classes	6
1.4.1	The Residential Areas	6
1.4.2	Car Parks	6
1.4.3	Pedestrian Crossings	7
1.4.4	Cycleways	7
1.5	Trees & Arboriculture	7
1.6	Public Lighting Layout	7
1.7	Access Chambers	7
2.	Existing Utility Infrastructure	8
2.1	Identification of Utilities	8
3.	Proposed Utilities	9
3.1	Standards	9
3.2	Electrical Infrastructure Preliminary Information (Phase 3C)	10
3.2.1	Primary Electrical Services	10
3.3	Gas Infrastructure (Phase 3C)	11
3.3.1	Standards	11
3.3.2	Preliminary Total Estimated Gas Load	11
3.3.3	Meter Strategy	11
4.	Energy Statement/Nearly Zero Energy Building (NZEB)	12
4.1	Energy Statement	13
4.2	E-Car Charging Provision	13
5.	Appendix A - Outdoor lighting report	15



1. Public Lighting Design

This section outlines the proposed public lighting schemes for the proposed residential housing development for City Northwest Quarter Regeneration (CNWQR) Phase 3C.

The public lighting system will be a very high quality, energy efficiency and future proofed road lighting for housing development in compliance with Cork City Council (CCC) requirements.

1.1 Public Lighting Design Standards

Each category of roads, footpath, cycle track of the site development will be designed to its own specific requirements, illuminance level and uniformity to meet the lighting class for each area. All works will comply with the latest editions of the relevant standards, in particular the works shall be designed to take full account of:

- BS EN 13201 part 2 – Road Lighting Performance requirements.
- BS EN 13201 Part 3 – Road Lighting Details calculation of performance.
- BS EN 13201 Part 4 – Details methods of measuring light performance.
- The Current British Standards for Road Lighting are BS 5489 and BS EN 13201.
- Cork City Council Exterior Lighting Design Requirement
- BS EN 60529 - Specification for Degrees of Protection for enclosures.
- BS EN 60598-2-3 - Luminaires for Road and Street Lighting.
- BS 5489 -1 - Code of Practice for the design of road lighting.
- BS EN ISO 1461 Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.
- IS EN 40-1 – Lighting Columns (Definitions and terms).
- IS EN 40-2- Lighting Columns (General requirements and dimensions).
- IS EN 40-3 - Lighting Columns (Design and verification and Verification by testing).
- IS EN 40-5 - Lighting Columns (Requirements for steel lighting columns).
- Roads Act, 1993. Road Traffic Act, 1994.
- Safety, Health and Welfare at Work Act 2005.
- Safety, Health and Welfare at Work Construction Regulations 2013.
- Building Control Act 2007.
- Road Traffic (Control of Traffic) Regulations 2006.



- ET 101 - National Rules for Electrical Installations published by ETCI.
- ET 211 - Code of Practice for Public Lighting Installations in Residential Areas published by ETCI.
- BS 7671 - Requirements for Electrical Installations. 7

Where a design standard has been revised, the latest edition will apply to all new lighting design / and installation.

1.2 Health & Safety

The attention of the Designer / Developer will be drawn to the obligations arising under the Safety, Health and Welfare at Work Act 2005 or latest approved version such as:

- Safety, Health and Welfare at Work (General Application) Regulations 2007 to 2012 or latest approved version.
- Safety, Health and Welfare at Work (Construction) regulations 2013 or latest approved version. Account will be taken of any traffic management measures that may be required during the installation of public lighting schemes including compliance with Chapter 8 of the Traffic Signals Manual published by the Department of Transport.

1.3 General Public Lighting Design Requirement

The site development public lighting installations will be designed by a competent public lighting engineer who has successfully completed the Institution of Lighting Professionals (ILP) Diploma in Exterior Lighting and is an active member of the Institution of Lighting Professionals, and as accepted by CCC public lighting department, to ensure that best practice is applied in the external lighting design of this residential development. This will include the requirement that public lighting schemes considers from junctions and traffic (both Pedestrian and Vehicular) conflict areas back i.e. T-junctions, pedestrian crossings, public and private car parking, as appropriate.

All new systems of public lighting of a new development will be designed and installed in accordance with the requirements and as accepted by CCC public lighting department.

The overall lighting requirements for a specific area will be identified within the British and European design code. This will then be expanded and refined to take account of an area's unique character and needs in terms of vehicular/ pedestrian activity, location of local amenities, etc by the design brief. However, generally the requirements of the specific design code as stated above in Public Lighting Standards will be met.

As a general rule, new luminaires will be of LED technology source although consideration to alternative light sources (particularly for the purposes of floodlighting) will be given where appropriate. Whether there may be situations in popular locations used heavily at night a higher level of illumination will be anticipated. For particularly sensitive vicinity locations it will be recommended to arrange for trial installations to demonstrate the effectiveness of the lighting and its impact on surrounding areas. All luminaires will be manufactured to a minimum of IP66 to BS EN 60590 for the lamp containment area and should be manufactured from vandal-resistant material. Lanterns will be designed and tested to provide a minimum normal operating life of 25years.



Construction of lighting columns and luminaire specifications shall comply with the CCC Public Lighting Manual and Product Specification 2021, the installation of schemes in residential areas guideline document. Lighting control and installation details shall also comply with the above document.

In determining levels of illumination, lighting positions and styles, the design brief will consider pedestrian and vehicular uses/needs in relation to the following:

- Areas of activity - Shops, School entrances, Creche entrance, Gym, bus stops (as appropriate), paths, etc and areas of conflict (junctions, etc).
- Building heights.
- Street features - crossing points, sitting areas, tree planting, pinch-points, materials / colours, etc.
- Ground form levels (important to people with disabilities), hazards, etc. Local knowledge, incidence of vandalism, accident black spots, etc.

1.3.1 Obtrusive Lighting

Considerations will be given to the restriction of obtrusive light by:

- The control of the type of light source Restricting the level of light emitted by the luminaire at high angles usually between 70 and 90 degrees.
- The use of full horizontal cut off luminaires for mounting heights above 6m will have a substantial effect on restricting obtrusive light. Similarly, the use of shallow bowl luminaires for mounting heights of 6m or less will help to reduce the overall level of obtrusive light produced by road lighting installations, but may add to the numbers of lighting units required
- Careful consideration will be given to the design, installation, and maintenance of any lighting systems adjacent to the site to reduce the risk of damaging the night sight of the transport operators or reducing the visibility of signaling equipment.

1.4 Lighting Classes

The lighting classes assigned to the various locations within the development are outlined below and detailed in the public lighting report provided in Appendix A.

1.4.1 The Residential Areas

Residential areas will be designed using an 'P4' illuminance class derived from BS EN 13201. General street lighting will be installed on 6m columns and 8m where required.

1.4.2 Car Parks

Car parks are to be lit in accordance with BS5489-1:2013, recommendation as outlined in the CIBSE Lighting Guide and 'Secure by Design' guidance. The maintained illuminance level for the Car Park is proposed 20 lux. Car park luminaires will be installed on 6m columns and 8m where required. Group switching of car park lighting will be facilitated via an astro-timer and photocell and a suitably rated contactor located within a dedicated feeder pillar.



1.4.3 Pedestrian Crossings

Pedestrian crossings will be lit in accordance with BS5489-1:2013 and ILP Technical Report 12.

The maintained illuminance level for the pedestrian crossing is proposed as follows:

- Average vertical illuminance on this axis of pedestrian crossing at a height of 1m: $E_v \geq 40$ lux
- Uniformity of vertical illuminance on lane in front of the driver ($E_{v \min}/E_{v \text{ av}}$): 0.20
- Average horizontal illuminance on pedestrian crossing at ground level: $E_h \geq 80$ lux
- Uniformity of horizontal illuminance ($E_{h \min}/E_{h \text{ av}}$): 0.30

Traffic route lighting and lighting of residential estates will be powered by local minipillars.

1.4.4 Cycleways

Cycleways will be lit in accordance with BS5489-1:2013 and BSEN 13201-2. Lighting columns positioned on cycleways will be set back a minimum of 0.5m to avoid contact with handlebars. Where the cycleway cannot be accessed by an elevated platform, raising and lowering columns will be installed. Raising and lowering columns shall be orientated so that the lantern head can be lowered safely without obstruction and, when in its collapsed position, shall not cause an obstruction to road users and pedestrians.

1.5 Trees & Arboriculture

Trees and other vegetation will not impede the functions of public lighting units. A separation of 5 metres between the lighting column and the outside of the crown will be allowed for the lighting to work as designed. Trees or vegetation will not be planted within 7 metres of a public light column.

The design will take into consideration the layout of the proposed public lighting column locations and the proposed landscape design. Both layouts will be coordinated to achieve the 7 metres separation between all trees and public lighting columns.

1.6 Public Lighting Layout

The public lighting layout is detailed in the public lighting report provided in Appendix A and on drawing number: CNW P3B-ATK-P3B-ZODR-E-961300.

1.7 Access Chambers

Where appropriate, the access chambers for the site will be selected as per the table below standards and as appropriate.



Table – Chamber Type Description

Item	Chamber Type	Chamber Description
01	Large Inspection Chambers	All access chamber covers on the footpath to cater for a change of direction are proposed to be ductile iron with galvanized steel frame with frame opening 615mm x 615 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt
02	Medium Inspection Chambers	Access chamber covers on the footpath for straight through services are proposed to be ductile iron with galvanized steel frame with frame opening 720mm x 260 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt.
03	Small Inspection Chambers	Access chamber covers on the footpath for columnconnections shall be ductile iron with galvanized steel frame with frame opening 385mm x 260 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt or similar approved

2. Existing Utility Infrastructure

2.1 Identification of Utilities

A desk study of records from various utility companies was undertaken and the following utility holders were contacted, and records obtained / converted into digital format:

- Irish Water (Foul and Watermain)
- ESB Networks
- Gas Networks Ireland (Transmission)
- Gas Networks Ireland (Distribution)



- Virgin Media
- BT
- Eir
- eNet

During the construction phases of the project, realignment, upgrade and replacement of services and utilities will be required in conjunction with and to accommodate the proposed works. These works will include:

- Minor utility diversions in the region of the proposed junction as required
- Provision of new services to provide connections to the proposed development as per the overall masterplan designs

3. Proposed Utilities

This section outlines the proposed MEP utilities schemes for the proposed residential development on lands at City Northwest Quarter Regeneration (CNWQR) Phase 3C. The Gas, Electricity and IT communications system will be designed and installed to the current guidelines.

3.1 Standards

All works will comply with the latest editions of the relevant standards, in particular the works shall be designed to take full account of:

- Safety, Health and Welfare at Work Act 2005.
- Safety, Health and Welfare at Work Construction Regulations 2013.
- National Rules for Electrical Installations 4th Edition ET 101: 2008, including amendments, published by the Electro-Technical Council of Ireland (ETCI).
- Code of Practice for the Design, Selection and Erection of LV Switchboards for Residential Applications: ET 208: 2000 published by the ETCI.
- Code of Practice for Customer Interface, current edition published by ESB Networks (ESBN).
- ELECTRICAL SERVICES GUIDEBOOK – Housing Schemes, current edition published by ESB Networks.
- The Building Regulations published by the Department of Environment, Heritage and Local Government (DOEHLG).
- Code of Practice for Avoiding Danger from Underground Services published by the Health and Safety Authority (H.S.A.).
- Criteria document Cer/08/071 and any other requirements specified by the Commission for Energy Regulation (CER).



- BS 7671 - Requirements for Electrical Installations.

3.2 Electrical Infrastructure Preliminary Information (Phase 3C)

3.2.1 Primary Electrical Services

The total site electrical load is to be supplied by ESB Networks with a maximum estimated demand load of in the range of 560kVA (approximately).

The main ESB power cable will be buried in ducts or direct buried and specified as multicore XLPE/SWA/PVC. The electricity supply to each dwelling via standard ESB Networks standard LV minipillars scattered around the site.

Clarification:

The total estimated power electrical load for the phase 3C development have been based on BSRIA / Rules of Thumb Guidelines for building services (5th Edition) - CIBSE / Energy Benchmarks.

- A figure of 84(W/m²) is allowed for landlord areas. The figure is expressed in W/m² NIA, based on a net to gross ratio of 80% and mechanical power for plantrooms requirements (Rules of thumbs 5th edition / Energy Benchmarks).
- Predicting Electrical Future Load Growth - 10% power load growth factor is considered regarding future power expansion for the building associated with Building expansion and function of the building or facilities and Equipment technology within the building.
- Renewable Energy - Based on the Heat pumps systems.
- Rule of Thumb - Flats / Apartments 80(w/m²) electrical load. Note, Flat or apartment 7.5kw is employed with all electrical cooking and heating via heat pumps.
- Every house which has a parking space on curtilage to be allow for a possible charging point. 20% of visitor spaces to allow for a possible charging point. Within the apartment Blocks, 20% of spaces to allow for a possible charging point with capacity to bring this up to 50%.
- The target efficiency for the apartment Blocks is 75% gross to net.
- Houses and Apartment Blocks heating and domestic hot water production will be achieved with individual heat pumps.
- Apartments can be assumed as 60sqm for 1-bed, 85 sqm for 2-beds and 110 sqm for 3 beds.
- Allowances to be made for EV charging points for future proofing and based on a minimum charging power per active charging station.



3.3 Gas Infrastructure (Phase 3C)

This section outlines the proposed Gas utilities schemes for the proposed residential development on lands at City Northwest Quarter Regeneration (CNWQR) Phase 3C. The gas system will be designed and installed in accordance with the current guidelines, standards and industry regulations.

3.3.1 Standards

All works will comply with the latest editions of the relevant standards, in particular the works shall be designed to take full account of:

General

- Safety, Health and Welfare at Work Act 2005.
- Safety, Health and Welfare at Work Construction Regulations 2013.

For gas and main services

- Code of Practice for Gas Distribution Mains I.S. 329
- Installation of Gas Service Pipes I.S. 265
- Gas Infrastructure – Pipelines for maximum operating pressure up to and including 16 bar SR 12007-5
- Gas Supply Systems – Natural Gas Measuring Stations I.S. EN 1776
- Gas Pressure Testing, Commissioning and Decommissioning Procedures I.S. EN 12327#
- Gas infrastructure - Gas installation pipework I.S./ EN15001-2
- Gas Pressure Regulating Stations for Distribution I.S 821

For downstream of the meter

- Non-Domestic Gas Installations I.S. 820

3.3.2 Preliminary Total Estimated Gas Load

The total estimated gas load for the development were based: -

- BSRIA / Rules of Thumb Guidelines for building services (5th Edition) - CIBSE / Energy Benchmarks are used to determine estimated total electrical load requirements.

3.3.3 Meter Strategy

Single Occupancy Dwellings - The meters supplying the dwelling will be located outside the building



4. Energy Statement/Nearly Zero Energy Building (NZEB)

The NZEB standard will apply to all buildings owned and occupied as refer to Department of Housing, Planning and Local Government and as per the building regulations and DEAP methodology. This will be equivalent to a 25% improvement in energy performance on the 2011 Building Regulations.

The key to Part L for NZEB compliance will include a Maximum Energy Performance Coefficient of 0.3, a Maximum Carbon Performance of 0.35 and a renewable Energy Ratio of 20%.

The cost optimal level is a primary energy performance of less than 125 kWh/m²/yr, when calculated using DEAP or upgrade of roof insulation and heating system. The nearly zero or very low amount of energy required will be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby.

Proposed minimum threshold level compliance achieved with TGD L Dwellings as indicated below Fig 1:

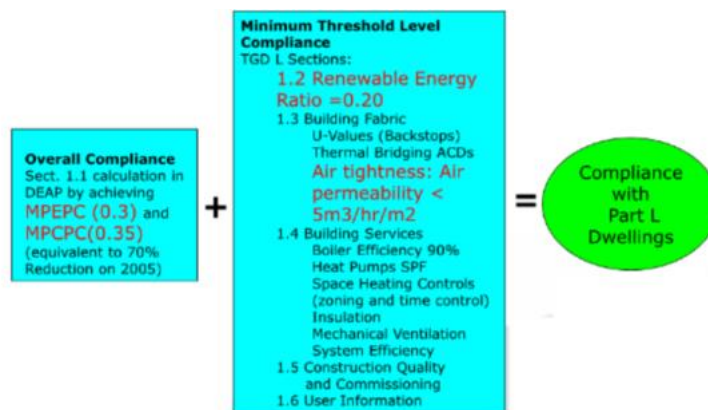


Figure 1 – Minimum Threshold Level Compliance

The design for the dwellings and apartments will include:

- LED lighting accounted for in DEAP (A+ bulbs, 94 lumen/cW, 4 W/m²)
- Efficient hot water uses in showers/taps accounted for in DEAP (125 l/p/d and 6l/min flow restrictor)
- Individual heat pumps for space heating and hot water production
- Mechanical ventilation for houses and apartment

4.1 Energy Statement

The proposed design strategy will ensure sustainable energy efficiency to ensure low running cost of use and consideration of green energy.

Some of considerations are listed below:

- Most of houses have been designed to have a compact and efficient form, such as semidetached building formations limiting the heat loss and, where appropriate, availing of the heat gains through the fabric of the building
- Highly insulated external building façade
- Materials with long time life expectancy and low embodied energy.
- Consideration of water saving measures including water saving devices and controls and limiting the heat loss from pipes, ducts and vessels used for the transport or storage of heated water or air.
- Providing energy efficient space heating and cooling systems, heating and cooling equipment, water heating systems, and ventilation systems, with effective controls.
- Providing energy efficient artificial lighting systems (LED) and adequate control of public and internal lighting systems.
- The guidance of the MEP design in compliance with Building Regulations Part L recommendations for conservation of fuel and energy setting of minimum energy performance requirements for building to achieve the Nearly Zero Energy Building, providing that the energy performance of the building is such as to limit the calculated primary energy consumption and related Carbon Dioxide (CO₂) emissions as is reasonably practicable.
- Limitation of Carbon Dioxide (CO₂) emissions to a Nearly Zero Energy Building level insofar as is reasonably practicable of for Landlord areas/ and Non-domestic buildings using the Non-domestic Energy Assessment Procedure (NEAP) published by Sustainable Energy Authority of Ireland.
- Ensuring that when a building element that forms part of the building envelope and has a significant impact on the energy performance of the building envelope, and the energy performance of the building element meets minimum energy performance requirements, functionally and economically feasible.
- The energy performance of each house/ and apartment will comply with the requirement of Part L building regulations and achieving no lower than a BER of A2.
- System design that provides to the building owner or occupants sufficient information about the building, the fixed building services, controls and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and energy than is reasonable.

4.2 E-Car Charging Provision

If required Electrical Car (E-Car) charging points will be provided in accordance with CCC Development Plan 2016-2022.



APPENDICES

5. Appendix A - Outdoor lighting report

DATE:	17 February 2026	LIGHTING REALITY
DESIGNER:	AJ	
PROJECT No:	0119710	
PROJECT NAME:	CNWQR Cork Housing Estate P3C	

- Primary streets are designed in accordance with EN13201-2:2015 to category P2.
- Secondary streets are designed in accordance with EN13201-2:2015 to category P3.
- Footpaths are designed in accordance with EN13201-2:2015 to minimum category P4.

Maintenance factor 0.88

Outdoor Lighting Report

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	565474.89	572992.34	182.38	84.75	1.49	1.49
2	Grid 2	565537.58	573000.25	60.07	67.29	1.47	1.50
3	Grid 3	565630.43	573043.75	13.43	59.52	1.49	1.49
4	Grid 4	565612.04	573034.91	21.58	56.07	1.44	1.48
5	Grid 5	565599.58	573013.01	27.62	23.61	1.45	1.48
6	Grid 6	565474.84	573013.81	60.61	33.06	1.48	1.44

Luminaires



Luminaire A Data

Supplier	C U Photos
Type	E96-26-P6A-730-02075-12W
Lamp(s)	7305A
Lamp Flux (klm)	1.84
File Name	E96-26-P6A-730-02075-12W.klx
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	88.5, 171.3, 0.0
No. in Project	25



Luminaire B Data

Supplier	C U Photos
Type	E96-26-P6P-730-02075-12W
Lamp(s)	7305A
Lamp Flux (klm)	1.28
File Name	E96-26-P6P-730-02075-12W.klx
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	66.3, 132.3, 0.7
No. in Project	12

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target	Target	Target
									X	Y	Z
1	A	565480.24	573028.04	8.00	51.00	0.00	0.00	0.40			
2	A	565487.37	573038.89	8.00	243.00	0.00	0.00	0.40			
3	A	565493.74	573025.62	8.00	91.00	0.00	0.00	0.40			
4	A	565508.57	573039.34	8.00	267.00	0.00	0.00	0.40			
5	A	565523.65	573024.62	8.00	89.00	0.00	0.00	0.40			
6	A	565532.81	573025.19	8.00	45.00	0.00	0.00	0.40			
7	A	565546.84	573017.59	8.00	233.00	0.00	0.00	0.40			
8	A	565552.38	573002.94	8.00	61.00	0.00	0.00	1.00			
9	A	565531.44	573041.24	8.00	326.00	0.00	0.00	0.40			
10	A	565547.30	573045.92	8.00	138.00	0.00	0.00	0.40			
11	A	565556.71	573056.79	8.00	138.00	0.00	0.00	0.40			
12	A	565562.22	573071.86	8.00	317.00	0.00	0.00	0.40			
13	A	565576.48	573059.86	8.00	43.00	0.00	0.00	0.40			
14	A	565585.36	573051.81	8.00	53.00	0.00	0.00	0.40			
15	A	565602.61	573043.22	8.00	221.00	0.00	0.00	0.40			

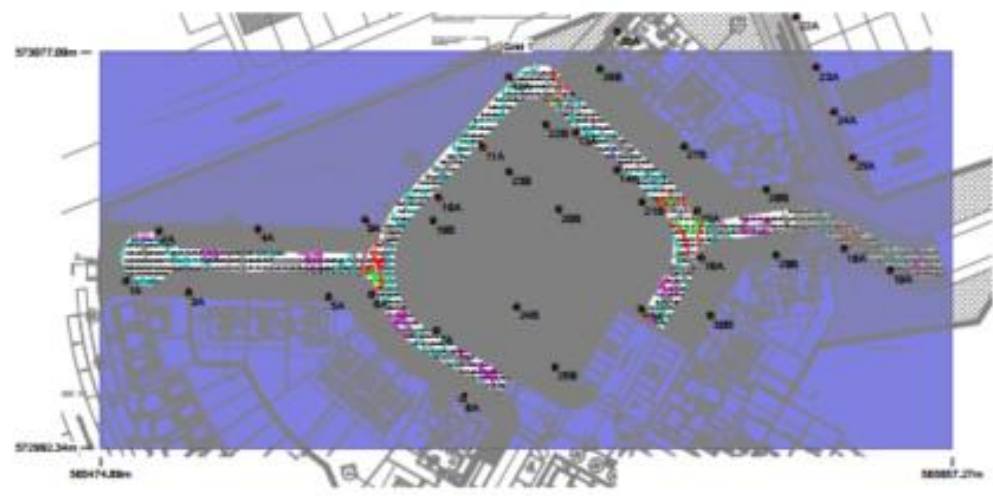
Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Can	Out-reach	Target X	Target Y	Target Z
16	A	565603.54	573033.11	8.00	171.00	0.00	0.00	0.40			
18	A	565634.02	573035.02	8.00	63.00	0.00	0.00	0.40			
19	B	565546.00	573041.15	6.00	276.00	0.00	0.00	0.40			
20	B	565572.95	573043.57	6.00	276.00	0.00	0.00	0.40			
21	B	565590.76	573045.14	6.00	276.00	0.00	0.00	0.40			
22	B	565570.24	573061.54	6.00	138.00	0.00	0.00	0.40			
23	B	565562.39	573051.48	6.00	157.00	0.00	0.00	0.40			
24	B	565564.01	573022.63	6.00	204.00	0.00	0.00	0.40			
25	B	565572.21	573009.75	6.00	239.00	0.00	0.00	0.40			
26	B	565581.82	573073.57	6.00	225.00	0.00	0.00	0.40			
27	B	565599.88	573056.98	6.00	225.00	0.00	0.00	0.40			
28	B	565617.35	573047.82	6.00	278.00	0.00	0.00	0.40			
29	B	565619.51	573033.58	6.00	102.00	0.00	0.00	0.40			
30	B	565605.52	573020.72	6.00	148.00	0.00	0.00	0.40			
19	A	565643.91	573030.33	8.00	73.00	0.00	0.00	0.40			
17	A	565590.58	573022.17	8.00	330.00	0.00	0.00	0.40			
25	A	565635.97	573054.53	8.00	206.00	0.00	0.00	0.40			
24	A	565632.01	573064.40	8.00	201.00	0.00	0.00	0.40			
23	A	565628.17	573073.92	8.00	199.00	0.00	0.00	0.40			
22	A	565623.90	573084.74	8.00	201.00	0.00	0.00	0.40			
21	A	565619.47	573095.30	8.00	199.00	0.00	0.00	0.40			
20	A	565585.59	573081.42	8.00	138.00	0.00	0.00	0.40			



Horizontal Illuminance (lux)

Grid 1

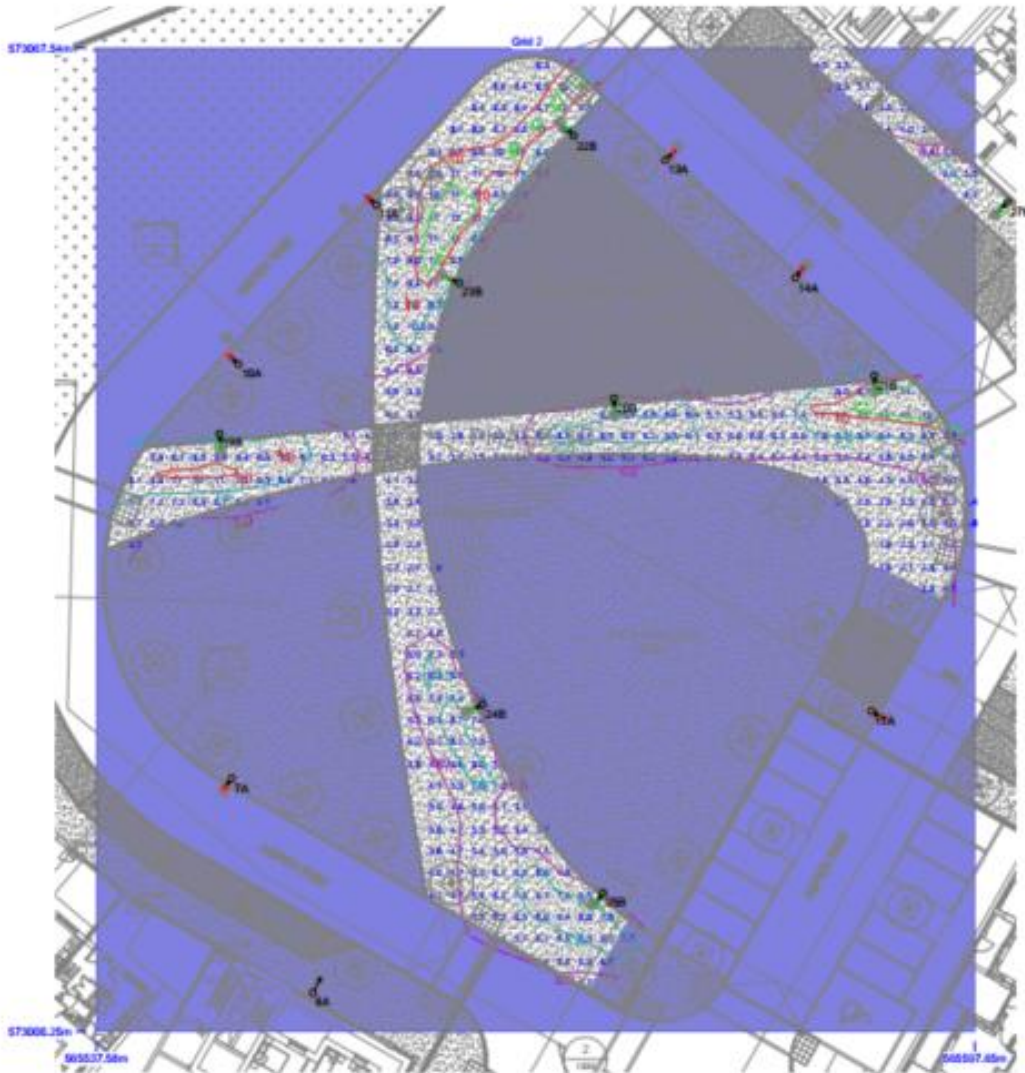


Results

Eav	7.50
Emin	2.37
E _{max}	14.70
Emin/E _{max}	0.16
Emin/Eav	0.32

Horizontal Illuminance (lux)

Grid 2



Results

Eav	6.52
Emin	1.65
Emax	13.02
Emin/Emax	0.13
Emin/Eav	0.25

Horizontal Illuminance (lux)

Grid 3

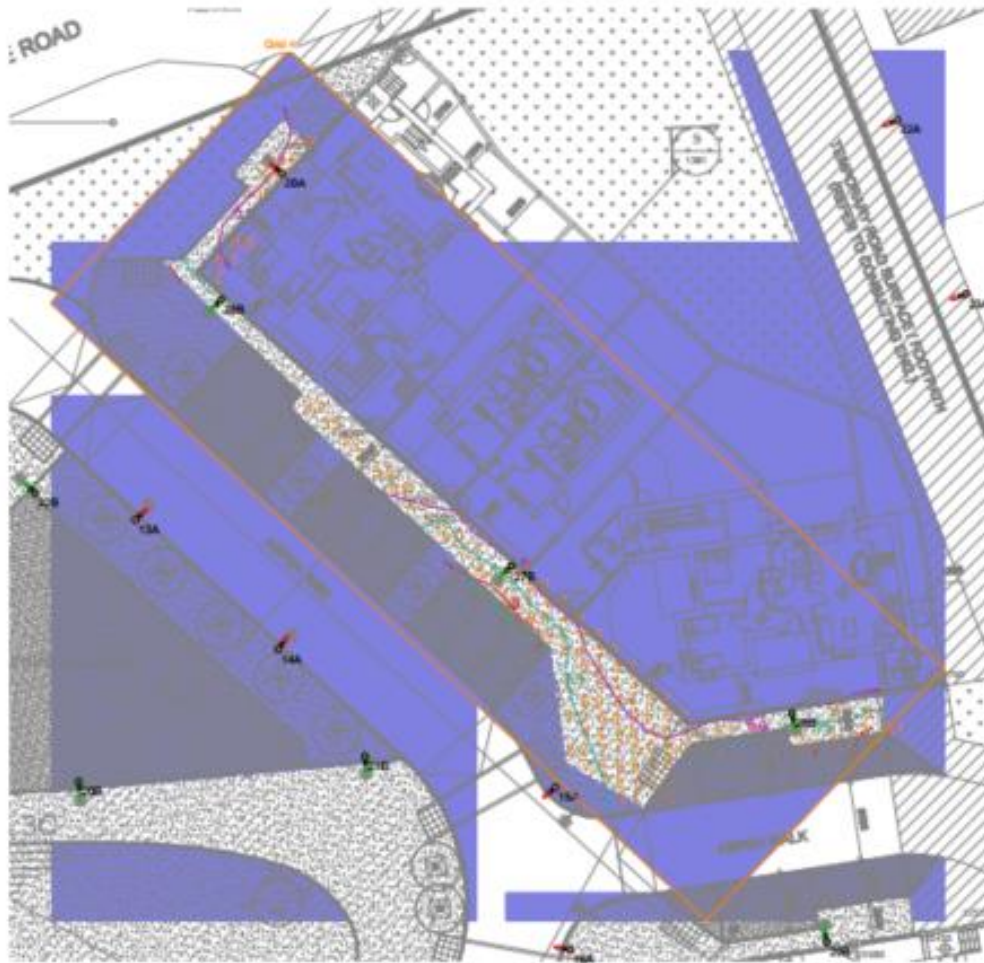


Results

Eav	7.56
Emin	2.92
Emax	10.39
Emin/Emax	0.28
Emin/Eav	0.39

Horizontal Illuminance (lux)

Grid 4



Results

Eav	6.09
Emin	3.25
E _{max}	10.65
E _{min} /E _{max}	0.30
E _{min} /E _{av}	0.53

Horizontal Illuminance (lux)

Grid 6



Results

Eav	5.65
Emin	1.91
Emax	11.62
Emin/Emax	0.16
Emin/Eav	0.34

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