KINGDOM HALL OF JEHOVAH'S WITNESSES
BLAZEGATE
GEDNEY
SPALDING
PE12 0AD

AMENITY LIGHTING ASSESSMENT

Prepared by,

Colin Johnson
Remote Engineering Group 4

1.0 DOCUMENT HISTORY

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2.0 DETAILS OF SITE

Kingdom Hall of Jehovah's Witnesses
Blazegate
Gedney
SPALDING
PE12 0AD

3.0 THE NEED FOR EXTERNAL LIGHTING

The regulations require developers to consider the need for lighting and if it proves to be necessary to design the installation in accordance with various regulations, codes of practice and recommendations.

By reasons of its function this development at the Kingdom Hall in Blazegate requires external lighting to provide safe access outside of normal daylight hours.

The hall itself is approached by an unlit drive and the main entrance has no lighting despite it being on bridge over a brook.

The car park also is poorly lit and there have been 'near misses' whilst cars have been manoeuvring at night.

The religious building is likely to remain in use into the evening on weekdays and weekends.

4.0 PURPOSE OF THE LIGHTING INSTALLATION.

The lighting installation is designed to provide the following benefits.

- Safe access and egress for users of the drive
- Safe access and egress for vehicles entering and leaving the car park
- Safe access and egress for pedestrians including wheelchair users around the site
- Out of hours security lighting.

5.0 FACTORS INFLUENCING THE LIGHTING DESIGN

The applicants are aware that a poorly designed or over designed external lighting installation can lead to skyglow which shuts out the splendour of the night sky, lighting apparatus can spoil daytime views cause glare and dazzle with safety implications for motorists and pedestrians, particularly the elderly.
In addition, light spill or trespass may impinge directly neighbours' property, destroying their sense of privacy and interfering with people's ability to sleep.

6.0 BASELINE ASSESSMENT

The baseline assessment involves gathering, mapping and analyzing information about the locality.
In this case the site is rural in a generally unlit area. There is an adjoining residential property.
Consequently, there is a need to consider the effects of the lighting installation on the rural landscape, wildlife or conservation areas.
The lighting is required to be in sympathy with the surrounding areas, not to introduce unwanted illumination into nearby properties and to conform to the requirements of the local authority.
In addition, the installation should not distract traffic on surrounding roads.

7.0 REGULATIONS, STANDARDS AND CODES OF PRACTICE.

The installation shall be designed to or take account of the following national and European documents which relate to lighting the external environment

7.1 Relevant publications and standards

Relevant publications and standards		
Organisation	**Ref**	**Description**
Institution of Lighting Engineers		Guidance Notes for the Reduction of Light Pollution, 2000
British Standards	BS 5489	Road Lighting
CIE Publications:	01	Guide lines for minimizing Urban Sky Glow near Astronomical Observatories (1980)
	83	Guide for the lighting of sports events for colour television and film systems (1989)
	92	Guide for floodlighting (1992)
	115	Recommendations for the lighting of roads for motor and pedestrian traffic (1995)
	126	Guidelines for minimizing Skyglow (1997)
	129	Guide for lighting exterior work areas (1998)
	136	Guide to the lighting of urban areas (2000
	LC1	Code for interior lighting (1994)
CIBSE Lighting Guides:	LG2	The Industrial Environment (1989)
	LG3	Sports (1990)
	LG6	The Exterior Environment (1992
Department of Transport		Road Lighting, and the Environment (1993)
Countryside commission/DOE		Lighting in the Countryside: Towards good practice (1997)
ILE Technical Reports	TR5	Brightness of Illuminated Advertisements (1991)
	CP2	Lasers, Festival and Entertainment Lighting Code (1995)
	TR24	A Practical Guide to the Development of a Public Lighting Policy for Local Authorities (1999)
		Domestic Security Lighting, Friend or Foe
ILE/CIBSE		Lighting the Environment - A guide to good urban lighting

8.0 IMPACT PREDICTION

The design considers the impacts of lighting on different potential receptors of landscape, visual and other forms of impact.

Impact assessment	
Potential Receptors	**Mitigation measures**
Features of historical or wildlife interest, such as conservation areas, listed buildings, nature reserves or known populations of rare species;	Deploy luminaires with zero upward illumination components, limit wattage of lamps, Careful design.
Dark landscapes, AONBs & National Parks	
Skylines, key views, and landscape character generally	
Local residents, especially where bedrooms may be affected by increased light levels at night	Deploy luminaires with zero upward illumination components, limit wattage of lamps. Automatic control system to extinguish lighting when not in use
Astronomers, including local observers and astronomical societies, as well as any scientific Observatories.	
Motorists, cyclists and pedestrians, together with any traffic lights, junctions or transport signalling systems in the locality.	

9.0 DESIGN

The design considers the following criteria

The number, location and height of the proposed lighting columns or other fixtures
The type, number, mounting height and alignment of the luminaires
The beam angles and upward waste light ratio for each light
Specification and colour treatment for lamps and luminaires
Light levels & the need for full horizontal cut-off
No distraction to the highway
Levels of impact on nearby dwellings
Use of planting and bunding to contain lighting effects

The above criterion are addressed and discussed in subsequent clauses of this document and demonstrated on the site isolux diagram showing the predicted illuminance levels at critical hours of illumination

9.1 The number, location and height of the proposed lighting columns or other fixtures

The installation includes the following luminaire types :-

9.1.1 Wall mounted amenity luminaries

The proposed fitting is *typically* the ASD HORIZON wall mounting luminaire. The 'ASD HORIZON wall mount blends with surrounding architecture by day whilst maintaining efficient illumination at night. Designed for low to medium mounting heights, the compact ASD HORIZON luminaire offers exceptional performance characteristics for a highly effective solution for wall mounted applications. The latest in control gear and LED lamp technology, coupled with a precisely engineered refractive lens and preanodised reflector assembly, achieve maximum performance combined with high efficiency.

9.1.2 Pole mounted luminaires

The proposed fitting will be *typically* the INDO AIR luminaire. The INDO AIR1 is a revolutionary LED luminaire designedfor a multitude of applications. Using INDO's latest Direct Drive® technology the product has no LED driver, resulting in an excellent full product life, set by the LEDs themselves.
The unique casting (with no moving parts) is constructed from marine grade aluminium providing effective thermal management and a robust luminaire structure.

The luminaire provides 145 lumens per watt and the design of the optics ensures that unwanted light stray in kept to an absolute minimum.

9.2 **The number, mounting height and alignment of the luminaires**

The quantity of luminaires has been kept to an absolute minimum whilst maintaining the recommended illuminance levels.

CAR PARK LIGHTING EQUIPMENT			
Qty	**Type ref**	**Part No**	**Description**
8	A	INDO AIR 1 with 76mm adaptor	LED floodlight on 5m pole
11	B	HR3/BLP4LED1800M ASD HORIZON OPAL PLAIN 4000K LED 1800 TRIDONIC EM3	Bulkhead luminaire at 3m AFFL

9.3 **The beam angles and upward waste light ratio for each light**

The luminaires shall be oriented to direct light only where it is needed and to minimise spill into adjacent areas and into the sky.

9.4 **Specification and colour treatment for lamps and luminaires**

The lamps selected deliver good colour rendering and high efficacy in terms of Lumens per Watt. The output of a typical tungsten GLS lamp is shown for reference and comparison purposes only.

Properties of lamps				
Type	**Lamp**	**Power**	**Colour rendering**	**Lumens per watt**
Standard GLS	60W	60W	Good	13.0
Type A	LED	500mA	Excellent	145.00
Type B	LED	17W	Excellent	66.65

10.0 LIGHT LEVELS EXPECTED

Please refer to the ioslux diagrams and table for full details of the illuminance levels achieved.

Referring to the isolux diagram the following approximate illuminaces will prevail.

Lighting levels per area					
Area	**Avg Lm**	**Max Lm**	**Min Lm**	**Uniformity**	**Diversity**
Car Park	5.73	13.00	1.18	0.32	NA
Drive	8.95	17.32	2.98	0.35	NA

The illuminance levels are appropriate for the use of the space and conform to the guidelines of the standards, codes of practice and recommendations of the national and European regulating bodies.

Referring to the isolux diagram and the table above demonstrates that the horizontal cut off is good minimizing light spill into adjacent areas.

10.1 **No distraction to the highway**

Referring to the isolux diagram and the table above demonstrates that the horizontal cut off is good minimizing light spill into the adjacent highway.

10.2 **Levels of impact on nearby dwellings**

Referring to the isolux diagram in a subsequent part of the report and the table above demonstrates that the horizontal cut off is good minimizing light spill into nearby dwellings.

11.0 CONTROL OF THE EXTERNAL LIGHTING INSTALLATION

11.1 **General**

Control of the installation is vital for good energy management and to achieve the requirements of the various regulations and codes of practice.
For the above reasons each group of luminaires shall be wired on separate circuits each with a set of adjustable controls which will allow the site owner to tailor the performance of the system to meet the needs of users and to protect the site out of hours against intruders
The 3 circuits are described below

11.2 **Car park and entrance drive lighting**

The operation of the car park and drive lighting shall be automatic and shall operate as follows.

A photocell (existing) shall enable a PIR fitted on the corner of the hall facing the drive (see drawings). As a vehicle is detected entering the site the PIR shall turn on the car park lighting.

A new presence sensor installed in the entrance foyer shall override the PIR to hold on the lighting whist the hall is occupied.

The new presence sensor shall be set to turn off the lighting when the last person has left the hall and after a time delay to allow him to reach the entrance gates for locking up.

11.3 **Security lighting**

Certain luminaires over entrances to remain ON during hours of darkness

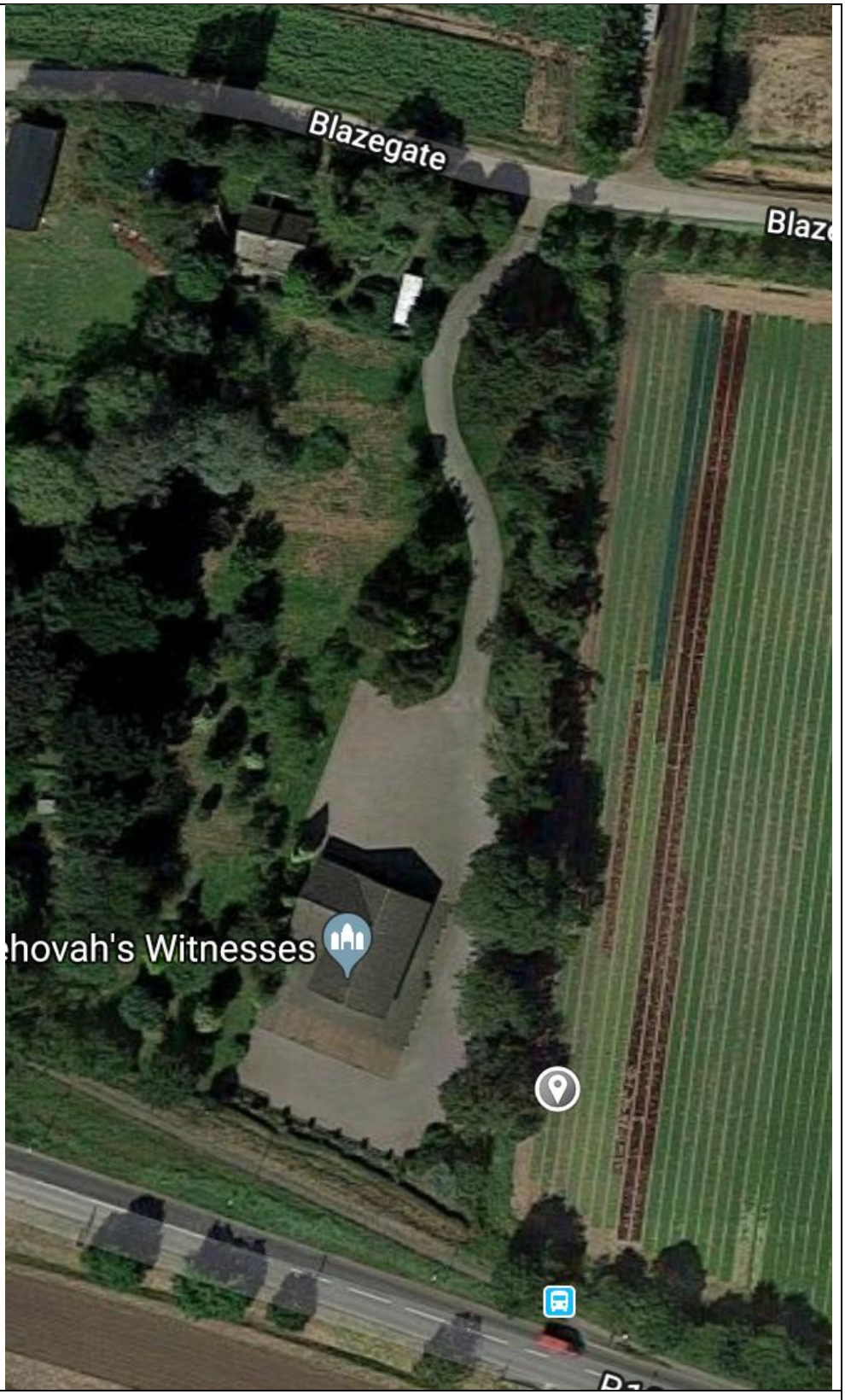
12.0 CONCLUSIONS

The foregoing demonstrates that the external lighting installation is compliant with the requirements of the regulations with respect to lighting the urban & rural environment.

13.0 SITE PLAN

14.0 APPENDIX A – SITE PHOTOGRAPHS

14.1 Aerial view



AERIAL VIEW OF THE SITE

15.0 DETAILS OF PROPOSED LUMINAIRES TYPE B (TYPICAL ONLY)

15.1 ASD Amenity luminaires (Installed on the building)

HORIZON RANGE

Available in LED

Available in CFL



Horizon Plain



Horizon Louvre



Horizon Eyelid



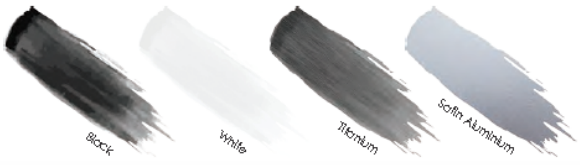
Horizon Cage

A comprehensive range of attractive, vandal resistant luminaires suitable for internal and external use.

Designed for use where the aesthetics of the lighting scheme and a robust construction are of paramount consideration. Available in two base sizes, the range offers a host of lamp, LED and operating options. The range also offers a 353mm metal based version which has multiple side entries to suit a variety of installations. The fittings are provided with a plain opal diffuser. Options are also available with cage, eyelid or louvre fascia to reduce upward glare, providing greater direction and emphasis of illumination to architectural and design environments.

- 283mm and 353mm base.
- Various lamp options + LED options.
- Screw down cover.
- Anti-tamper screws available.
- IP65.
- Simple installation.
- Photocell version available (external use only).
- PIR versions available.
- HI-LO PIR (luminaire at 10% during periods of inactivity, 100% light output when HI-LO PIR detects movement).
- eMotion™ options (internal only).
- Opal or Fresnel diffuser.

Colour finish options



LED / Lamp Types
- 28W & 38W 4-Pin. 3500K. GR10 Cap.
- B22 GLS (lamp not included).
- 16W 2D 4-Pin. 3500K. GR8 Cap.
- 21W 2D 4-Pin. 3500K. GR10 Cap.
- LED options.

Materials
- Body: 283mm/353mm vandal resistant polycarbonate self-extinguishing fire properties in black / white / titanium.
- Diffuser/Fascia Ring: Vandal resistant polycarbonate in opal with self-extinguishing fire properties.
- Diffuser 2: (353mm circular) Vandal resistant polycarbonate clear fresnel lens with self extinguishing fire properties.
- Die cast aluminium option available (HR3 only).

Installation
- Wall or ceiling mount.
- BESA fixing and rear cable entry. 3 way mains terminal block. 4 way terminal block for emergency versions & photocell.
- Screw down lid.
- Photocell version - external use only.
- HI-LO PIR - 100% light output, dims to 10% during periods of inactivity.
- 2 x Conduit entry points (mini version only).

Standards
- IP65.
- "F" Mark.
- CE.
- BS EN 60598.
- Class I.

15.2 Details of Car park LED lanterns TYPE A (Typical only)

Road

INDO Products – Road Specifications

AIR1



Features

- **Direct Drive® technology**
- Streamlined & super lightweight
- No hinges, clips or lids
- Marine grade aluminium body
- Highly durable and robust
- Efficient thermal management
- CMS compatible
- LED efficacy 145 lm/W
- Soft start function

Applications

- Residential road
- Car parks
- Train station
- Facilities
- Town centre

INDO code explained

RDA1 • 0030 • 4 • UNI • I3 • F • SW • 7040

Model | Lamp/ Power (W) | Colour temperature | Mounting | Control | Dimming | Lens type | Luminaire colour

Stocked product code

RDA1.0030.4.UNI.I3.F.SW.7040

Product codes – *please choose your specifications*

Model	Product code
AIR1	RDA1

Wattage/ Nominal Flux**	Product code
10W (1067)	0010
15W* (1600)	0015*
20W (2133)	0020
25W (2667)	0025
30W* (3200)	0030*
35W (3600)	0035
40W (4000)	0040

Colour temperature	Product code
3000K	3
4000K*	4*
5000K	5

Mounting	Product code
Post Top 60-76mm/ Side Entry 34-42mm	UNI

*If 48-60mm mounting is needed, this is ordered as a separate item****

Control	Product code
NEMA (3-pin)	N
Integrated cell 20/20	I2
Integrated cell 35/18*	I3*
Mini cell 20/20	2
Mini cell 35/18	3
20 mm pre-drilled	C

Dimming	Product code
Fixed	F

Lens type	Product code
1C optic	1C
SW optic*	SW*
SWA optic	SWA
SWB optic	SWB
A1 (60°) optic	A1
A2 (90°) optic	A2
A3 (asymmetric) optic	A3

Luminaire colour (RAL)	Product code
RAL7040*	7040*
RAL9005*	9005*
Other RAL colours available on request, subject to minimum order volumes	xxxx

** Denotes standard product variants that are available from stock, giving you shorter lead times. Non-standard options are available but please check with us for lead times and pricing*

Road

INDO Products – Road Specifications

AIR1 Product Overview

The INDO AIR1 is a revolutionary LED luminaire designed for a multitude of applications. Using INDO's latest Direct Drive® technology the product has no LED driver, resulting in an excellent full product life, set by the LEDs themselves. The unique casting (with no moving parts) is constructed from marine grade aluminium providing effective thermal management and a robust luminaire structure.

Despite its robustness, the luminaire is extremely light at 3.1kg and the sleek design results in minimal column loading, (especially important where existing columns have limited life). Combined with the multiple mounting options available as standard, this makes the AIR extremely easy for a single operator to install.

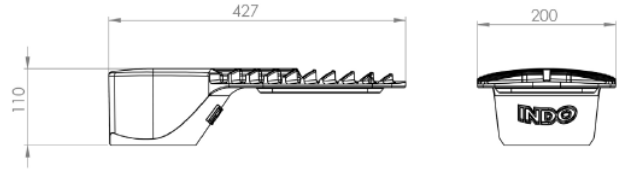
The AIR is supplied in fully recycled and recyclable packaging, with two luminaires in each box. Robust inserts are used and can be easily flattened following installation for recycling or return. A total of 160 luminaires are packed onto a single pallet, providing an efficient solution for stores management.

Technical Specifications

Input voltage range	195-265 V @ 50/60Hz
Ambient operating temperature	–20°C (min) – +40°C (max)
Weight (Gross/Net weight)	3.5kg / 3.1kg
Windage	0.025m²
Standard mounting options (See also accessories, below)	Post top 60mm-76mm Side entry 34mm-60mm
Ingress Protection (Optic + Gear)	IP66
Colour Rendering Index (CRI)	>70
Optical Risk Group	RG1
Lumen depreciation (L80B50)	140,000 hours
Power Factor	> 0.95
S/P ratio (4000K/3000K)	1.8/1.33
Reliability (failures per million hours)	0.58

Dimensions

Unit: mm



Accessories

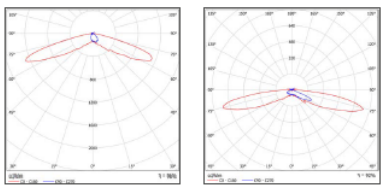
Tool-less Shields:	*20mm depth*	*40mm depth*
Front	✓	✓
Rear	✓	✓
Side	✓	x

Mounting:

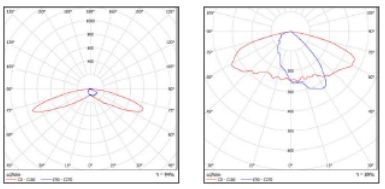
If a 48-60mm mounting option is required, this will be ordered as a separate line item to the luminare. Please contact us for pricing.

Photometry

FOOTPATH & RESIDENTIAL P5-P6



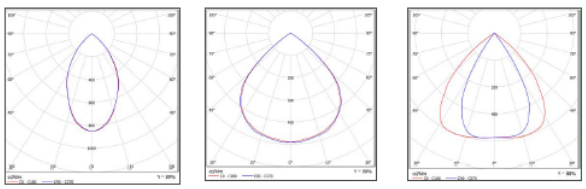
SWA OPTIC SWB OPTIC



SW OPTIC 1C OPTIC

RESIDENTIAL P3-P5

AREA



A1 OPTIC (60°) A2 OPTIC (90°) A3 OPTIC (Asymmetric)

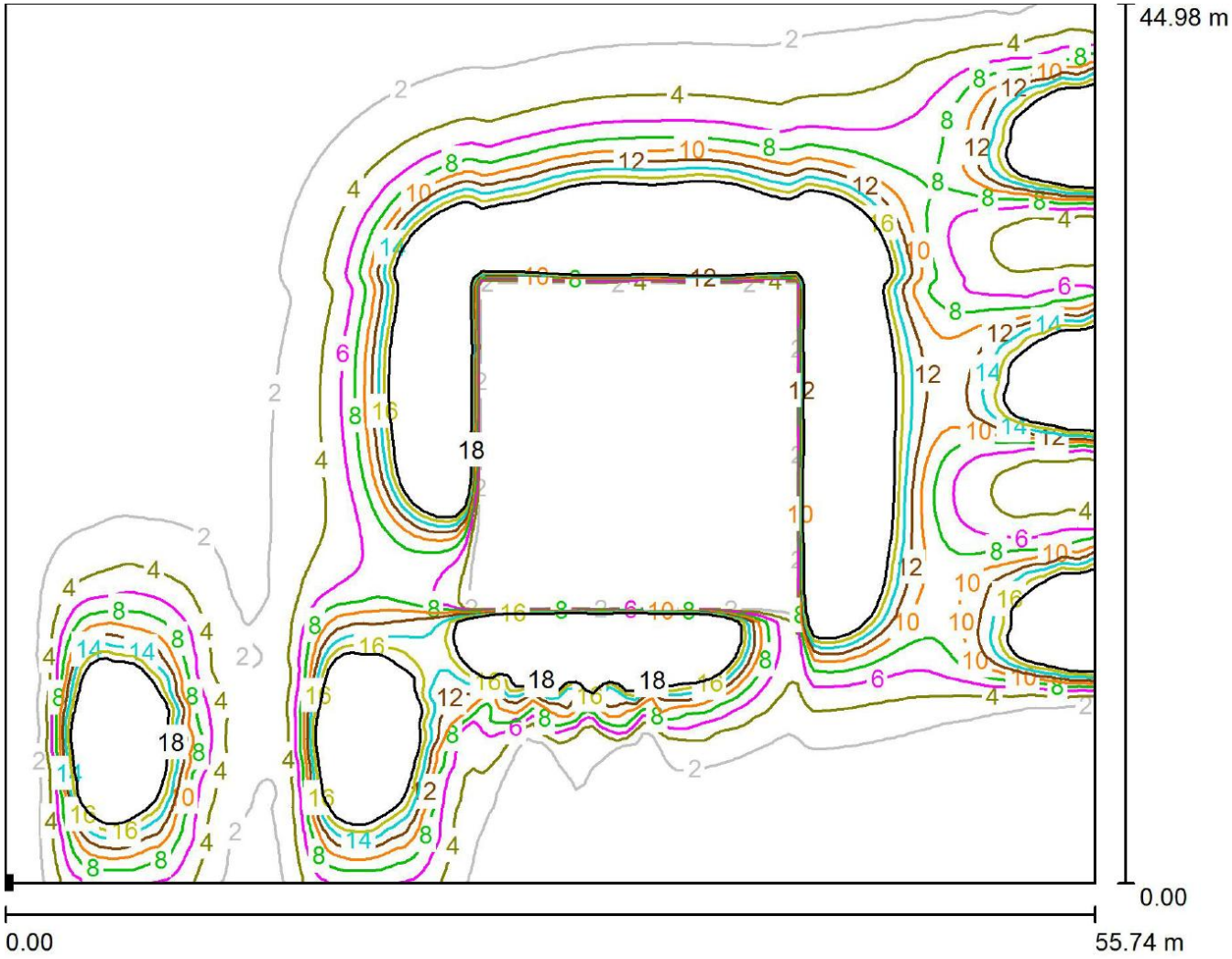
INDO

Telephone: +44 (0)20 3051 1687 Email: info@indolighting.com Website: www.indolighting.com

16.0 LIGHTING DESIGN – ISOLUX PLOT

16.1 Amenity lighting

The following isolux diagram indicates the lighting levels expected around the area of the hall only

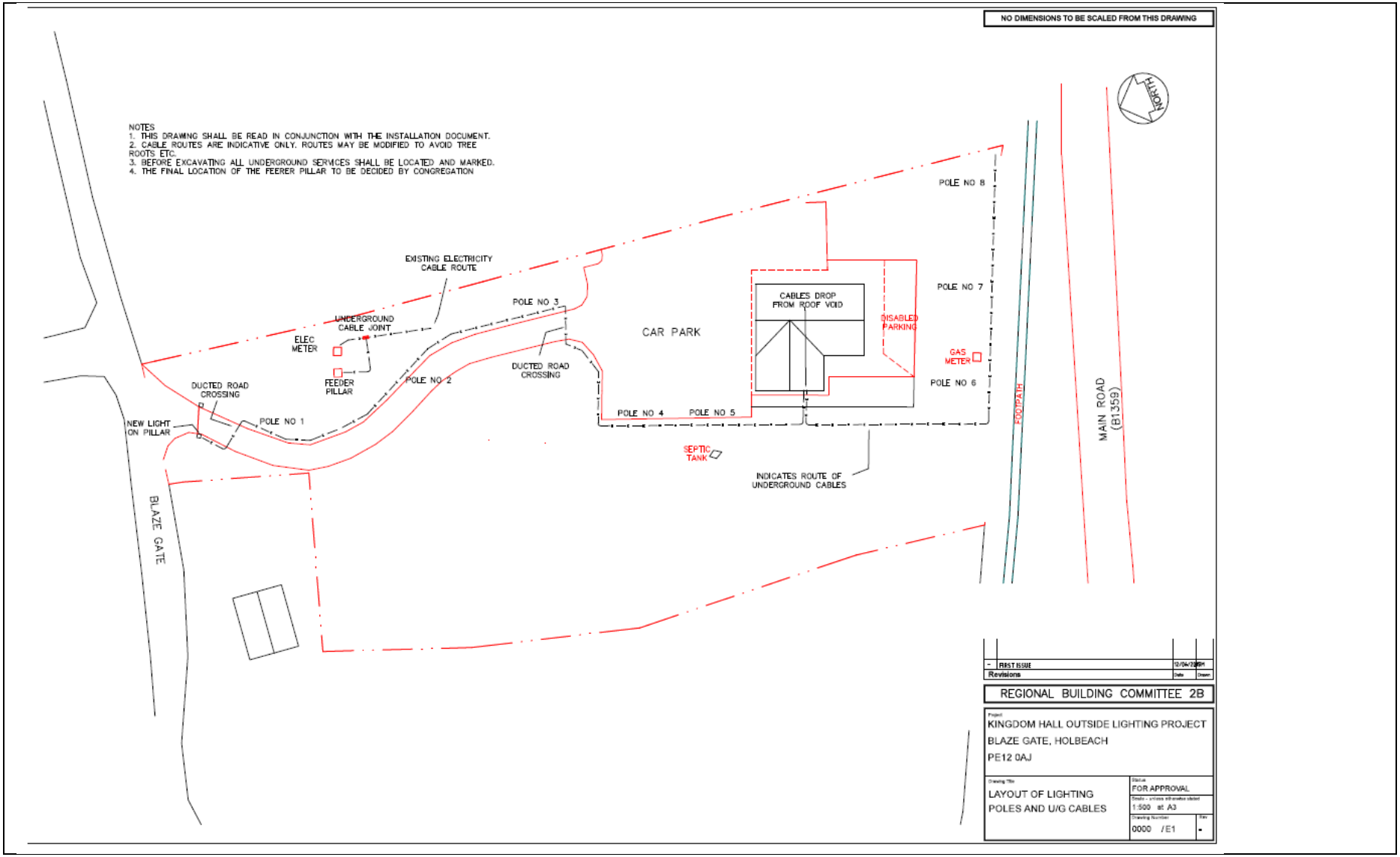


16.2 **Lighting to the drive**



17.0 AMENITY LIGHTING DRAWINGS

17.1 Entrance drive



17.2 **Amenity lighting on building**

