

PROJECT: 4830
Gondar Gardens

**Artificial Lighting:
Proof of evidence**

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Revision: T01

Revision date: 26/11/2018



**Cudd
Bentley**
Consulting



Record of revisions.

Date.	Revision.	Description of change.
26/11/2018	T01	Lighting Designer Evidential report

Date: x

Revision: 0

Ref: x

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1. Introduction

- 1.1 I am David Gilbey BA Hons (Stage Lighting), Lighting Design Director at Cudd Bentley Lighting Design. I have been an architectural lighting designer since 1994, collaborating on many environmentally sensitive projects globally with both ecologists and zoologists.

2. Background

- 2.1 The Council raises an objection that the proposed development, due to its scale, design, and siting, would result in an unacceptable impact from artificial lighting onto the existing site, a site protected because of its local amenity, habitat and biodiversity importance, contrary to policies A1 (Managing the Impact of development), A3 (Biodiversity) and D1 (Design) of the London Borough of Camden Local Plan 2017.
- 2.2 The appellant has provided details of the external lighting within the Stage 2 External Lighting Assessment report produced by Cudd Bentley in July 2017.
- 2.3 As the site has been designated as a Site of Borough Grade II Importance for Nature Conservation, the external lighting has been carefully designed by the appellant with the following constraints taken into consideration:
- 2.3.1 The appellant has carefully selected external lighting within the central courtyard areas, by utilising bollard type lighting circa 717mm high. Bollard light output has also been selected with an LED lamp source of only 4.3 Watts. Therefore, the typical courtyard areas have a designed average illuminance of 3.15 Lux. The combination of both subdued lighting levels and restricted luminaire height allows for there to be minimal impact on flying 'bat' (mammal) commuting routes, and other insect life.

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- 2.3.2 The appellant has considered the impacts of any external lighting on neighbouring properties. To the North of the built development there is no external lighting and as such there is no light spill 'up to' or over the adjoining boundary.
- 2.3.3 To the East end of the development, bollard luminaires have been carefully located, in order to ensure that there is no light spill on to or into the 'retention pond' or conserved 'wild' area beyond.
- 2.3.4 To the South of the development where the vehicle access area is located, a combination of wall-mounted and bollard lighting has been carefully located and selected to ensure that there is no light spill 'up to' or over the adjoining boundary. Lighting for vehicle access areas shall have PIR (movement sensor) controls in order to prevent operation when no persons are present. Further along the site from the vehicle access area there is no external lighting, thus there is no light spill 'up to' or over the adjoining boundary.
- 2.3.5 To the West of the development at the pedestrian entrance (adjacent to Gondar Gardens road), bollard lighting has been carefully selected and located, thus ensuring that there is no light spill onto Gondar Gardens road.
- 2.3.6 The external central courtyard lighting has been designed to be time-controlled, i.e. lighting 'off' between 23:01 – 06:59. Lighting photocell 'hold-off' is also to be utilised where there is sufficient 'daylight' during 07:00 – 23:00. An override facility is to be provided to allow care staff to navigate courtyard areas during 'out of hour' time periods.
- 2.3.7 The appellant has ensured that no external lighting has been proposed for the roof areas, as it is anticipated that any maintenance work shall be carried out during 'day light' hours. Should task lighting be required then portable lighting will be used. This will also contribute to minimising any potential impact on local wildlife.
- 2.3.8 The appellant has selected luminaires that are compliant with Building Regulations Part L2A as well as the requirements of the Building Research Establishment Environmental Assessment Method (BREEAM).

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- 2.3.9 In addition to the above points, the appellant is also targeting BREEAM credit Pol 04 as part of the development's BREEAM Pre-assessment in order to ensure that light spill is not an issue to neighbouring properties. This credit's aim is 'to ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.'

3. Assessment

- 3.1 I can confirm that the lighting scheme described above complies with best practice with regards to lighting strategy in relation to commuting bats and also with regards to lighting within nature conservation areas. The lighting scheme is low level with controlled light distribution and is totally sympathetic to the local environment with no light spill onto the adjoining protected ecological area. It will also have no impact on commuting bats.
- 3.2 There are no legal requirements for a roadway or place to be lit and whilst there are standards and guidelines regarding light for security and roadways (BS 5489) within an environment, British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so.
- 3.3 The lighting has been reviewed in association with ecological specialists James Blake Associates who concur that the lighting is sympathetic to the sensitive nature of the surrounding environment.
- 3.4 A lighting study has been undertaken on the effects of spill light from the residential properties, which is a worse case study and assumes that there is no shading or curtaining within the properties. The study produced results of less than 3lux 1m from the window measured on the vertical plane. These levels have no negative impact on commuting bats, as agreed by James Blake Associates.
- 3.5 Best lighting practice with regards to artificial lighting and bats recommends the use of an experienced, professional and independent lighting designer to ensure that a scheme is carefully considered and sympathetic to the natural environment. I can confirm that the lighting strategy at Gondar Gardens is well considered and planned and conforms to best lighting practice, guidelines and legislation.

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DATE: 22 June 2017
DESIGNER: Philips Lighting
PROJECT No: D-202999
PROJECT NAME: Gondar Gardens Rev.2

PHILIPS

Lighting Levels Achieved

Eave = 3.15 lx
E_{min} = 0.03 lx
U_o = 0.01

3. Outdoor Lighting Report

PREPARED BY: Philips Lighting
Philips Centre, Guildford Business Park
Guildford, Surrey GU2 8XH

Telephone: 01483 298935 Fax: 01483 575534
Web: www.lighting.philips.co.uk

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Local Origin at 524808000.00m x 185277536.67m
Grid Origin 423.0m x 1.0m
Area 120.0m x 90.0m
Sample Spacing 1.50m x 1.50m

Luminaires

Luminaire A Data

Supplier	
Type	Lotis square for LED GE black
Lamp(s)	LED 3000K - SPOT - 350mA
LampFlux(klm)/Colour	0.10 3000/90
File Name	LDT_12619002-14060305_REC_LOTIS-S QUARE_3000K-SPOT-350MA_V0.Ldt
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	0.0, 0.0, 0.0
No. in Project	19

Luminaire B Data

Supplier	
Type	Portfolio 0.2 IP54 1Lx LED WW LED<500lm Tre DIM
Lamp(s)	Achrich 4.3W
LampFlux(klm)/Colour	0.58 2700/80
File Name	Portfolio_0.2_IP54_LED_12831132_LDT.L DT
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	37.5, 39.1, 39.5
No. in Project	49

Luminaire C Data

Supplier	
Type	WL120V LED12S/- NO
Lamp(s)	LED12S/830/-
LampFlux(klm)/Colour	1.20 -/-
File Name	WL120V LED12S_830.ltd
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	101.8, 64.6, 36.1
No. in Project	6

Luminaire D Data

Supplier	
Type	WT120C L1200 LED22S/- NO
Lamp(s)	LED22S/840/-
LampFlux(klm)/Colour	2.20 -/-
File Name	WT120C L1200 1xLED22S_840.ltd
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	97.9, 46.9, 37.7
No. in Project	2

Layout

No.	Type	X	Y	Height	Angle	Tilt	Cant	Out- reach	Target X	Target Y	Target Z
1	B	523.93	49.91	0.70	90.00	0.00	0.00	0.00			
2	B	518.27	50.00	0.70	90.00	0.00	0.00	0.00			
3	B	529.97	49.86	0.70	90.00	0.00	0.00	0.00			
4	B	518.22	45.10	0.70	270.00	0.00	0.00	0.00			
5	B	524.01	45.08	0.70	270.00	0.00	0.00	0.00			
6	B	529.99	45.06	0.70	270.00	0.00	0.00	0.00			
7	B	515.98	49.75	0.70	180.00	0.00	0.00	0.00			
8	B	515.99	45.35	0.70	180.00	0.00	0.00	0.00			
9	B	533.59	47.48	0.70	0.00	0.00	0.00	0.00			
10	B	511.00	46.96	0.70	0.00	0.00	0.00	0.00			

Layout Continued

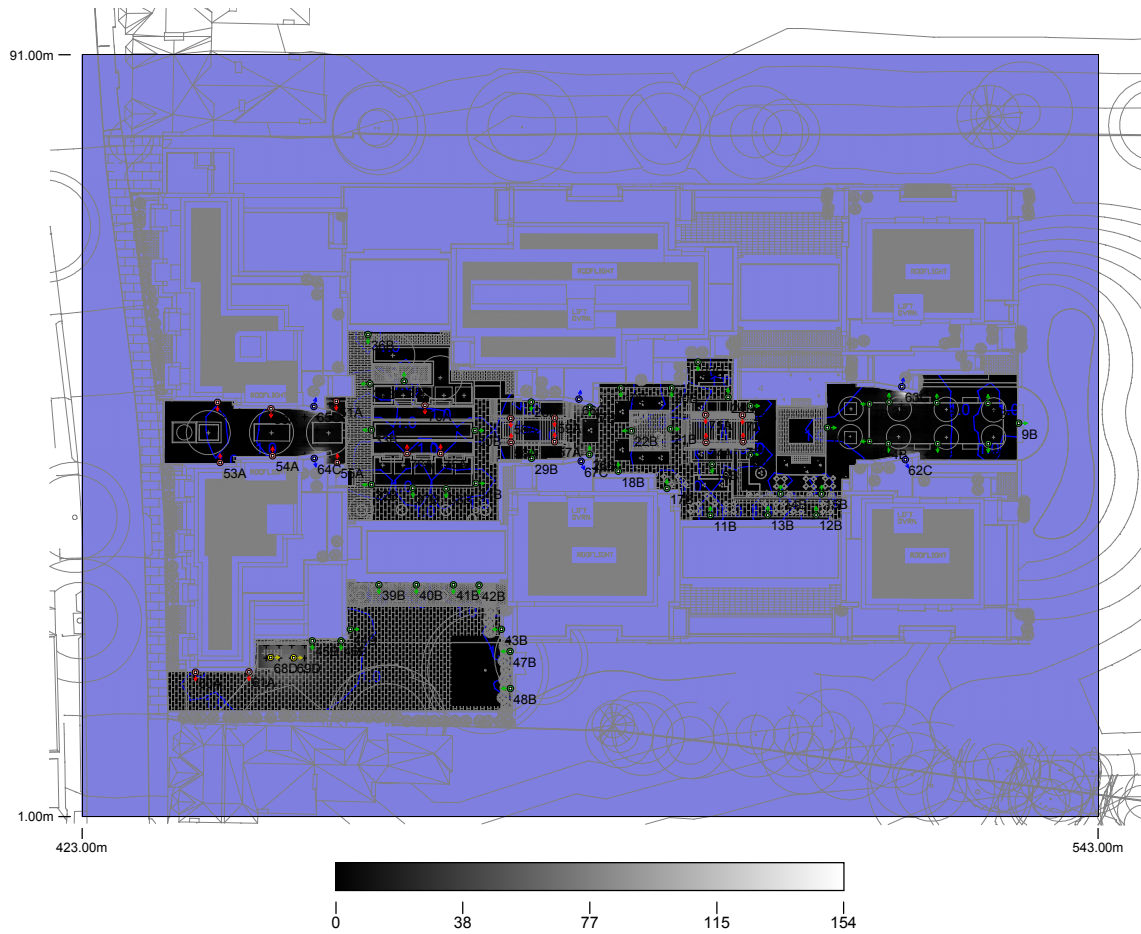
No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	B	497.20	36.62	0.70	90.00	0.00	0.00	0.00			
12	B	509.65	36.64	0.70	90.00	0.00	0.00	0.00			
13	B	503.95	36.64	0.70	90.00	0.00	0.00	0.00			
14	B	505.46	39.13	0.70	90.00	0.00	0.00	0.00			
15	B	510.31	39.13	0.70	90.00	0.00	0.00	0.00			
16	B	497.38	42.64	0.70	270.00	0.00	0.00	0.00			
17	B	492.03	39.79	0.70	90.00	0.00	0.00	0.00			
18	B	486.33	41.83	0.70	90.00	0.00	0.00	0.00			
19	B	486.62	51.66	0.70	270.00	0.00	0.00	0.00			
20	B	492.60	51.64	0.70	270.00	0.00	0.00	0.00			
21	B	492.46	46.81	0.70	0.00	0.00	0.00	0.00			
22	B	487.84	46.61	0.70	180.00	0.00	0.00	0.00			
23	B	495.73	54.72	0.70	270.00	0.00	0.00	0.00			
24	B	499.26	50.57	0.70	90.00	0.00	0.00	0.00			
25	B	501.93	49.53	0.70	0.00	0.00	0.00	0.00			
26	B	482.92	43.79	0.70	90.00	0.00	0.00	0.00			
27	B	482.96	49.40	0.70	270.00	0.00	0.00	0.00			
28	B	476.01	50.00	0.70	270.00	0.00	0.00	0.00			
29	B	476.07	43.34	0.70	90.00	0.00	0.00	0.00			
30	B	469.36	46.62	0.70	0.00	0.00	0.00	0.00			
31	B	469.49	40.38	0.70	0.00	0.00	0.00	0.00			
32	B	457.16	40.23	0.70	180.00	0.00	0.00	0.00			
33	B	457.18	46.69	0.70	180.00	0.00	0.00	0.00			
34	B	456.98	52.15	0.70	180.00	0.00	0.00	0.00			
35	B	461.02	52.45	0.70	90.00	0.00	0.00	0.00			
36	B	456.75	57.95	0.70	270.00	0.00	0.00	0.00			
37	B	462.06	39.82	0.70	270.00	0.00	0.00	0.00			
38	B	465.98	39.74	0.70	270.00	0.00	0.00	0.00			
39	B	458.04	28.42	0.70	270.00	0.00	0.00	0.00			
40	B	462.46	28.42	0.70	270.00	0.00	0.00	0.00			
41	B	466.84	28.42	0.70	270.00	0.00	0.00	0.00			
42	B	469.85	28.38	0.70	270.00	0.00	0.00	0.00			
43	B	472.52	23.15	0.70	180.00	0.00	0.00	0.00			
44	B	454.66	23.17	0.70	0.00	0.00	0.00	0.00			
45	B	450.17	21.80	0.70	270.00	0.00	0.00	0.00			
46	B	453.57	21.80	0.70	270.00	0.00	0.00	0.00			

Layout Continued

No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
47	B	473.53	20.56	0.70	180.00	0.00	0.00	0.00			
48	B	473.55	16.17	0.70	180.00	0.00	0.00	0.00			
49	B	501.88	43.75	0.70	0.00	0.00	0.00	0.00			
50	A	445.30	49.21	0.50	270.00	90.00	0.00	0.00			
51	A	452.99	50.07	0.50	270.00	90.00	0.00	0.00			
52	A	438.97	49.97	0.50	270.00	90.00	0.00	0.00			
53	A	439.30	42.84	0.50	90.00	90.00	0.00	0.00			
54	A	445.48	43.66	0.50	90.00	90.00	0.00	0.00			
55	A	453.14	42.84	0.50	90.00	90.00	0.00	0.00			
56	A	473.66	45.22	0.50	90.00	90.00	0.00	0.00			
57	A	478.79	45.31	0.50	90.00	90.00	0.00	0.00			
58	A	473.60	48.07	0.50	270.00	90.00	0.00	0.00			
59	A	478.77	48.12	0.50	270.00	90.00	0.00	0.00			
60	A	436.39	18.10	0.50	270.00	90.00	0.00	0.00			
61	A	442.70	18.13	0.50	270.00	90.00	0.00	0.00			
62	C	520.22	43.19	1.00	288.00	0.00	0.00	0.00			
63	C	519.80	51.81	1.00	79.00	0.00	0.00	0.00			
64	C	450.41	43.36	1.00	281.00	0.00	0.00	0.00			
65	C	450.35	49.46	1.00	76.00	0.00	0.00	0.00			
66	C	481.65	50.33	1.00	79.00	0.00	0.00	0.00			
67	C	481.94	43.01	1.00	288.00	0.00	0.00	0.00			
68	D	445.27	19.83	3.00	0.00	0.00	0.00	0.00			
69	D	447.98	19.81	3.00	0.00	0.00	0.00	0.00			
70	A	463.48	49.62	0.50	270.00	90.00	0.00	0.00			
71	A	496.61	48.49	0.50	270.00	90.00	0.00	0.00			
72	A	500.96	48.44	0.50	270.00	90.00	0.00	0.00			
73	A	501.04	45.29	0.50	90.00	90.00	0.00	0.00			
74	A	496.66	45.24	0.50	90.00	90.00	0.00	0.00			
75	A	465.31	43.92	0.50	90.00	90.00	0.00	0.00			
76	A	461.36	43.89	0.50	90.00	90.00	0.00	0.00			

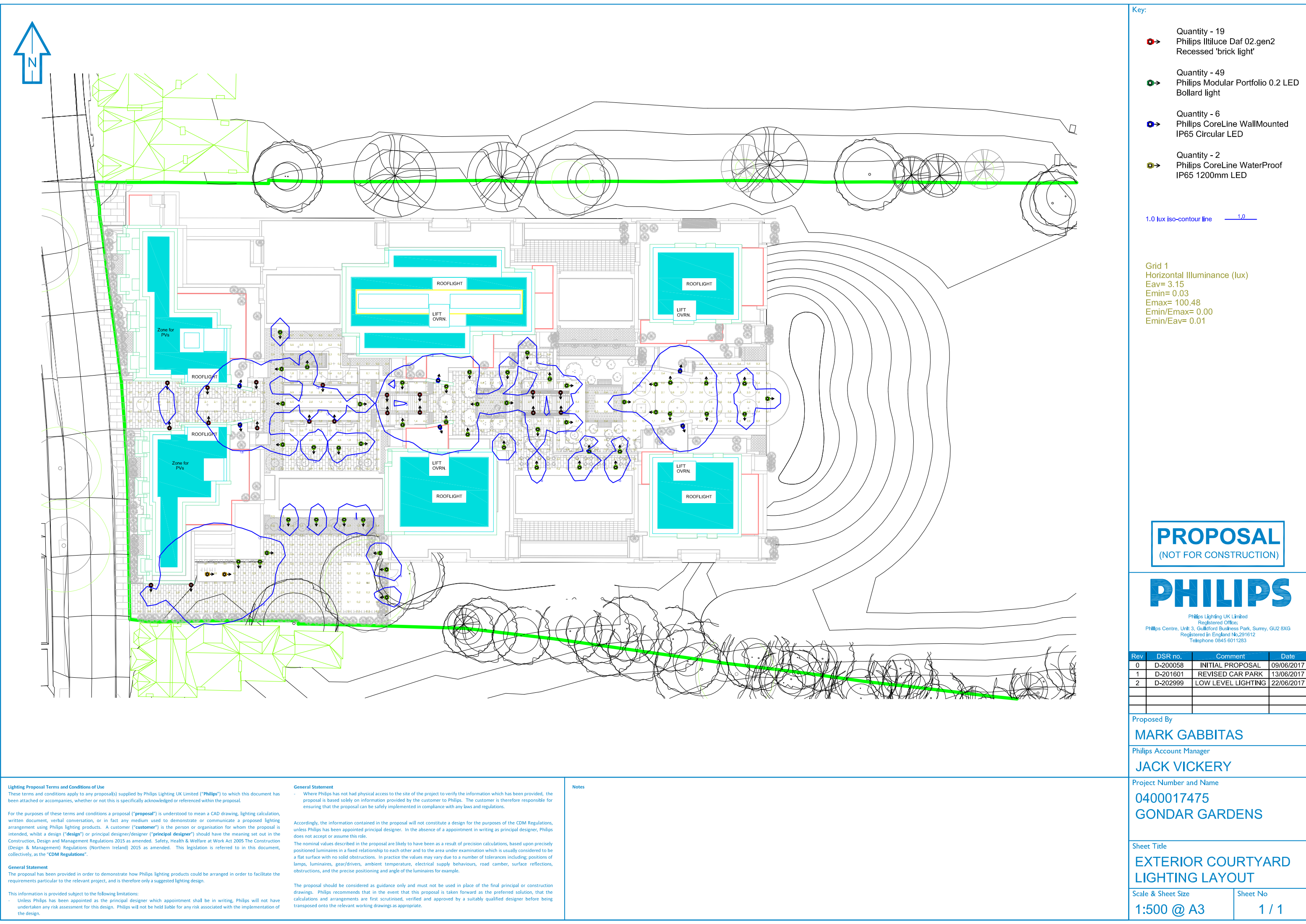
Horizontal Illuminance (lux)

Grid 1



Results

Eav	3.15
Emin	0.03
E _{max}	100.48
Emin/E _{max}	0.00
Emin/Eav	0.01



Key:

- Quantity - 19
Philips Illuluce Daf 02.gen2
Recessed 'brick light'
- Quantity - 49
Philips Modular Portfolio 0.2 LED
Bollard light
- Quantity - 6
Philips CoreLine WallMounted
IP65 Circular LED
- Quantity - 2
Philips CoreLine WaterProof
IP65 1200mm LED

1.0 lux iso-contour line 1.0

Grid 1
Horizontal Illuminance (lux)
Eav= 3.15
Emin= 0.03
Emax= 100.48
Emin/Emax= 0.00
Emin/Eav= 0.01

PROPOSAL
(NOT FOR CONSTRUCTION)

PHILIPS

Philips Lighting UK Limited
Registered Office:
Philips Centre, Unit 3, Guildford Business Park, Surrey, GU2 8XG
Registered in England No.291612
Telephone 0845 6011283

Rev	DSR no.	Comment	Date
0	D-200058	INITIAL PROPOSAL	09/06/2017
1	D-201601	REVISED CAR PARK	13/06/2017
2	D-202999	LOW LEVEL LIGHTING	22/06/2017

Proposed By

MARK GABBITAS

Philips Account Manager

JACK VICKERY

Project Number and Name

0400017475
GONDAR GARDENS

Sheet Title

EXTERIOR COURTYARD
LIGHTING LAYOUT

Scale & Sheet Size

1:500 @ A3

Sheet No

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General Statement
The proposal has been provided in order to demonstrate how Philips lighting products could be arranged in order to facilitate the requirements particular to the relevant project, and is therefore only a suggested lighting design.

This information is provided subject to the following limitations:
- Unless Philips has been appointed as the principal designer which appointment shall be in writing, Philips will not have undertaken any risk assessment for this design. Philips will not be held liable for any risk associated with the implementation of the design.

General Statement
- Where Philips has not had physical access to the site of the project to verify the information which has been provided, the proposal is based solely on information provided by the customer to Philips. The customer is therefore responsible for ensuring that the proposal can be safely implemented in compliance with any laws and regulations.

Accordingly, the information contained in the proposal will not constitute a design for the purposes of the CDM Regulations, unless Philips has been appointed principal designer. In the absence of an appointment in writing as principal designer, Philips does not accept or assume this role.
The nominal values described in the proposal are likely to have been as a result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination which is usually considered to be a flat surface with no solid obstructions. In practice the values may vary due to a number of tolerances including: positions of lamps, luminaires, gear/drivers, ambient temperature, electrical supply behaviours, road camber, surface reflections, obstructions, and the precise positioning and angle of the luminaires for example.

The proposal should be considered as guidance only and must not be used in place of the final principal or construction drawings. Philips recommends that in the event that this proposal is taken forward as the preferred solution, that the calculations and arrangements are first scrutinised, verified and approved by a suitably qualified designer before being transposed onto the relevant working drawings as appropriate.

Notes