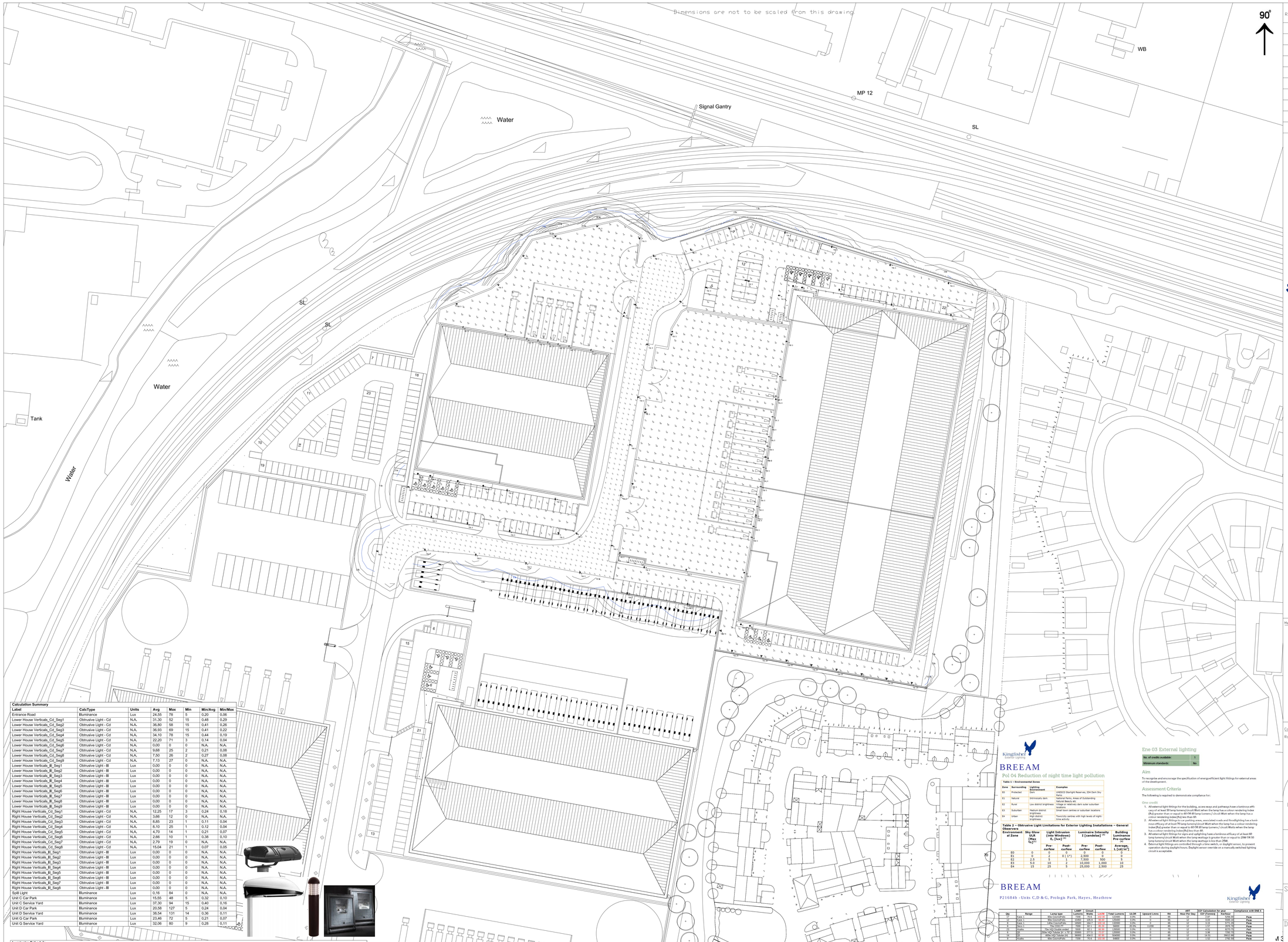
Dimensions are not to be scaled from this drawing



Revision	Date	Description	Initials

Kingfisher
Exterior Lighting

Members Of

HEMSA

ILP Institution of Lighting Professionals

Lighting Industry Association

SAFCA Ancillary Contractor

Contact Details

Ratcher Way, Crown Farm Industrial Park, Mansfield, Nottinghamshire. NG19 8FS
Design Telephone 01623 415 904 Fax: 01623 415 920
Email. ld@kingfisherlighting.com
Web. www.kingfisherlighting.com

Project Title

Units C,D & G, Prologis Park, Hayes, Heathrow

Client

MICHAEL SPARKS ASSOCIATES

Scale: 1:500 at A0

Project No: D21684B

Date: 21/3/2013

Drawing No: D21684/PY/B

A lighting applications design service is provided by us in good faith and without charge, relating to Kingfisher products only. As such, whilst every endeavour is made for accuracy from information provided by yourselves, the final responsibility for the suitability of the design lies with the client. The company cannot, therefore, accept any liability or consequential loss incurred.

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
Entrance Road	Illuminance	Lux	24,55	78	5	0,20	0,06
Lower House Verticals_Cd_Seg1	Obtrusive Light - Cd	N.A.	31,30	52	15	0,48	0,29
Lower House Verticals_Cd_Seg2	Obtrusive Light - Cd	N.A.	36,80	58	15	0,41	0,26
Lower House Verticals_Cd_Seg3	Obtrusive Light - Cd	N.A.	36,93	69	15	0,41	0,22
Lower House Verticals_Cd_Seg4	Obtrusive Light - Cd	N.A.	34,10	78	15	0,44	0,19
Lower House Verticals_Cd_Seg5	Obtrusive Light - Cd	N.A.	22,20	71	3	0,14	0,04
Lower House Verticals_Cd_Seg6	Obtrusive Light - Cd	N.A.	0,00	0	0	N.A.	N.A.
Lower House Verticals_Cd_Seg7	Obtrusive Light - Cd	N.A.	9,68	25	2	0,21	0,08
Lower House Verticals_Cd_Seg8	Obtrusive Light - Cd	N.A.	7,50	26	2	0,27	0,08
Lower House Verticals_Cd_Seg9	Obtrusive Light - Cd	N.A.	7,13	27	0	N.A.	N.A.
Lower House Verticals_B_Seg1	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg2	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg3	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg4	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg5	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg6	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg7	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg8	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Lower House Verticals_B_Seg9	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_Cd_Seg1	Obtrusive Light - Cd	N.A.	12,25	3	3	0,24	0,18
Right House Verticals_Cd_Seg2	Obtrusive Light - Cd	N.A.	3,66	12	0	N.A.	N.A.
Right House Verticals_Cd_Seg3	Obtrusive Light - Cd	N.A.	8,85	23	1	0,11	0,04
Right House Verticals_Cd_Seg4	Obtrusive Light - Cd	N.A.	8,10	25	1	0,12	0,04
Right House Verticals_Cd_Seg5	Obtrusive Light - Cd	N.A.	4,70	14	1	0,21	0,07
Right House Verticals_Cd_Seg6	Obtrusive Light - Cd	N.A.	2,66	10	1	0,38	0,10
Right House Verticals_Cd_Seg7	Obtrusive Light - Cd	N.A.	2,79	19	0	N.A.	N.A.
Right House Verticals_Cd_Seg8	Obtrusive Light - Cd	N.A.	15,04	21	1	0,07	0,05
Right House Verticals_B_Seg1	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_B_Seg2	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_B_Seg3	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_B_Seg4	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_B_Seg5	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_B_Seg6	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_B_Seg7	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Right House Verticals_B_Seg8	Obtrusive Light - Ill	Lux	0,00	0	0	N.A.	N.A.
Spill Light	Illuminance	Lux	0,16	84	0	N.A.	N.A.
Unit C Car Park	Illuminance	Lux	15,55	48	5	0,32	0,10
Unit C Service Yard	Illuminance	Lux	37,30	94	15	0,40	0,16
Unit D Car Park	Illuminance	Lux	20,58	127	5	0,24	0,04
Unit D Service Yard	Illuminance	Lux	38,54	131	14	0,36	0,11
Unit G Car Park	Illuminance	Lux	23,46	72	5	0,21	0,07
Unit G Service Yard	Illuminance	Lux	32,06	80	9	0,28	0,11

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description
	15	A	SINGLE	60w Cosmopolis Kaos 1 Road lantern (P3 lamp position) column mounted at 6m.
	1	B	BACK-BACK	60w Cosmopolis Kaos 1 Road lantern (P3 lamp position) column mounted at 6m.
	8	C	SINGLE	70w CDO-T Deco Bollard
	5	D	SINGLE	400w HQI-T QS Pro (AS65 Optic) wall mounted at 10m.
	3	E	TWIN 20 DEGREE	400w HQI-T QS Pro (AS65 Optic) column mounted at 12m.
	6	F	SINGLE	250w HQI-T QS Pro (AS65 Optic) floodlight column mounted at 6m.
	23	G	SINGLE	70w HQI-TD Aludra floodlight
	8	H	SINGLE	140w Cosmopolis Kaos 1 Road lantern with Spill Shield (P0 lamp position) column mounted at 6m.
	3	I	SINGLE	400w HQI-T QS Pro (AS65 Optic) column mounted at 12m.
	9	J	SINGLE	60w Cosmopolis Aludra floodlight mounted at 4.2m on the fence
	10	K	SINGLE	90w Cosmopolis Kaos 1 Road lantern (P0 lamp position) column mounted at 6m.
	2	L	SINGLE	90w Cosmopolis Kaos 1 Road lantern (P3 lamp position) column mounted at 6m.

Kingfisher Exterior Lighting

BREEAM

Pol 04 Reduction of night time light pollution

Table 1 – Environmental Zones

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks.
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc.
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

Table 2 – Obtrusive Light Limitations for Exterior Lighting Installations – General Observers

Environment al Zone	Sky Glow ULR [Max. Installed Flux] (%)	Light Intrusion (into Windows) E. [Lux] [1]		Luminaire Intensity I [candelas] [2]		Building Luminance Average, L [cd/m²] [3]	
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Pre-curfew	Post-curfew
E0	0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	5	0
E2	2.5	5	1	7,500	500	10	0
E3	5.0	10	2	10,000	1,000	10	10
E4	15	25	5	25,000	2,500	25	

BREEAM

P21684b - Units C,D & G, Prologis Park, Hayes, Heathrow

Kingfisher Exterior Lighting

Qty	Range	Lamp type	LAMP Lumens	Circuit Watts	LECIM	Total Lumens	LE.CM	Upward Lens	RA	ART Hour Per Day	CO² Consistent for year	Kwhour	Compliance with ENE 4
12	Poles A	90w CosmoPolis	6500	90.0	72.20	156000	0.5L	0	65	12	2,08	1095.12	Pass
7	Poles B	60w CosmoPolis	4500	60.0	75.00	105000	0.5L	0	65	12	1,44	526.32	Pass
8	Poles L	140w CosmoPolis	10500	164.7	63.8	120000	0.5L	0	65	12	3,15	3272.85	Pass
3	Poles I	400w HQI-T QS Pro	36000	451.0	79.8	108000	0.5L	0	65	12	6,48	5913.00	Pass
23	Floods	70w HQI Double ended	5500	83.1	66.2	126500	0.5L	0	65	12	4,14	3378.78	Pass
8	CDO	35W, HQI Tubular 8 x 3.5'	2800	277.5	10.1	22400	0.5L	0	65	12	0,56	1292.16	Pass
3	CDO	40W HQI Tubular 24"	3000	424.2	7.1	36000	0.5L	0	65	12	0,84	2822.88	Pass
8	Floods	90w CosmoPolis	7200	90.6	79.5	64800	0.5L	0	65	12	1,70	2782.58	Pass

Total Installation Lumens 1251100 — 11100

Table 1 compliance — Environmental zone: E2

	Target	Achieved	Status
Sky Glow	2.50%	0.90%	Pass
Source Intensity (candelas)			
Pre curfew	7,500	78	Pass
Post curfew	500	0	Pass
Light Trespass into windows (Lux)			
Pre curfew	5	0	Pass
Post curfew	1	0	Pass
Building Luminance (cd/m²)	5		

Total ULR 0.90% — **Total CO² per year (Tonnes)** 39,13

Total Electrical consumption (Kw) 14,71

Total Electrical consumption per year (Kwh) 64,428.18

Note - we have assumed no fittings will be left on Post curfew

Note - we have assumed no fittings will be left on Post curfew

Ene 03 External lighting

No of credits available:	1
Minimum standards:	No

Aim

To recognise and encourage the specification of energyefficient light fittings for external areas of the development.

Assessment Criteria

The following is required to demonstrate compliance for:

One credit

1. All external light fittings for the building, access ways and pathways have a luminous efficacy of at least 55 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 80 lamp lumens / circuit Watt when the lamp has a colour rendering index (Ra) less than 60.
2. All external light fittings to car parking areas, associated roads and floodlighting has a luminous efficacy of at least 70 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 90 lamp lumens / circuit Watt when the lamp has a colour rendering index (Ra) less than 60.
3. All external light fittings for signs and uplighting have a luminous efficacy of at least 80 lamp lumens/circuit Watt when the lamp wattage is greater than or equal to 25W OR 55 lamp lumens/circuit Watt when the lamp wattage is less than 25W.
4. External light fittings are controlled through a time switch, or daylight sensor, to prevent operation during daylight hours. Daylight sensor override on a manually switched lighting circuit is acceptable.