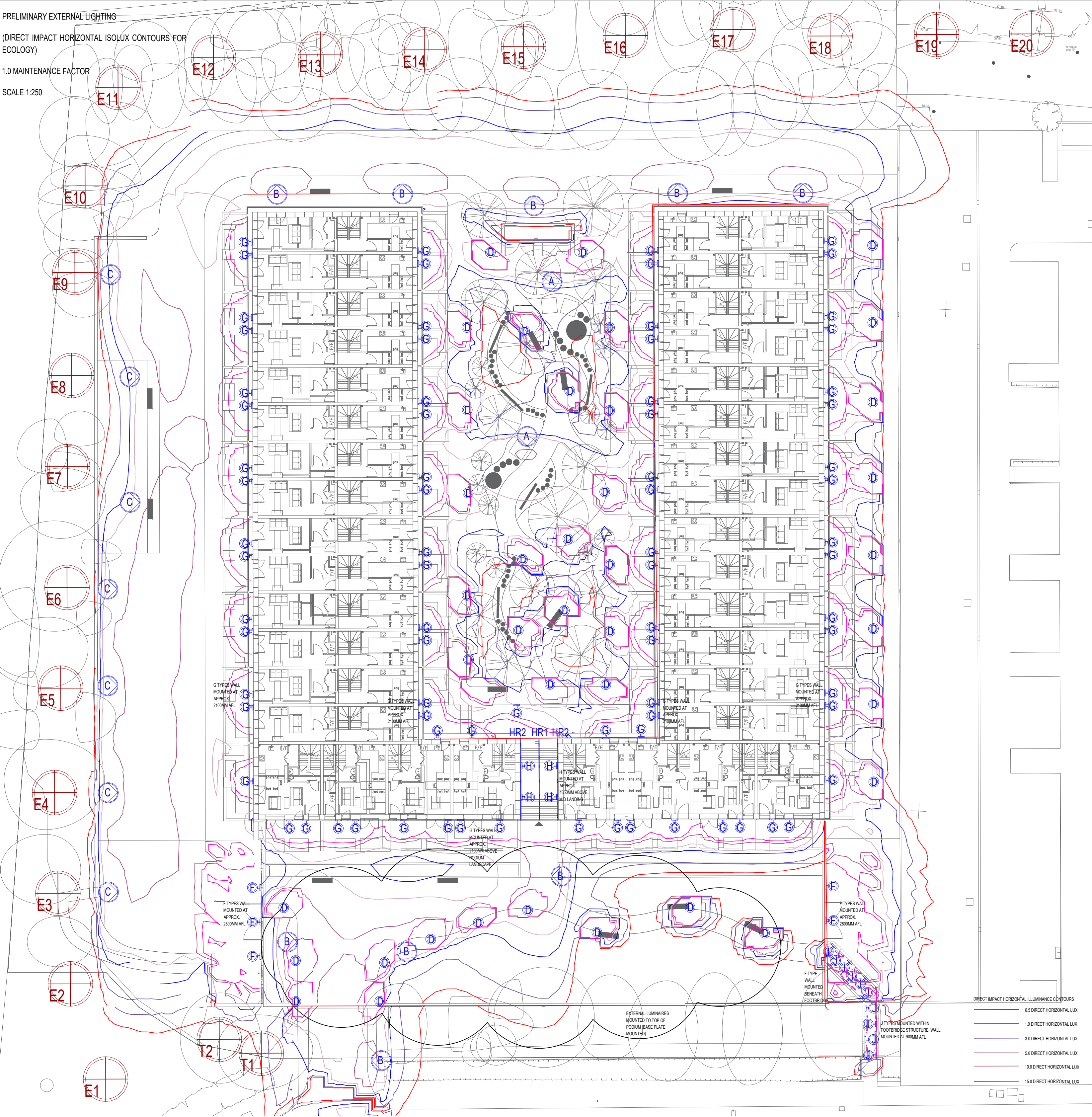


PRELIMINARY EXTERNAL LIGHTING

(DIRECT IMPACT HORIZONTAL ISOLUX CONTOURS FOR ECOLOGY)

1.0 MAINTENANCE FACTOR

SCALE 1:250



PRELIMINARY SEMI EXTERNAL LIGHTING

PART PLAN

COVERED CARPARK PODIUM & ACCESS LINK TO COURTYARD

1:250



CALCULATED DIRECT LIGHT ASSESSMENT HORIZONTAL AND VERTICAL IMPACT VALUES FOR ECOLOGY (INCLUSIVE OF APPROX TERRAIN, MF = 1.0)

Ecology Locations (Centre line of location)	Proposed Development DIRECT Illuminance (Lux) – ALL FUNCTIONAL (ACCESS) EXTERNAL LIGHTING OPERATIONAL, EXCLUDES TREE/ FOLIAGE SCREENING. SUBJECT TO ECOLOGIST INPUT, A STANDARD OF 1.0 LUX IS TAKEN AS THE THRESHOLD, THE KEY INDICATORS BEING AT HEIGHTS OF 2m UPWARDS IN THE VERTICAL PLANE (* CONSIDERED PRIMARILY RELEVANT TO BAT ACTIVITY)						
	Horizontal (ground)	Peak Vertical					
		0m	2m (*)	4m (*)	6m (*)	8m (*)	10m (*)
E1	0.05	0.22	0.03	0.02	0.02	0.01	0.01
E2	0.07	0.42	0.07	0.02	0.02	0.01	0.01
E3	0.03	0.32	0.11	0.01	0.01	0.01	0
E4	0.02	0.23	0.08	0.01	0	0	0
E5	0.01	0.03	0.07	0	0	0	0
E6	0.02	0.04	0.07	0	0	0	0
E7	0.02	0.03	0.03	0	0	0	0
E8	0.02	0.02	0.03	0	0	0	0
E9	0	0.02	0.01	0	0	0	0
E10	0.16	0.17	0.01	0	0	0	0
E11	0.1	0.26	0.02	0	0	0	0
E12	0.05	0.18	0.01	0	0	0	0
E13	0.05	0.15	0.02	0	0	0	0
E14	0.06	0.2	0.03	0	0	0	0
E15	0.04	0.16	0.03	0	0	0	0
E16	0.03	0.14	0.02	0	0	0	0
E17	0.04	0.13	0.02	0	0	0	0
E18	0.02	0.1	0.01	0	0	0	0
E19	0.01	0.05	0.02	0	0	0	0
T1	0.75	0.97	0.27	0.15	0.08	0.06	0.05
T2	0.13	0.54	0.1	0.08	0.04	0.03	0.03

PRELIMINARY LUMINAIRE TYPES (SUBJECT TO DETAILED DESIGN STAGES, EXACT LUMINAIRE TYPES TO BE CONFIRMED BY CONDITION)

A - POST TOP LANTERN TO COURTYARD URBIS SCHREDER FLEXIA FC MIDI 5393 FLAT GLASS, BACK LIGHT MAXI, 10 LEDS @400ma 13.5W 1045LM 2700K, 5m COLUMN DUSK TILL DAWN			J - WALL MOUNTED FLOOR WASHLIGHT TO FOOTBRIDGE GHIDINI VERSO FLAT SQ. WALL MOUNTED FLOOR WASHLIGHT 2.9W 367LM 3000K PIR OCCUPANCY OPERATION		
B - POST TOP LANTERN TO NORTH AND PODIUM ACCESS URBIS SCHREDER FLEXIA FC MIDI 5304 FLAT GLASS, BACK LIGHT MAXI, 10 LEDS @400ma 13.5W 932LM 2700K, 5m COLUMN DUSK TILL DAWN			HR1 - ILLUMINATED CENTRE HANDRAIL TO STAIRWELL DW WINDSOR GARDA SYMMETRIC DISTRIBUTION GARDA 300-3LED-SYM + HANDRAIL STRUCTURE 4W 281LM 3000K DUSK TILL DAWN		
C - POST TOP LANTERN (REAR CUTOFF) TO WEST ACCESS AND PARKING HOLOPHANE D SERIES O AREA 14W 1197LM 2700K, 5m COLUMN DUSK TILL DAWN			HR2 - ILLUMINATED WALL MOUNTED HANDRAIL TO STAIRWELL DW WINDSOR GARDA ASYMMETRIC DISTRIBUTION GARDA 300-3LED-ASYM + HANDRAIL STRUCTURE 4W 204LM 3000K DUSK TILL DAWN		
D - BOLLARD TO LANDSCAPE, PODIUM AND COURTYARD (WAYFINDING ONLY) WEVRE & DUCRE PALOS CARRA 1.0 10.5W 678LM 2700K 870mm BOLLARD DUSK TILL TIME CLOCK OFF			X1 - ENTRANCE / EXIT CARPARK DOWNLIGHT (DAYLIGHT USE ONLY) HOLOPHANE PARKPACK PPK 1 LA083 SQM 71W 723LM 3000K OCCUPANCY PIR DAWN TILL DUSK		
F - WALL DOWNLIGHT TO CARPARK EXTERIOR ENTRANCED / EXIT HOLOPHANE DENVER ID WALL ASYMMETRIC 6.5W 772LM 2700K DUSK TILL DAWN			X2 - CARPARK DOWNLIGHT (DAY AND NIGHT USE) HOLOPHANE PARKPACK PPK 1 LA063 SQW 45W 5053LM 3000K OCCUPANCY PIR DUSK TILL DAWN		
G - WALL DOWNLIGHT TO PRIVATE ACCESS DOORWAYS BEGA 22261K3 5W 437LM 3000K PIR OCCUPANCY OPERATION			X3 - OPTELMA QUAD S/ MPO / LO SURFACE LINEAR CONTINUOUS LINEAR EXTRUSION INC. MODULES - 8.2 W 1000 LMS PER M 3000K OCCUPANCY PIR DUSK TILL DAWN		
H - WALL UP/DOWNLIGHT TO STAIRWELL (COVERED LOCATION) MEYER LIGHTING 8338152 108 GEMINI 2 WALL MOUNTED UP/DOWNLIGHT 20W 1395 LM 3000K DUSK TILL TIME CLOCK OFF / DIMMABLE					

EMBEDDED MITIGATION IN THE CONTROL OF OBTRUSIVE LIGHT ADVERSE EFFECTS

- LOW GLARE LANTERNS
- DOWNLIGHT ONLY (UNLESS COVERED EG - STAIRS)
- CONSIDERED / REDUCED LUMINAIRE HEIGHTS, AIMING AND PLACEMENT
- WARM WHITE LIGHT COLOUR TEMPERATURE (2700 / 3000K) INLINE WITH BAT CONSERVATION TRUST GUIDANCE
- REAR LIGHT CUTOFF WHERE APPLICABLE
- PIR OCCUPANCY SENSED WHERE APPLICABLE
- TIMED OFF WHERE APPLICABLE

GENERAL NOTES

1. THIS DRAWING IS COPYRIGHT AND SHALL NOT BE REPRODUCED WITHOUT PERMISSION
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DISCIPLINES, DRAWINGS, SCHEDULES AND SPECIFICATIONS, LEGENDS AND STANDARD DETAILS
3. DIMENSIONS GOVERN ON ALL DRAWINGS AND DETAILS. SHOULD ANY DISCREPANCIES BE FOUND ON THIS DRAWING AND ANY ASSOCIATED DRAWINGS OR SPECIFICATIONS, THIS SHOULD BE BROUGHT TO THE ATTENTION OF LIGHT PLANNING AND DESIGN LTD IMMEDIATELY
4. DO NOT SCALE FROM THIS DRAWING. PRELIMINARY AND FOR PLANNING SUPPORT INFORMATION ONLY
5. SUBJECT TO DETAILED DESIGN STAGES

DESIGN INTENT SUMMARY AND ASSESSMENT SUMMARY

BEING A SUBURBAN ENVIRONMENT THE ENVIRONMENTAL ZONE IS CONSIDERED TO BE E3.

BASED ON LIGHTING STANDARDS:
BS EN12464, BS5489-1, BS EN13201-2

THE EXTERNAL LIGHTING INTENT IS PRINCIPALLY BASED ON ACHIEVING THE PRELIMINARY USER REQUIREMENTS OF :

EXTERNAL CARPARKING - AVERAGE 5 LUX, 25% Uo
ACCESS ROADWAYS - P4 - 5 LUX min ave / 1 LUX min

PATHWAYS - WAYFINDING ONLY

ENTRANCES - 10 to 20 LUX AVE

COVERED STAIRS AND CORRIDORS - 100 LUX AVE

COVERED CARPARK -
ENTRANCES AND EXITS:
DAYLIGHT HOURS: 300 LUX / 40% Uo
AT NIGHT: 75 LUX / 40% Uo
TRAFFIC LANES & INTERNAL RAMPS: 75 LUX / 40% Uo
PARKING AREAS (NOT PUBLIC): 75 LUX / 25% Uo

OPEN FOOTBRIDGE - 20 LUX AVE, 10 LUX MIN

NOTE:

- DESIGN ILLUMINANCE BASED ON A TYPICAL 0.8 MAINTENANCE FACTOR
- ASSESSMENT ILLUMINANCE BASED ON A 1.0 MAINTENANCE FACTOR
- ASSESSMENT UNDERTAKEN BASED ON APPROX. TERRAIN AND WITH THE EXCLUSION OF THE POTENTIAL LIGHT SCREENING BENEFITS OF TREES AND FLORA
- ASSESSMENT VALUES ILLUSTRATED ARE BASED ON SIMULATION. WHILST EVERY ATTEMPT HAS BEEN MADE WITH RESPECT TO THE ACCURACY OF THESE PREDICTED RESULTS, DUE TO POSSIBLE UNKNOWN VARIANCES IN CALCULATION PARAMETERS, THERE COULD BE NOMINAL DEVIATION BETWEEN CALCULATED AND ACTUAL POST MEASURED VALUES.
- AS PER STANDARD PRACTICE AND UNLESS OTHERWISE INDICATED ALL CALCULATIONS ARE BASED ON THE DIRECT LIGHT COMPONENT.
- WHEREVER POSSIBLE THIS LIGHTING STRATEGY FOLLOWS PUBLISHED GUIDANCE PROVIDED BY THE INSTITUTE OF LIGHTING PROFESSIONALS (IPL) AND BAT CONSERVATION TRUST (BCT) GUIDANCE NOTE 08 / 23 - BATS AND ARTIFICIAL LIGHTING IN THE UK

ASSESSMENT CONCLUSION

AS CAN BE SEEN FROM THE ADJACENT ASSESSMENT TABLE:

ECOLOGY E1 TO E19 AND TREES T1 / T2 -

IN THE ABSENCE OF PUBLISHED LIMITING THRESHOLDS, LIGHT SPILL IS LIMITED TO BE BELOW 1.0 LUX ON THE VERTICAL PLANE (2m - 10m), NO FURTHER DESIGN MITIGATION REQUIRED

LUMINOUS INTENSITY (GLARE) -
DUE TO LUMINAIRES BEING OF LIMITED INTENSITY, CONSIDERED ANGLE OF DIRECTION AND SUITED FOR PUBLIC REALM APPLICATIONS (ROADWAYS / PEDESTRIAN), GLARE IS NOT CONSIDERED TO BE APPLICABLE - NO FURTHER DESIGN MITIGATION REQUIRED

DIRECT SKYGLOW -
DUE TO ALL LUMINAIRES BEING DOWNLIGHT OR COVERED, DIRECT SKYGLOW IS NOT CONSIDERED TO BE AN ISSUE - NO FURTHER DESIGN MITIGATION REQUIRED

Rev	Date	Description	Dwn	Chk
*	AUG 25	DRAFT ISSUE		

Light Pad

LIGHT PLANNING AND DESIGN LTD
ASSESSMENT / INTERIOR / EXTERIOR / DAYLIGHT / ECOLOGY

CLIENT
SHALL DO HAYES DEVELOPMENTS LIMITED

PROJECT
HAYES PARK WEST

DRAWING TITLE
PRELIMINARY EXTERNAL LIGHTING AND ASSESSMENT

DRAWING STATUS
PLANNING

DRAWN BY: LG	CHK BY: LG	DATE: AUG 25	SCALE: 1:250 @A1
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