



Client Report

Markfield – External Lighting Report

Presented to



50091-ESP-XX-XX-CRP-E-0001-02 Markfield
External Lighting Report

53 King Street • Manchester • M2 4LQ
0161 388 7490 • www.espltd.co.uk

Document Author	
Name	<u>Ben Longson</u>
Office	Manchester
Email	Ben.longson@espltd.co.uk
Contact Number	07384212646
Checked By	James Graham-Clare
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02	Site plan updated with masterplan drawing	50091-ESP-XX-XX-CRP-E-0001-02 Markfield External Lighting Report	19/09/2025

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1.0 INTRODUCTION

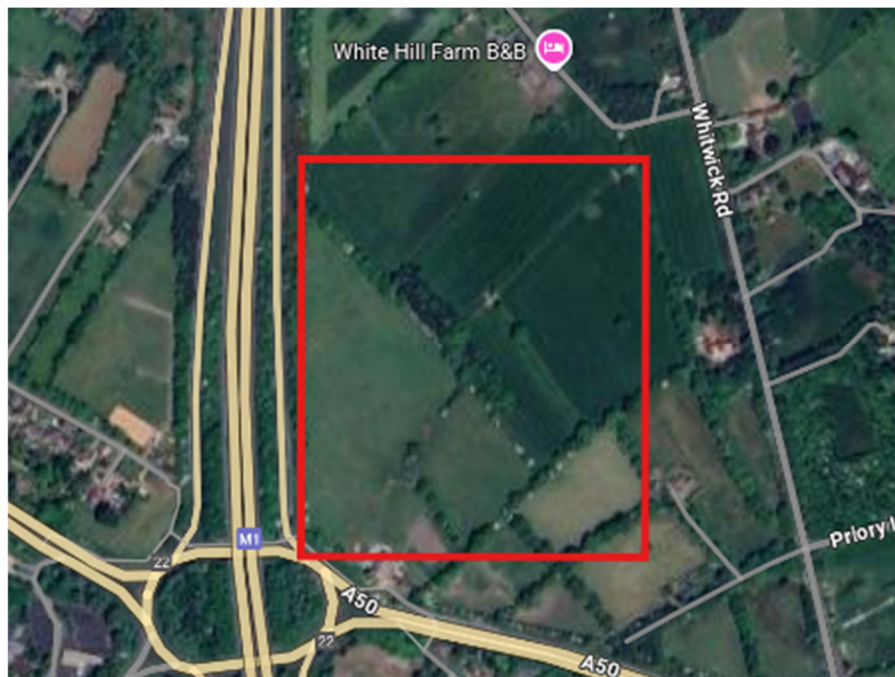
1.1 General

- 1.1.1 The contents of the external lighting strategy report has been prepared by Engineering Services Partnership Limited on behalf of Caddick Developments for the proposed Markfield development site, land North East of Junction 22 M1, Leicestershire.
- 1.1.2 The report provides an external lighting assessment to serve the proposed 6No sites (Units 01-06) and outlines the proposed external lighting design strategy and calculated outputs focusing on the artificial light pollution/glare to neighbouring properties and highways.
- 1.1.3 This report details the external lighting design criteria, luminaire specification and associated layout drawings outlining design compliance and minimal impact to neighbouring properties achieved through lighting design and product selection.

2.0 SITE LOCATION

2.1 General

- 2.1.1 The proposed Markfield development site is located within land situated East of Junction 22 from the M1 motorway network in the Hinckley and Bosworth district of Leicestershire.
- 2.1.2 The site comprises of a total site area of 69.84 acres with a net Developable area of 34.68 acres for the proposed 6 No individual units.
- 2.1.3 The proposed site is located within a rural setting north of the village of Markfield accessible from A50 eastbound and Whitwick Road.



Site location

3.0 PROPOSED DEVELOPMENT

3.1 General

3.1.1 The proposed site development comprises of 6No individual industrial units installed within undeveloped rural farmland.

3.1.2 Proposed site access is provided from A50 eastbound and Whitwick Road.



Proposed Site layout

3.2 External Lighting Design Principles

3.2.1 Lighting design undertaken in accordance with BS EN 12464-1 Indoor Workplaces and BS EN 12464-2 Outdoor Workplaces, CIBSE Lighting design guides and EUROBATs 'Publication Series No. 8 – Guidelines for consideration of bats in lighting projects.

3.2.2 The maximum obtrusive light permitted for exterior lighting installation has been compiled based on an E2 environmental classification zone for low district areas such as industrial or residential rural areas.

3.2.3 The external lighting installation for the development will be designed to satisfy the following requirements:

- Obtrusive light designed in accordance with BS EN 12464-2.

- Provide adequate illumination for safe vehicular access to the site parking.
- Provide adequate illumination for safe pedestrian access to the site and vicinity of the main building and walking routes.
- Comply with adequate safety, amenity use and security while minimising energy use and light pollution.
- Ensure minimal light spill or illumination.
- Designed to focus lighting on the areas where light is required and avoid light nuisance, pollution and/or glare to neighbouring properties, highways and on to adjacent land.
- Artificial lighting design designed to minimise light spill onto habitats both within and adjacent to the site used by wildlife and bat population for foraging and commuting in accordance with site specific ecology reports.
- Avoidance of direct lighting on existing trees, hedgerows, river corridors or proposed habitat creation/landscape planting.
- Design and installation of directional lighting, hooded/shielded luminaires to prevent light spill onto sensitive habitats/neighbouring highways/properties.
- To ensure wildlife avoidance of areas served by artificial light are minimised luminaires shall be designed as detailed above in conjunction with warm white 2700K CCT (Correlated Colour Temperature) light sources.
- Emergency luminaires shall be installed at each escape door from the buildings to allow compliance with BS5266 and Building Regulations.

4.0 LIGHTING CONTROL

4.1 General

- 4.1.1 A dedicated external LV distribution system comprising of main distribution equipment, remote feeder pillars served via centralised and remote lighting control systems (i.e. photocells, timeclocks and contactors) are proposed to serve the proposed external lighting installation.
- 4.1.2 The installation is proposed to operate via a timeclock arrangement with dusk to dawn override controls to optimise energy savings ensuring efficient illumination.
- 4.1.3 Where feasible overall site illumination levels could be reduced based on site operations and individual requirements during periods of site inactivity via individual unit lighting control arrangements to serve the proposed unit and adjacent car parking areas.

5.0 LUMINAIRE PROPOSALS

5.1 General

- 5.1.1 The lighting distribution strategy serving the site shall be provided via a combination of external lighting column post-top mounted luminaires mounted at either 6m or 8m and building mounted floodlight luminaires installed at 3m AFFL as detailed on the appended external lighting layouts.
- 5.1.2 High efficacy LED version luminaires (>123 luminaire L/W) with directional optics shall be installed throughout. To promote further optimisation and energy savings dedicated zoned/area lighting controls shall be provided as applicable.
- 5.1.3 Each individual unit shall be provided with a dedicated lighting installation to serve the external yard lighting, it is proposed this is installed with dedicated area control with automatic controls with manual override facility.
- 5.1.4 Individual external luminaire proposals shall be strategically located, installed and commissioned accounting for the luminaire orientation, tilt angle and installation of dedicated anti-glare/cut-off diffusers as applicable to reduce/limit light pollution to local habitat and mitigate overspill beyond the site boundary and neighbouring properties/highways.

6.0 LUMINAIRE SPECIFICATION

6.1 General

- 6.1.1 High efficacy LED version luminaires are proposed to serve the lighting installation, the specification of luminaires have been selected based on available luminaires with lower lumen output luminaires selected to serve the environmental requirements of the site.
- 6.1.2 Proposed luminaires shall be long lifespan luminaires rated at 100,000Hrs, luminaire output ratio (LOR) shall be based on 100% darksky approved luminaires where applicable, lamp sources shall comprise of 2700K CCT >70 Colour Rendering Indexing (CRI).

6.2 Luminaire Schedule

	Luminaire	Light Source	Light Engine
	Kingfisher - VASTA	vas – 160W LED AL50 – (VAS-FT70-740-160D)	2700K CCT, L90/B10 100,000Hr >70 CRI
	Kingfisher - VASTA	vas – 250W LED AL50 – (VAS-FT70-740-250D)	2700K CCT, L90/B10 100,000Hr >70 CRI

 SEMITA Urban	Kingfisher – SEMITA Urban	smu – 11W LED OC	2700K CCT, L80/B10 100,000Hr >70 CRI
 VIVA-CITY Pro	Kingfisher – VIVA-City Pro	vcp – 80W LED AY70	2700K CCT, L80/B20 100,000Hr >70 CRI
 VIVA-CITY Pro	Kingfisher – VIVA-City Pro	vcp – 80W LED FW70	2700K CCT, L80/B20 100,000Hr >70 CRI
 VIVA-CITY Pro	Kingfisher – VIVA-City Pro	vcp – 60W LED AY70	2700K CCT, L80/B20 100,000Hr >70 CRI
 VIVA-CITY Pro	Kingfisher – VIVA-City Pro	vcp – 60W LED FW70	2700K CCT, L80/B20 100,000Hr >70

7.0 EXTERNAL LIGHTING ASSESSMENT

7.1 General

7.1.1 External photometric lighting designs have been undertaken using manufacturers approved electronic design software and individual luminaire output technical data files with calculated output results detailed below.

7.1.2 The proposed external lighting design has taken into account the impact of the neighbouring properties and the luminaire/equipment selection, orientation, tilt angle has been considered to mitigate the effects of artificial lighting.

7.1.3 The contents of this report shall be reading in conjunction with the proposed schedules of luminaires and equipment detailed within Section 7.0 of this report and associated layout drawings appended within this report.

7.2 Individual Unit - Levels of illuminance per area (Loading, Service Yards, Unit Perimeter).

Calculation Summary						
Project: Project_1						
Label	CalcType	Units	Avg	Max	Min	Uniformity (Min/Avg)
Unit 1 Carpark	Illuminance	Lux	20.02	54	5	0.25
Unit 1 Loading	Illuminance	Lux	50.68	74	30	0.59
Unit 1 Perimeter	Illuminance	Lux	17.37	58	5	0.29
Unit 1 service yard	Illuminance	Lux	30.69	105	13	0.42
Unit 2 Carpark	Illuminance	Lux	18.95	73	5	0.25
Unit 2 Entrance Road	Illuminance	Lux	23.52	48	7	0.30
Unit 2 Gate house	Illuminance	Lux	58.70	142	24	0.41
Unit 2 Loading	Illuminance	Lux	51.45	73	32	0.62
Unit 2 Perimeter	Illuminance	Lux	13.64	35	4	0.29
Unit 2 Service yard	Illuminance	Lux	30.89	175	13	0.42
Unit 3 carpark	Illuminance	Lux	20.46	71	5	0.24
Unit 3 Loading	Illuminance	Lux	50.35	72	37	0.73
Unit 3 Perimeter	Illuminance	Lux	14.40	29	5	0.35
Unit 3 Service yard	Illuminance	Lux	30.64	96	13	0.42
Unit 4 Carpark	Illuminance	Lux	20.59	71	6	0.29
Unit 4 Entrance	Illuminance	Lux	34.20	51	11	0.32
Unit 4 Loading	Illuminance	Lux	52.05	72	34	0.65
Unit 4 perimeter	Illuminance	Lux	14.97	40	4	0.27
Unit 4 service yard	Illuminance	Lux	30.63	104	13	0.42
Unit 5 Carpark	Illuminance	Lux	19.78	68	5	0.25
Unit 5 Entrance Road	Illuminance	Lux	15.14	62	4	0.26
Unit 5 Loading	Illuminance	Lux	50.93	71	34	0.67
Unit 5 perimeter	Illuminance	Lux	15.38	37	4	0.26
Unit 5 Service yard	Illuminance	Lux	32.92	101	14	0.43

Unit 6 Carpark	Illuminance	Lux	23.92	47	6	0.25
Unit 6 Entrance Road	Illuminance	Lux	29.97	51	8	0.27
Unit 6 Loading	Illuminance	Lux	59.53	99	26	0.44
Unit 6 Perimeter	Illuminance	Lux	16.43	38	6	0.37
Unit 6 Service yard	Illuminance	Lux	37.01	101	17	0.46

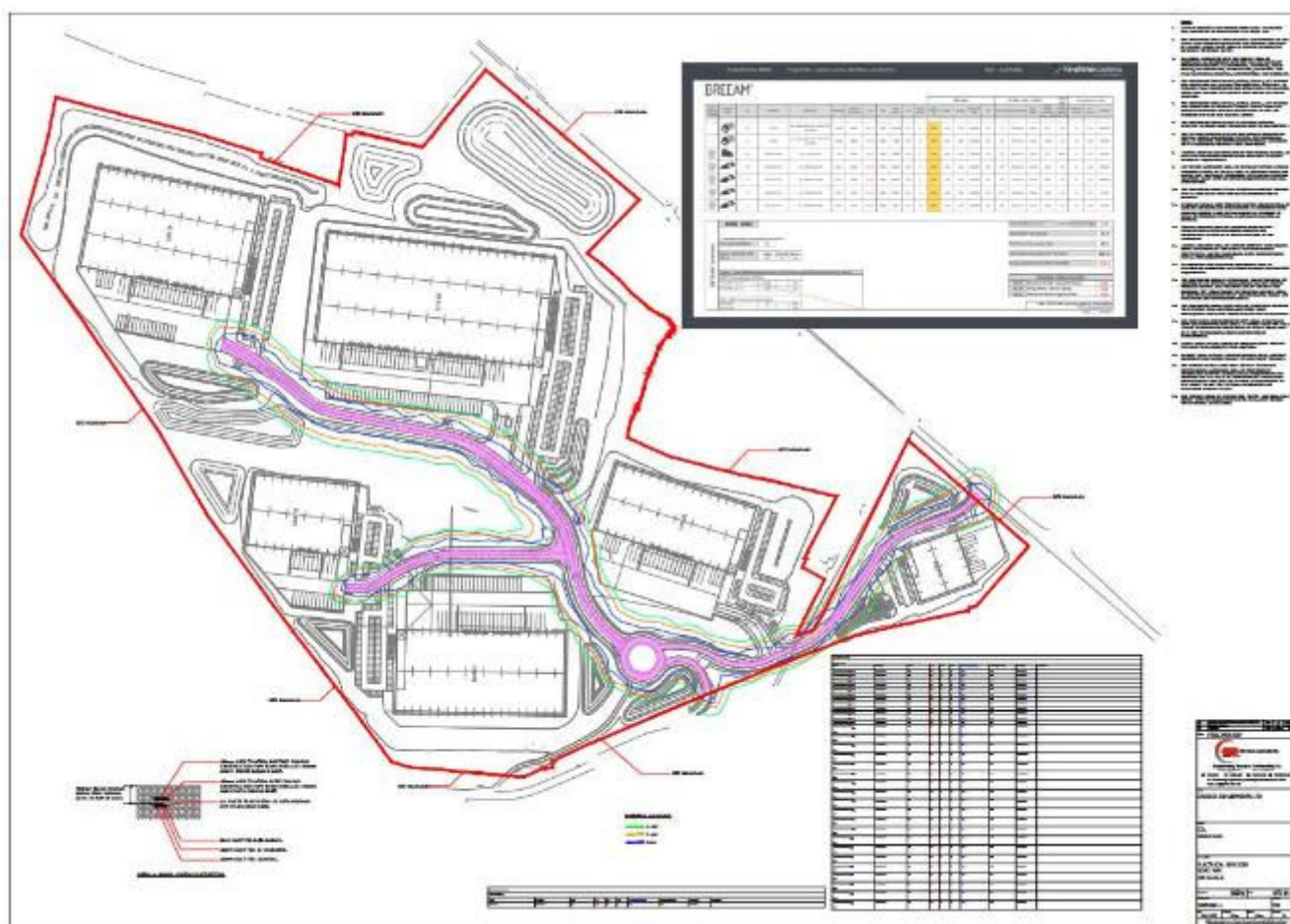
Individual Levels of Illuminance



7.3 Road Way

Calculation Summary						
Project: Project_1						
Label	CalcType	Units	Avg	Max	Min	Uniformity (Min/Avg)
Site Road	Illuminance	Lux	19.50	51	8	0.41

Site Road Levels of Illuminance



7.4 External Site Lighting

Calculation Summary						
Project: Vertical						
Label	CalcType	Units	Avg	Max	Min	Uniformity (Min/Avg)
Vertical around unit 1_II_Seg1	Obtrusive - II	Lux	0.00	0	0	N.A.
Vertical around unit 1_II_Seg2	Obtrusive - II	Lux	0.00	0	0	N.A.
Vertical around unit 1_II_Seg3	Obtrusive - II	Lux	0.01	1	0	0.00
Vertical around unit 2_II_Seg1	Obtrusive - II	Lux	0.07	14	0	0.00
Vertical around unit 2_II_Seg2	Obtrusive - II	Lux	0.00	0	0	N.A.
Vertical around unit 2_II_Seg3	Obtrusive - II	Lux	0.00	0	0	N.A.
Vertical around unit 2_II_Seg4	Obtrusive - II	Lux	0.00	0	0	N.A.
Vertical around unit 2_II_Seg5	Obtrusive - II	Lux	0.00	0	0	N.A.
Vertical around unit 2_II_Seg6	Obtrusive - II	Lux	0.00	0	0	N.A.
Vertical around unit 2_II_Seg7	Obtrusive - II	Lux	0.08	1	0	0.00
Vertical around unit 2_II_Seg8	Obtrusive - II	Lux	0.00	0	0	N.A.

Vertical around unit 2_II_Seg9	Ostrusive - III	Lux	0.09	1	0	0.00
Vertical around unit 3 East_III_Seg1	Ostrusive - III	Lux	0.25	1	0	0.00
Vertical around unit 3 East_III_Seg2	Ostrusive - III	Lux	0.14	1	0	0.00
Vertical around unit 3 East_III_Seg3	Ostrusive - III	Lux	0.17	1	0	0.00
Vertical around unit 3 East_III_Seg4	Ostrusive - III	Lux	0.25	1	0	0.00
Vertical around unit 3 East_III_Seg5	Ostrusive - III	Lux	0.05	1	0	0.00
Vertical around unit 3 East_III_Seg6	Ostrusive - III	Lux	0.18	1	0	0.00

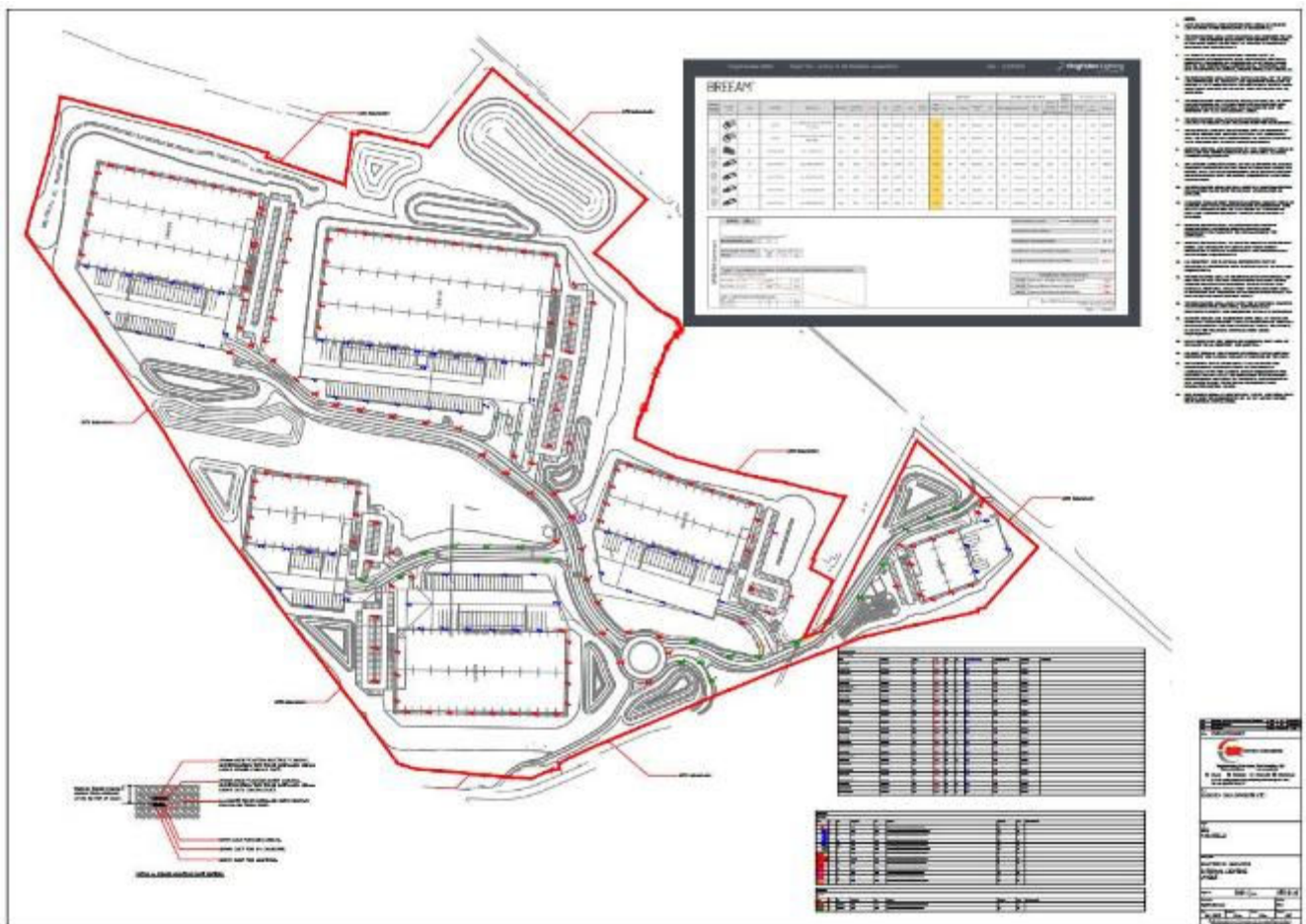
Vertical around unit 3 West_III_Seg1	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 3 West_III_Seg2	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 3 West_III_Seg3	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 3 West_III_Seg4	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 3 West_III_Seg5	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 3 West_III_Seg6	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 5+6_III_Seg1	Ostrusive - III	Lux	0.00	0	0	N.A.

Vertical around unit 5+6_III_Seg2	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 5+6_III_Seg3	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 5+6_III_Seg4	Ostrusive - III	Lux	0.00	0	0	N.A.
Vertical around unit 5+6_III_Seg5	Ostrusive - III	Lux	0.18	1	0	0.00
Vertical around unit 5+6_III_Seg6	Ostrusive - III	Lux	0.01	1	0	0.00
Vertical around unit 5+6_III_Seg7	Ostrusive - III	Lux	0.13	1	0	0.00
Vertical around unit 5+6_III_Seg8	Ostrusive - III	Lux	0.00	0	0	N.A.

External Site Levels of Illuminance



7.5 External Site Lighting Layout



External Lighting Layout & Fittings Used

7.6 Neighbouring Properties

7.7 General

- 7.7.1 Existing residential properties located adjacent to the proposed development have been considered within the assessment with the luminaire and equipment specification selected to ensure compliance with the requirements of BS EN 12464-2 and the Environmental Zone E2 classification.
- 7.7.2 Calculated photometric design data for the external site contained within the site boundary, outlines the controlled overspill of artificial light (1Lux as identified by the Green line) as detailed below and within the appended design drawings.
- 7.7.3 The proposed external lighting design does not incorporate the existing hedgerow and tree network that exist alongside the residential access road Cottage Lane and the existing property/proposed site boundaries, therefore calculated levels of illuminance will likely be reduced further where these boundary hedgerow networks exist.



Residential properties accessible from Cottage Lane.



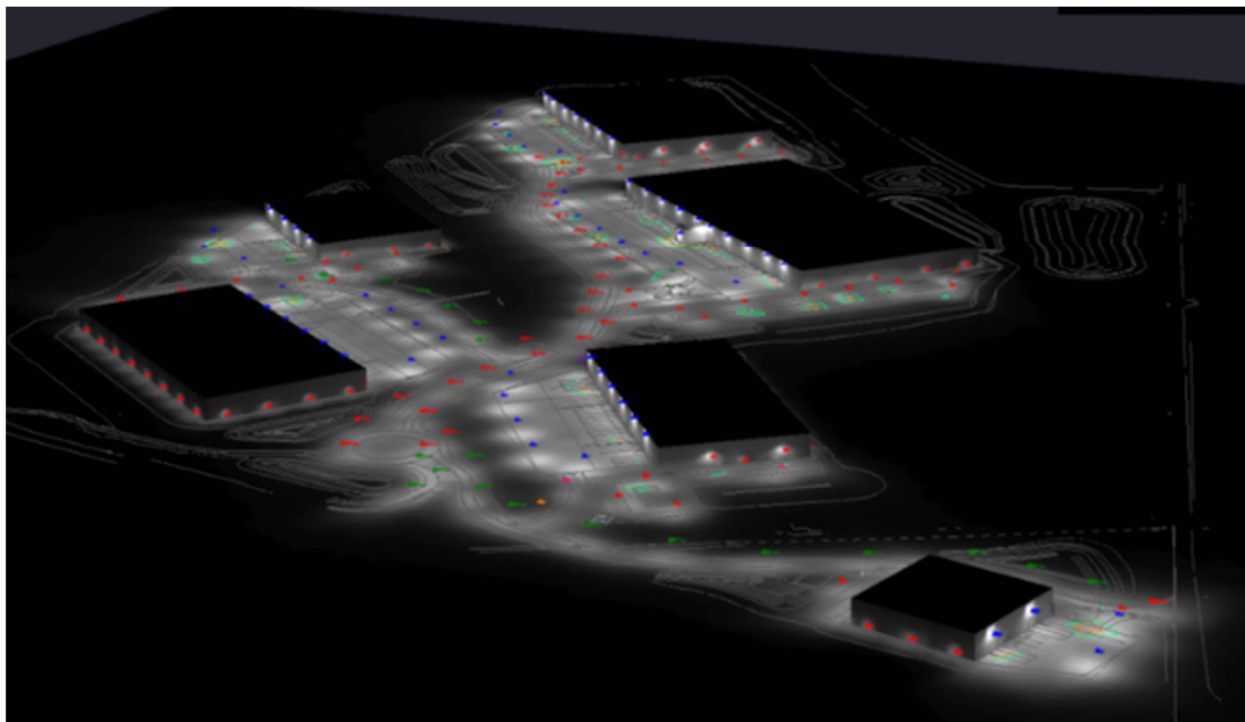
Whitehill, Whitwick Road

8.0 SUMMARY

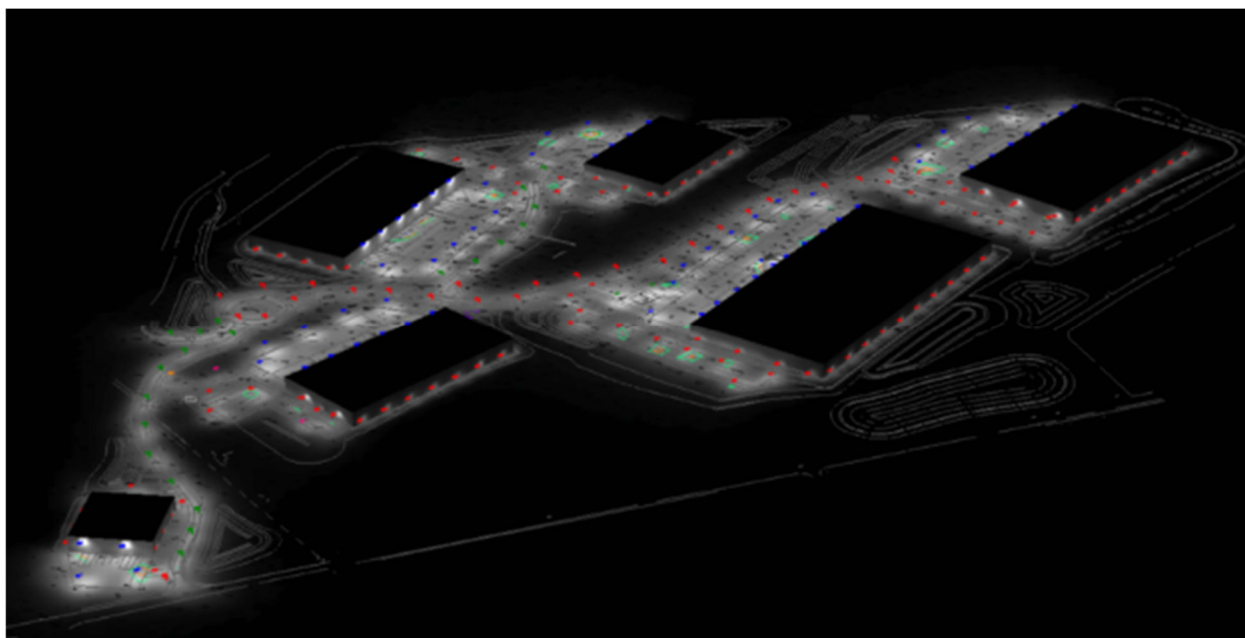
8.1 General

- 8.1.1 The calculated levels of illuminance detailed in this report and associated drawings detail the proposed external lighting design to serve the proposed development.
- 8.1.2 Through the design and selection of luminaires and associated accessories the proposed external lighting design achieves compliance with the design criteria outlined within this report and eco-logical report.
- 8.1.3 Assessment of the proposed lighting design against the existing neighbouring properties from Cottage Lane and Whitwick Road shows minimal horizontal illumination contained within the site boundary.
- 8.1.4 The electronic calculation design outputs are based on the proposed site developments and do not include the existing hedgerow and tree network which will provide further shielding to the proposed external lighting installation.

APPENDIX A – DIALUX RENDERING IMAGES



Front (South) View



Side (South-West) View

APPENDIX B – EXTERNAL LIGHTING LAYOUT DRAWINGS

- 50091-E-110 External Lighting lux Levels
- 50091-E-111 Roadway Lux Levels
- 50091-E-112 External Lighting Layout