

Project	Northern Moor Care Home, Wythenshawe		
Document Number	NMCH-BWB-ZZ-XX-RP-LV-0001	BWB Ref	255809
Author	Peter Leonard	Status	S2
Checked	Steven Walker	Revision	P2
Approved	Peter Leonard	Date	25/09/2025

1.0 INTRODUCTION AND SCOPE

1.1 BWB Consulting were appointed to undertake a survey and report to verify the installed external lighting installation at the new Northern Moor Care Home in Wyntehnschawe, Manchester is in compliance with the Lighting Impact Assessment submitted at planning application stage, reference YTCH-BWB-00-XX-RP-E-0001_LIA dated 27/06/2022.

1.2 This Technical Note is in response to Planning Condition 15 which states 'Prior to first occupation of the development a verification report will be required to validate that the work undertaken for the installation of the approved external lighting scheme throughout the development conforms to the recommendations and requirements in the Lighting Impact Assessment prepared by BWB. The report shall also undertake post completion testing to confirm that acceptable criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the criteria.'

1.3 Under our appointment BWB Consulting included the below scope;

Review lighting record drawings, O&M's, and technical submissions.

Visit site to:

- Visually inspect installed lighting equipment (types, heights, and positions) and controls, and compare to the design intent recommended within the Lighting Impact Assessment Ref. YTCH-BWB-00-XX-RP-E-0001_LIA dated 27th June 2022.
- Measure lux levels using a calibrated light meter at various points across the site and assess against design levels
- Take photographic records
- Provide a summary of findings in report format including tabulated results and photographic records
- Highlight any discrepancies either with installed equipment or measured lighting readings
- Confirm compliance with the Lighting Impact Assessment Ref. YTCH-BWB-00-XX-RP-E-0001_LIA dated 27th June 2022 or provide recommendations as to any necessary remedial actions

2.0 LIA RECOMMENDATIONS

2.1 The recommendations set out in the LIA reference YTCH-BWB-00-XX-RP-E-0001_LIA dated 27th June 2022 are noted below for reference;

6.1 All external lighting, whether for the construction or operation phase, must comply with the recommended limitations given in the ILP Guidance Notes for an Environmental Zone E3 location. The limits, set out in Table 2, prohibits excessive emission of upward light and helps to minimise light spill and glare.

6.2 Light colour should be addressed as part of the overall approach to the masterplan lighting design. Warmer light colour (2700K) is preferred in accordance with accordance to Institute of Lighting Professionals (ILP) BCT Guidance Note 08 for Bats and artificial lighting in the UK (2018). LED

typically features no UV component and research indicates that while lower UV components attract fewer invertebrates, warmer colour temperatures (2700K) cause less impacts on bats.

6.3 During the detailed design phase of the project the locations of proposed bat boxes must be coordinated with the proposed lighting installation.

6.4 The paths in the garden area should be lit via 1m high bollards that provide downward light only to minimise light impact to the northern hedgerow.

6.5 Spectral composition is somewhat related to light colour, but the effects are not always immediately apparent. It is desirable for light quality, safety and wildlife effect limitation purposes to use LED technology. LEDs present good working efficacy, a smaller light emitting area which is good for light control and spectral compositions which are less disturbing to nocturnal wildlife or their food sources than UV rich traditional light sources.

6.6 The use of horizontal cut-off luminaires installed at zero tilt with flat glass lenses and internal optics is recommended to limit views of the lamp, control glare and direct light in a controlled pattern. This will help to minimise potential glare, sky glow and light spill.

6.7 New generation LED light sources are recommended for new external lighting.

6.8 Wattages shall achieve required light levels without over-lighting

2.2 A copy of the LIA is also appended to this Technical Note for reference.

3.0 DESKTOP REVIEW

3.1 The design and installation Contractor provided External Lighting drawings, calculations and data sheets. These are appended to this Technical Note for reference.

3.2 The design had amended some of the initial proposals as noted below;

- Illuminated bollards have been omitted from the works including to the rear garden area
- Minor amendments to column location to suit site conditions
- Perimeter wall mounted luminaires installed to provide both illuminated perimeter but also emergency lighting required to meet BS5266.
- The proposed changes do not appear to adversely affect the installation or contravene the recommendations within the original LIA.
- The wall mounted luminaires installed are 3000K in lieu of 2700K albeit this appears acceptable as a minimal change.

4.0 SITE SURVEY

4.1 BWB completed a site survey on 22/09/2025, initial daylight verification at 17:30 until 18:30 and nighttime lighting levels taken at 19:45 until 20:45.

4.2 The weather was fair, dry and partially cloudy.

4.3 Sunset was stated at 19:08 according to web sources.

4.4 The position, height, type and orientation were checked and recorded for every external luminaire.

- 4.5 Once in hours of darkness the installation was reviewed to check it was fully operational and what the actual resultant lux levels were across the site and at the site boundaries.
- 4.6 It was noted during the survey that the western boundary is provided with a circa 2.3m close boarded timber fence which provides an additional barrier to obtrusive light.
- 4.7 It was noted during the survey that the northern boundary has a similar 2.4m close boarded timber fence along two thirds of its length. There is then a section of circa 2.1m acoustic timber fencing for another third of its length where the plant compound is located. Both of these provide an additional barrier to obtrusive light.
- 4.8 It was noted during the survey that the eastern boundary is provided with a wall and railing along the back of the public footpath. The wall is circa 0.85m at its lower sections and 2.1m at the higher sections. The adjacent public highway is provided with existing street lighting.
- 4.9 It was noted during the survey that the southern boundary is provided with a wall and railing along the back of the public footpath. The wall is circa 0.6m high. The adjacent public highway is provided with street lighting.
- 4.10 A calibrated lux meter was used to record lux levels across the site during the site survey. Details of the lux meter and calibration certificate are appended to the report for information.

5.0 RESULTS / FINDINGS

Desktop

- 5.1 The initial design and technical submission provided by the Contractor included a number of changes from the original design strategy, these are noted below;
- i. The spill to the residential properties looked higher than the design strategy
 - ii. The spill to the ecology area to the north looked higher than the maximum 2 lux which was agreed with the ecologist
 - iii. The colour temperature of the wall luminaires was higher than recommended (2700K vs 4000K) according to ILP GN08 Bats and Artificial lighting at Night
 - iv. The colour temperature of the column lights was not indicated on the drawings. These appeared to be 6000K with high blue light component, again significantly higher than the design strategy
 - v. The wall luminaires were not the directional type, likely emitting too much upward light to be compliant with ILP GN01 Reduction of Obtrusive Light
 - vi. The wall luminaires mounting height appeared excessive
- 5.2 Following our review and comments the below design amendments were agreed and incorporated;
- i. The proposed column mounted luminaires in the submitted design were omitted in lieu of those used in the original lighting design strategy, improving the light spill
 - ii. The change in column mounted luminaires also amended the colour temperature to 2700K in line with the original lighting design strategy
 - iii. The perimeter wall mounted luminaires were provided with eyelid attachment to limit direct upward light distribution improving upward light spill and maximising distribution of the useful light to the downward distribution
 - iv. The perimeter wall mounted luminaire wattages were reduced in areas, improving the light spill
 - v. The perimeter wall mounted luminaire colour temperature was reduced to 3000K
 - vi. The mounting height of the wall luminaires was reduced to a more appropriate level further reducing the light spill

Site Survey

- 5.3 Following our site survey we were able to verify the installation was as per the design drawings and agreed amendments for the majority of the installation, any discrepancies are highlighted below.
- 5.4 All luminaires were given a unique identification reference for reference as part of the survey which can be found appended to the report.
- 5.5 Column C1 was found to be installed one parking bay east of its position on the design drawings. This actually aligned further with the design strategy and was therefore of benefit to the light distribution. The type, height and orientation aligned with the design
- 5.6 Column C2 and C3 had the incorrect luminaires installed as the lower wattage should have been used at position C3 not C2 and vice versa, the location, height and orientation aligned with the design.
- 5.7 Column C4 type, location, height and orientation aligned with the design.
- 5.8 Wall mounted luminaires W1 – W25 type, location, height and orientation aligned with the design.
- 5.9 2 No. additional wall mounted (fence mounted) luminaires were identified in the fenced ASHP plant compound. The wattage and colour temperature of these luminaires did not appear to align with the rest of the installation and were in excess of the agreed design proposals.
- 5.10 Images of all installed luminaires are appended for reference.
- 5.11 Spot lux level checks were undertaken across the site and checked against the original design strategy and the agreed design proposals. Recorded lux levels appeared to align with the agreed design proposals and original lighting design strategy apart from those highlighted below.
- 5.12 The gardening equipment and potting area lighting recorded levels were in excess of 2 lux above 1m at the boundary.

6.0 AGREED POST SURVEY ACTIONS

- 6.1 ASHP compound luminaires W26 – W27 to be added to the lighting drawings
- 6.2 ASHP compound luminaires W26 – W27 wattage to be reduced to the minimum wattage of 9w
- 6.3 ASHP compound luminaires W26 – W27 colour temperature to be reduced to 3000K in line with the rest of the wall luminaires.
- 6.4 Column C1 position to be updated on the lighting drawings (and calculations)
- 6.5 Column C2 and C3 luminaires to be swapped over.
- 6.6 Further mitigation required in the gardening equipment area to reduce any potential impact on any sensitive receptors. The 2 No. wall luminaires in that location shall be reduced to the minimum wattage of 9w.
- 6.7 Additionally the 2 No. luminaires shall be removed from the perimeter building lighting control circuit. Control of these luminaires shall be amended and connected to a dedicated microwave detector (presence) covering that area only. This will result in the lighting only being operated when the area is occupied which is expected to be infrequent and for very short periods of time. The area will therefore not operate generally in hours of darkness without specific need to access that area.

7.0 CONCLUSION

- 7.1 Following the review and verification of the desktop information and installation on site we can confirm a small number of actions were required to satisfy the requirements of the Lighting Impact Assessment as detailed below.
- 7.2 ASHP compound luminaires W26 – W27 to be added to the lighting drawings – Appended to this Technical Note
- 7.3 ASHP compound luminaires W26 – W27 wattage to be reduced to the minimum wattage of 9w – Confirmed completed with photo evidence 23/09/25
- 7.4 ASHP compound luminaires W26 – W27 colour temperature to be reduced to 3000K in line with the rest of the wall luminaires – Confirmed completed with photo evidence 23/09/25
- 7.5 Column C1 position to be updated on the lighting drawings (and calculations) – Appended to this Technical Note
- 7.6 Column C2 and C3 luminaires to be swapped over – Confirmed completed 09/10/25
- 7.7 Further mitigation required in the gardening equipment area to reduce any potential impact on any sensitive receptors. The 2 No. wall luminaires in that location shall be reduced to the minimum wattage of 9w – Confirmed completed with photo evidence 23/09/25
- 7.8 Additionally the 2 No. luminaires shall be removed from the perimeter building lighting control circuit. Control of these luminaires shall be amended and connected to a dedicated microwave detector (presence) covering that area only. This will result in the lighting only being operated when the area is occupied which is expected to be infrequent and for very short periods of time. The area will therefore not operate generally in hours of darkness without specific need to access that area – Confirmed completed 09/10/25.
- 7.9 Further mitigation to light spill has been provided by the installed fencing along both western and northern boundaries. In particular this provides a direct barrier to the ecological sensitive area highlighted in the LIA, retaining direct light within the site.
- 7.10 Alongside the fencing referenced in 7.9 the local control of both the ASHP compound lighting and the gardening equipment area have resulted in that lighting only being operational when specifically required, for short periods of time and infrequently. This provides further mitigation and impact of the lighting installed in these areas.
- 7.11 Lighting to the rear garden area has been omitted further mitigating the impact of lighting to northern boundary.
- 7.12 In direct reference to the recommendations of the LIA we can further comment against each point below;

6.1 All external lighting, whether for the construction or operation phase, must comply with the recommended limitations given in the ILP Guidance Notes for an Environmental Zone E3 location. The limits, set out in Table 2, prohibits excessive emission of upward light and helps to minimise light spill and glare.

The submitted design and recorded lux levels appear to be in line with the recommended limitations for an Environmental Zone E3 as set out in ILP GN 01.

6.2 Light colour should be addressed as part of the overall approach to the masterplan lighting design. Warmer light colour (2700K) is preferred in accordance with Institute of

Lighting Professionals (ILP) BCT Guidance Note 08 for Bats and artificial lighting in the UK (2018). LED typically features no UV component and research indicates that while lower UV components attract fewer invertebrates, warmer colour temperatures (2700K) cause less impacts on bats.

The selected lighting has utilised colour temperature of 2700K and where not available in the selected luminaire a maximum of 3000K to be in keeping with 'warm white' appearance.

6.3 During the detailed design phase of the project the locations of proposed bat boxes must be coordinated with the proposed lighting installation.

All bird/bat boxes have been installed in line with all relevant planning conditions.

6.4 The paths in the garden area should be lit via 1m high bollards that provide downward light only to minimise light impact to the northern hedgerow.

Lighting to the garden area has been omitted from the proposals.

6.5 Spectral composition is somewhat related to light colour, but the effects are not always immediately apparent. It is desirable for light quality, safety and wildlife effect limitation purposes to use LED technology. LEDs present good working efficacy, a smaller light emitting area which is good for light control and spectral compositions which are less disturbing to nocturnal wildlife or their food sources than UV rich traditional light sources.

All external luminaires selected and installed utilise LED light sources.

6.6 The use of horizontal cut-off luminaires installed at zero tilt with flat glass lenses and internal optics is recommended to limit views of the lamp, control glare and direct light in a controlled pattern. This will help to minimise potential glare, sky glow and light spill.

All column mounted luminaires are as per the original LIA design strategy and are installed at zero tilt with flat glass lenses and internal optics. Wall mounted luminaires are complete with diffusers limiting the view of the light source and eyelid attachment to minimise direct upward light.

6.7 New generation LED light sources are recommended for new external lighting.

All external luminaires selected and installed utilise LED light sources.

6.8 Wattages shall achieve required light levels without over-lighting

All wattages have been limited to the minimum required for the area.

7.13 In summary, following the desktop review, findings of the survey, agreed actions and in reference to the original lighting design strategy we can confirm the requirements and recommendations of the LIA have been followed and/or further mitigated where required.

7.14 We believe the contents of this Technical Note should be sufficient to discharge planning condition 15 for the development.

APPENDICIES

- YTCH-BWB-00-XX-RP-E-0001_LIA dated 27/06/2022
- Technical design submission (original and updated post comments)
- Lux Meter and certification
- Luminaire Unique References
- Photographic luminaire record

YTCH-BWB-00-XX-RP-E-0001_LIA dated 27/06/2022

BUILDINGS AND BUILT ENVIRONMENT

Liberty Care Developments Ltd
Yew Tree Care Home
Northern Moor
Lighting Impact Assessment

BUILDINGS AND BUILT ENVIRONMENT

Liberty Care Developments Ltd
Yew Tree Care Home
Northern Moor
Lighting Impact Assessment

Birmingham
Livery Place, 35 Livery Street, Colmore Business District, Birmingham, B3 2PB
T: 0121 233 3322

Cambridge
14-16 High Street, Histon, Cambridge
CB24 9JD
T: 01223 235 173

Leeds
Whitehall Waterfront, 2 Riverside Way, Leeds
LS1 4EH
T: 0113 233 8000

London
11 Borough High Street
London, SE1 9SE
T: 0207 407 3879

Manchester
4th Floor Carvers Warehouse, 77 Dale Street
Manchester, M1 2HG
T: 0161 233 4260

Market Harborough
12a Woodcock House, Compass Point Market Harborough, Leicestershire, LE16 9HW
T: 01858 455020

Nottingham
Waterfront House, Station Street, Nottingham NG2 3DQ
T: 0115 924 1100

June 2022

DOCUMENT ISSUE RECORD

Document Number:	YTCH-BWB-00-XX-RP-E-0001_LIA
BWB Reference:	220454_LIA

Revision	Date of Issue	Status	Author:	Checked:	Approved:
P1	27/06/2022	S2	Danny Alasfar	Peter Leonard	Peter Leonard

Notice

This document has been prepared for the sole use of the Client in accordance with the terms of the appointment under which it was produced. BWB Consulting Limited accepts no responsibility for any use of or reliance on the contents of this document by any third party. No part of this document shall be copied or reproduced in any form without the prior written permission of BWB.

CONTENTS

1. INTRODUCTION	4
Instruction	4
Proposed Development	4
Objectives.....	4
Scope of Works.....	4
2. RELEVANT POLICY AND GUIDANCE	5
International guidance	5
National guidance.....	5
British Standards.....	7
Local guidance.....	8
3. LIGHT POLLUTION.....	9
Types of Light Pollution.....	9
Design Aspects.....	10
4. BASELINE	11
Environmental Zone	12
5. PROPOSED DEVELOPMENT	13
Proposed Site Lighting	13
6. RECOMMENDATIONS	16
7. CONCLUSION	17

FIGURES

Figure 1. Types of Light Pollution
Figure 2. Aerial view of site

APPENDICES

Appendix 1: Proposed Development Masterplan
Appendix 2: Proposed External Lighting Layout
Appendix 3: Proposed External Lux Plot Layout
Appendix 4: Proposed Luminaire Type

1. INTRODUCTION

Instruction

- 1.1 BWB Consulting Limited (BWB) was instructed by Liberty Care Developments Ltd (the Client) to undertake a lighting impact assessment to support a full planning application for the demolition of existing buildings and structures and the construction of a new care home facility including basement, access, landscaping and associated infrastructure in Northern Moor, Manchester ('the Site').

Proposed Development

- 1.2 The Proposed Development Masterplan is included within **Appendix 1**.

Objectives

- 1.3 This report has been produced to identify the proposed lighting strategy and subsequent impact of the external lighting installation on the existing site environment and the wider locality.
- 1.4 A lighting installation is required to enable users to operate safely and reduce the fear of crime. Lighting is needed for both pedestrians and vehicle drivers. For pedestrians, lighting for good viewing conditions and avoidance of dark areas is necessary. For vehicle drivers the emphasis is on good lighting for vehicle movement and use of roads.
- 1.5 This report reviews the potential effects of new lighting and reviews methods of lighting the proposed external areas while limiting potentially obtrusive effects to receptors that may have a negative response to a change in their lighting condition. Nearby residential properties and wildlife / habitat which are found on, near or utilising the site are typical receptors considered for analysis.

Scope of Works

- 1.6 The Scope of work includes:
- Identification and assessment of receptors and their sensitivity.
 - Identification of required / anticipated lighting provisions for the proposed development; and
 - Assessment of the potential effects created by a new lighting strategy with respect to the baseline condition.

2. RELEVANT POLICY AND GUIDANCE

International guidance

Commission Internationale De L'Eclairage (CIE 150)

- 2.1 The purpose of this guide is to help formulate guidelines for assessing the environmental effects of outdoor lighting and to give recommended limits for relevant lighting parameters to contain the obtrusive effects of outdoor lighting within tolerable levels. As the obtrusive effects of outdoor lighting are best controlled initially by appropriate design, the guidance given is primarily applicable to new installations; however, some advice is also provided on remedial measures which may be taken for existing installations. This guide refers to the potentially adverse effects of outdoor lighting on both natural and man-made environments for people in most aspects of daily life, from residents, sightseers, transport users to environmentalists and astronomers.

Guidelines for Minimising Sky Glow (CIE 126)

- 2.2 These guidelines prepared by Commission Internationale De L'Eclairage provide general guidance for lighting designers and policy makers on the reduction of sky glow. The report gives recommendations about maximum permissible values for lighting installations. These values must be regarded as limiting values. Lighting designers should seek to meet the lowest specifications for the design. Other uses of the open air areas at night will usually result in less stringent sky-glow requirements. Practical implementation of the general guidance is left to National Regulations.

National guidance

National Planning Policy Framework (2021)

- 2.3 The Revised National Planning Policy Framework (NPPF) provides guidance relating to planning and pollution control for new development in England. The purpose of the planning system is to contribute to achievement of sustainable development. In relation to lighting, Paragraph 185 states: "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation"

DEFRA's Lighting in the Countryside: Towards Good Practice (2001)

- 2.4 The Office of the Deputy Prime Minister (ODPM – now Department for Communities and Local Government) in conjunction with the Countryside Commission published 'Lighting in the Countryside: Towards Good Practice' in July 1997, and a revised issue in 2001. The guidance was developed to 'provide practical advice on the prevention and control of lighting effects through appropriate action by all those involved with lighting in the countryside'. Its objective is 'to identify good practice in the planning and design of lighting in rural areas; and advise on how it can be achieved, using case study examples'. The guide aims to provide an overview and common understanding of all aspects of good lighting practice stating that close co-operation and participation is

required for all those involved in planning, designing and installing lighting schemes. The guidance provides valuable information on lighting best practice and the standard methodology outlined in this guidance document has been followed as part of this assessment. Whilst the guidance relates to 'lighting in the countryside', it is considered best practice to adopt many of the principles contained within the guidance to sites of a more urban nature.

Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (2021)

- 2.5 The ILP has proposed lighting guidance and criteria for local authorities with a recommendation that they are incorporated at the local plan level. The guidance defines various forms of light pollution and describes a series of environmental zones (similar to the CIE 150 environmental zones). The ILP guidance provides suitable criteria against which the effects of artificial lighting can be assessed and is used in this assessment.
- 2.6 The ILP Guidance Notes recommends that the immediate environment is classified systematically as shown in **Table 1**. ILP Guidance Notes then make recommendations for limiting obtrusive light according to the environmental zone in which the lighting would be situated. The stringency depends on the capacity to absorb lighting effects, with Zone E0 requiring the strictest level of control and E4 the lowest.

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

- 2.7 For each Environmental Zone, recommended obtrusive light limits for exterior lighting installations have also been determined. These are summarised in **Table 2**.

Table 2. Obtrusive Light Limitations for Exterior Lighting Installations

Light Technical Parameter	Application Conditions	Environmental Zones				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E _v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx	1 lx	2 lx	5 lx
Upward light ratio (ULR) %		0	0	2.5	5	15

Institute of Lighting Professionals (ILP) BCT Guidance Note 08 for Bats and artificial lighting in the UK (2018).

- 2.8 This document is aimed at lighting professionals, lighting designers, planning officers, developers, bat workers/ecologists and anyone specifying lighting. It is intended to raise awareness of the impacts of artificial lighting on bats, and mitigation is suggested for various scenarios.
- 2.9 The Guidance Note provides recommendations for appropriate external lighting specification:
- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
 - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
 - A warm white spectrum (ideally <2700 Kelvin) should be adopted to reduce blue light component.
 - Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
 - Column heights should be carefully considered to minimise light spill.
 - Only luminaires with an upward light ratio of 0% and with good optical control should be used.
 - Luminaires should always be mounted on the horizontal, ie no upward tilt.
 - As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

British Standards

BS EN 12464-2: Lighting of Workplaces, Outdoor Workplaces (2014)

- 2.10 This standard specifies requirements for lighting of tasks in most outdoor work places and their associated area in terms of quantity and quality of illumination. In addition, recommendations are given for good lighting practice. This standard includes important recommendations on how obtrusive light can be limited to keep night skies free of light pollution.

Local guidance

Manchester City Council: Core Strategy Development Plan (Adopted 2012)

- 2.11 The Core Strategy was adopted by Manchester City Council on 11th July 2012. It is the key document in Manchester's Local Development Framework and covers a period of 15 years from 2012 to 2027. It describes Manchester today and outlines the Council's vision for Manchester in 2027 along with the planning policies which will be used to deliver that vision.
- 2.12 Policy DM 1 is in relation to Development Management and states the following with relevance to external lighting:
- All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:-
 - Appropriate siting, layout, scale, form, massing, materials and detail.
 - Impact on the surrounding areas in terms of the design, scale and appearance of the proposed development. Development should have regard to the character of the surrounding area.
 - Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise.
 - Community safety and crime prevention.
 - Effects relating to biodiversity, landscape, archaeological or built heritage.

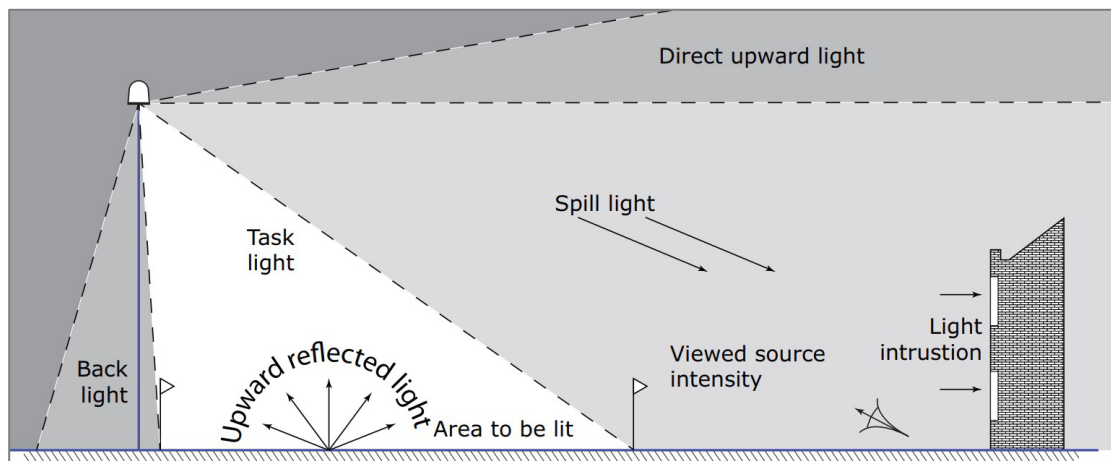
Extended Phase 1 Habitat Survey & Daytime Bat Survey (April 2022)

- 2.13 This report includes a description of survey methods, a summary description of habitats and fauna and outlines measures to provide protection and enhancements for biodiversity.
- 2.14 This report states the following with reference to bats:
- No evidence of bat activity was located within any of the accessible loft voids. However, a very small number of potential bat entry points do exist on the external features as well as some slipped slate roof tiles. Part of the older loft voids were inaccessible. Therefore, the building is considered to offer low suitability for a bat roost and a single precautionary bat emergence survey should be undertaken. The trees on site offer no potential bat roosting features. The trees are considered to offer negligible suitability for a bat roost. Only the northern hedgerow on site offers suitable bat foraging and commuting habitat and this is to be retained. This should be maintained as a dark wildlife corridor.
- 2.15 During landscaping design, the following measures should be implemented to increase the biodiversity value of the site:
- Soft landscaping should include the provision of native and non-native flowering perennial species, to provide a pollen and nectar source for invertebrates.
 - Bird boxes and bat boxes should be erected/incorporated onto the new building.
 - Native trees and/or fruit trees should be planted.

3. LIGHT POLLUTION

- 3.1 Light pollution is a generic term for all the adverse impacts that artificial lighting can have after dark. The main types of light pollution are shown diagrammatically in **Figure 1**.

Figure 1. Types of Light Pollution



- 3.2 Contributing to these direct effects are three design aspects that should be considered alongside the purpose for a new lighting installation and the type of sensitive receptors found in the local area. These are described later in this report.

Types of Light Pollution

Light Spill (Light intrusion, back light)

- 3.3 Light spill is 'the spilling of light beyond the boundary of the site on which a light source is located', such that it causes a noticeably adverse effect. More simply, light spill is often termed as the intrusion of light into homes. It can also have a negative effect on wildlife and ecological systems local to an installation.
- 3.4 As set out in the ILP Guidance Notes, the limits for light spill vary according to the environmental zone of the existing location and have been set to encourage appropriate lighting design. Through careful design, it can readily be ensured that this impact is prevented and that the illumination falling within any residential property can be reduced to zero. This is incorporated into the Lighting Strategy contained within this report.

Sky Glow (Direct upward light)

- 3.5 Sky glow is the 'the brightening of the night sky' above illuminated areas. The brightness created is constantly varying as a function of many parameters such as direct upward-lighting, ground surface reflectance, overhead cloud cover, and the degree of water droplets in the atmosphere - rain, fog/mist, and snow, for example, exacerbate the effect.
- 3.6 Mitigation is achieved by complying with the recommended limits in the ILP Guidance Notes for upward light emission. The limits vary according to the environmental zone of

the existing location and have been set to encourage appropriate lighting design. The Lighting Strategy will ensure that these limits can be met for the Proposed Development.

- 3.7 To mitigate sky glow as much as possible, lighting must be accurately targeted and kept to a minimum, and this design principle is incorporated into the Lighting Strategy.
- 3.8 The magnitude of the impact is a matter of judgement, taking into account the existing night-time view. The magnitude is lessened for those views where an observer is subject to direct illumination from, say, a nearby streetlight, or where light spill from a nearby light source illuminates the foreground, because the observer's vision is not fully dark adapted.

Glare (Viewed source intensity)

- 3.9 Glare occurs when an individual experiences visual discomfort or disability stemming from direct views of lamp sources, or high contrast of a lighting installation against a dark background. The placement of luminaires, their photometric characteristics, and the viewing context contribute to glare, which has been noted to result from uncontrolled private lighting installations, security lighting, street lighting mounted at high level near residences or habitat.

Design Aspects

Building Luminance

- 3.10 This considers the appropriateness and scale of brightness for the lighting / highlighting of built structures. Design criteria is included within ILP guidance notes as more of a main effect. While this is addressed independently, building luminance can also be considered as an indirect contributor to light spill, sky glow and glare.

Light Levels

- 3.11 Light levels, both as designed and installed, have the potential to create areas which have a noticeable difference in brightness. A new lighting installation in an area that has not been lit or is significantly brighter than the surrounding area may affect both adjacent receptors in the form of light spill or glare, and those over a larger area by contributing to sky glow through over-lighting.

Light Colour

- 3.12 Light colour has the potential to alter an individual's perception of their environment with respect to colour and clarity, as the human eye responds best to whiter light with higher quantities of ultraviolet wavelengths. Various wildlife species may respond differently to spectral composition depending on how reliant they are on darkness; many nocturnal animals continue their social habits and feeding behaviours with increased activity in the area while others may decrease their activity and possibly desert their habitat. This type of impact could affect pedestrians, vehicle operators and wildlife, and is likely to occur where new lighting is placed.

4. BASELINE

- 4.1 This section provides a review of the existing conditions at the site. The review is based on a desktop study using Google Earth satellite and Street View imagery.
- 4.2 The Site is located off Yewtree Lane, Northern Moor.
- 4.3 The Site is bound to the north by a row of hedges and a fence, with residential properties off Barry Road beyond.
- 4.4 The Site is bound to the south by Yewtree Lane which is provided with assumed 6m high street lighting columns.
- 4.5 The Site is bound to the east by Willenhall Road which is provided with assumed 6m high street lighting columns.
- 4.6 The Site is bound to the west by Cherry Blossom Close, a new residential development, which is lit via a 1m high bollard lighting installation.
- 4.7 The Site itself currently contains Yew Tree Manor, an existing nursing and residential care home. Yew Tree Manor does not appear to be provided with an external lighting installation.
- 4.8 **Figure 2** shows an aerial view of the proposed site.

Figure 2. Aerial view of site



Environmental Zone

- 4.9 Following the desktop study, it was concluded that the development is in a suburban location and the proposed development site should be classified as 'Environmental Zone E3 – Medium district brightness area, in accordance with the ILP guidance limits outlined within **Table 1**. Therefore, with reference to **Table 2**, the worst case permitted light trespass limit at an offsite receptor in the pre-curfew period (typically considered to be 07:00-23:00) is 10 Lux and in the post curfew period (typically considered to be 23:00-07:00) is 2 Lux. The maximum upward light ratio (ULR) is 5%.

5. PROPOSED DEVELOPMENT

Proposed Site Lighting

5.1 A lighting design strategy has been prepared that reflects:

- Environmental requirements and the applicable guidance / standards.
- Local Authority requirements.
- Technical requirements and the applicable guidance / standards; and
- Appropriate selection of lighting typologies to suite the above.

Overview

5.2 The proposed lighting design comprises high quality LED luminaires, equipped with specific optics to maximum useful light and minimise wasteful light. The proposed installation comprises the following lighting types:

- Building mounted luminaires (2.4m and 3m high);
- Column mounted luminaires (6m);
- Bollard luminaires (1m); and
- Recessed downlight (underside of the balcony).

5.3 The lighting design layout is included in **Appendix 2**. The lighting lux plot layout is included in **Appendix 3**. Literature from the manufacturer literature of the proposed luminaire types is included in **Appendix 4**.

5.4 **Table 3** illustrates the design lighting levels meet target levels in line with the recommendations of BS EN 13201-2.

Table 3. Proposed external lighting design levels

Area	Target		Design	
	Maintained Illuminance Em (Lux)	Uniformity (u0)	Maintained Illuminance Em (Lux)	Minimum Illuminance Em (Lux)
Resident Pathways	5	0.25	8.13	0.37
Recycling Store	5	0.25	10.00	0.70
Patio Area	5	0.25	15.59	0.26
Car Park	10	0.25	12.09	0.33

Upward light ratio (ULR)

- 5.5 The proposed luminaires have been designed to achieve the target lighting illuminance and uniformity at full cut-off, at 0° tilt.
- 5.6 The design has been used to calculate the predicted ULR of the proposed external lighting scheme. Model outputs predict a ULR of 0.14%. As illustrated in **Table 2**, the ILP sky glow limitation for an area classified as Environmental Zone E3 is 5% ULR. As such the proposed lighting scheme meets the ILP sky glow limitations and is therefore not considered to result in unacceptable impacts on the dark sky landscape.

Light spill

- 5.7 The lux plot layout, included in Appendix 3, has been produced in industry standard lighting calculation software. The lux plot assumes a level, clear site. In practice, the effect of changes in elevation and obstructions such as walls, trees and hedges will contain the light spill further than is shown in the plot, i.e. this Lux plot represents the absolute worst case scenario.
- 5.8 The mounting height for all luminaires has been limited to a maximum of 6m, at 0° tilt, to reduce the quantity of light spill. Limiting column heights also helps to reduce the impact on the daytime setting. Specific optics have been used to minimise spill.
- 5.9 Vertical calculation surfaces have been included between 1-5m above ground level to simulate the neighbouring properties. The calculations shows maximum 2 Lux vertical illumination. As illustrated in **Table 2**, the ILP obtrusive light limitation for an area classified as environmental zone E3 is 10 Lux pre-curfew and 2 Lux post-curfew. As such the proposed lighting scheme meets the ILP obtrusive light limitations and is therefore not considered to result in unacceptable impacts on residential properties.

Ecology measures

- 5.10 To increase the biodiversity value of the Site, the Ecologist has recommended that bird boxes and bat boxes should be erected/incorporated onto the new building.
- 5.11 The paths in the garden area are proposed to be lit via 1m high bollards, providing downward light only, to minimise light impact to the northern hedgerow. Light is generally <2 Lux on the northern hedgerow does not impact the hedgerow above 1m above ground level.
- 5.12 To maximise the value of the bat boxes, the design has been produced in accordance with the recommendations of the ILP BCT Guidance Note 08 for Bats and artificial lighting in the UK (2018):
- All luminaires lack UV elements when manufactured.
 - LED luminaires have been used.
 - A warm white spectrum (2700 Kelvin) has been used.
 - Luminaires feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
 - Column heights have been minimised to minimise light spill.
 - Luminaires with an upward light ratio of 0% and with good optical control have been used.

- All luminaires are mounted on the horizontal, ie no upward tilt.
- 5.13 The agreed final location of bat boxes should be selected with direct reference to the proposed lighting layout to ensure the areas avoid direct illumination from the installation.

6. RECOMMENDATIONS

- 6.1 All external lighting, whether for the construction or operation phase, must comply with the recommended limitations given in the ILP Guidance Notes for an Environmental Zone E3 location. The limits, set out in **Table 2**, prohibits excessive emission of upward light and helps to minimise light spill and glare.
- 6.2 Light colour should be addressed as part of the overall approach to the masterplan lighting design. Warmer light colour (2700K) is preferred in accordance with accordance to Institute of Lighting Professionals (ILP) BCT Guidance Note 08 for Bats and artificial lighting in the UK (2018). LED typically features no UV component and research indicates that while lower UV components attract fewer invertebrates, warmer colour temperatures (2700K) cause less impacts on bats.
- 6.3 During the detailed design phase of the project the locations of proposed bat boxes must be coordinated with the proposed lighting installation.
- 6.4 The paths in the garden area should be lit via 1m high bollards that provide downward light only to minimise light impact to the northern hedgerow.
- 6.5 Spectral composition is somewhat related to light colour, but the effects are not always immediately apparent. It is desirable for light quality, safety and wildlife effect limitation purposes to use LED technology. LEDs present good working efficacy, a smaller light emitting area which is good for light control and spectral compositions which are less disturbing to nocturnal wildlife or their food sources than UV rich traditional light sources.
- 6.6 The use of horizontal cut-off luminaires installed at zero tilt with flat glass lenses and internal optics is recommended to limit views of the lamp, control glare and direct light in a controlled pattern. This will help to minimise potential glare, sky glow and light spill.
- 6.7 New generation LED light sources are recommended for new external lighting.
- 6.8 Wattages shall achieve required light levels without over-lighting.

7. CONCLUSION

- 7.1 As part of the lighting strategy a review has been undertaken of the potential impact created by new lighting in relation to the proposed development.
- 7.2 Legislation, British standards, and good practice guidance recommends the development requires new exterior lighting for purposes of vehicular and pedestrian safety.
- 7.3 Potentially significant effects from the proposed lighting on sensitive receptors can be managed to create a negligible night-time impact.
- 7.4 The lighting design strategy presented indicates the potential significant effects from new lighting for the proposed development can be adequately managed and all tested parameters are expected to meet recommended guidance benchmarks.
- 7.5 The proposed development lighting will not directly illuminate the proposed integrated bat boxes.
- 7.6 The indicative lighting design strategy presented indicates the proposed lighting installation can achieve the required minimum lighting levels and distribution to meet the applicable standards while causing negligible light trespass to the adjoining land and negligible increase in local sky glow.
- 7.7 The northern hedgerow will remain a dark corridor above 1m above ground level and will remain dark as far as practicable at ground level.
- 7.8 The impact of the proposed development lighting is considered to be negligible with respect to sensitive receptors. The most noticeable effect due to the proposed lighting installation expected to remain is sky glow.

APPENDICES

Appendix 1: Proposed Development Masterplan



LEGEND

SOFT LANDSCAPE

- Existing Trees and Hedges to be Retained
- Proposed Large Ornamental Tree**
To be 14-16cm girth, Extra Heavy Standard, 400-500cm high or multi-stem tree 300-350cm high.
- Proposed Medium Ornamental Trees**
To be 10-12cm girth or multistem specimen 300-350cm high.
- Proposed Small Ornamental Trees**
To be 10-12cm girth or multistem specimen 200-250cm high.
- Proposed Ornamental Shrubs and Perennials**
Proposed shrubs and flowering herbaceous plan to be planted as 3-5L pots at 3-5 per sq.m. with individual specimen shrubs.
- Proposed Evergreen Hedge**
Box hedge, 20-30cm high, to be planted at 5 plants per l/m.
- Proposed Wildflower**
To be Emorsgate general willflower mix or otherwise agreed with ecologist. Sowing rate: 5g/square metre
- Proposed Grass**
To be turf.

FEATURES

- Proposed Timber Gazebo**
- Proposed Timber Bench**
To be Westminster Flat Arm Teak Bench 3 Seater by Sloane and Sons or similar approved.
- Proposed Rectangular Timber Planter**
To be Raised bed by Woodblock or similar approved. size varies. To be planted by residents.
- Proposed Timber Dining Set**
To be Canfield patio set
- Proposed Arbor**
To be Jasmine Trellis Arch Pergola, W1.5 x D0.8m, by Dunster House or similar approved
- Proposed Pergola**
Single timber pergola system 2m high with climber plants
- Proposed Shed**
To be Value Overlap Shed, L1.75 x D1.15m, by Tiger Shed or similar approved
- Proposed Timber Gazebo**
To be Atlas Open Chunky Gazebo, L6 x D3m, by Dunster House or similar approved.

HARD SURFACE MATERIALS

- Proposed Coloured Tarmac For Circulation**
In Buff / Dark colour by Ulticolour or similar approved.
- Proposed Flag Paving for Patios and Pathways**
To Architects details
- Proposed Concrete Hardstanding**
To Architects details

BOUNDARY TREATMENTS

- Entrance Wall with Signage**
To Architects details.
- 2.1m high closed boarded timber fencing**
To Architects details.
- 2m High Railing**
To Architects details.
- 1200mm high Gates within railings**
To Architects details.
- 0.55m high brick dwarf wall with 0.65m railings above and between brick piers (Total high 1.2m)**
To Architects details.
- 0.55m high brick dwarf wall with 1.4m railings above and between brick piers (Total high 2m)**
To Architects details.

- GENERAL NOTES**
- This drawing is the copyright of tpm landscape Ltd and cannot be reproduced in any form without the consent of the company.
 - This drawing is to be read in conjunction with detail landscape drawings, details and specification.
 - This drawing is to be read in conjunction with all relevant Architects', Engineer's, Specialists, Bills of Quantities and Specifications.
 - The insertion of any firm or proprietary brand on this drawing is an indication of the class or quality required and does not exclude the use of alternative materials that are equal in performance, quality and appearance, provided that they have been approved in writing by the Landscape Architect.
 - The Contractor is responsible for accurately ascertaining the position of underground services and responding to all relevant service easement requirements.
 - All dimensions are in millimetres unless stated otherwise, for the purposes of construction this drawing must not be scaled and only written dimensions used. Written and scaled dimensions to be checked on site, any discrepancies reported prior to work commencing. IF IN DOUBT PLEASE ASK.
 - All work and materials are to be in accordance with the relevant British Standards and Code of Practice.
 - All Proprietary products are to be used strictly in accordance with the manufacturer's instructions and details.

REVISION NOTES			
Rev	By	Description	Date
B	JW	Revised in line with Architect's comment	23-06-22
A	JW	Revised in line with Architect's comment	14-06-22

Client
Liberty Care

Project
Northern Moor

Description
Landscape Layout

Status
For Approval

Scale @ A2
1:200

Job number
4153

Drawn
CT

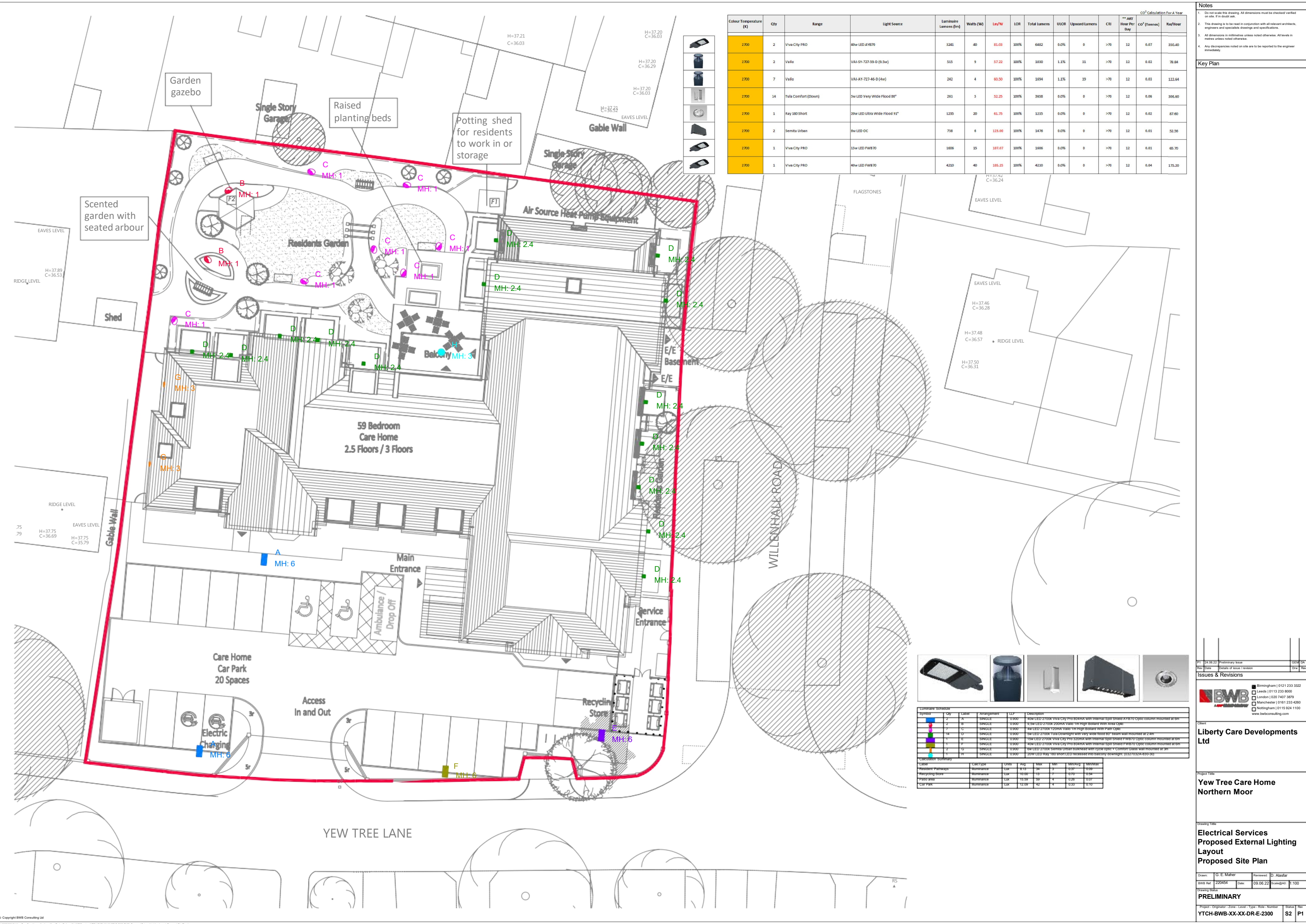
Drawing number
101

Checked
CT

Date
01-06-2022

Revision
B

Appendix 2: Proposed External Lighting Layout



CO ₂ Calculation Per A Year													
Colour Temperature (K)	Qty	Range	Light Source	Luminaire Lumens (lm)	Watts (W)	lm/W	LOR	Total Lumens	UOR	Upward Lumens	CRI	→ ART Hour Per Day	CO ₂ (Tonnes)
2700	2	Viva City PRO	40w LED AYB70	1241	40	81.03	100%	6482	0.0%	0	>70	12	0.07
2700	2	Vailo	VAI-SY-727-59-D (B.Siv)	515	9	57.22	100%	1030	1.1%	11	>70	12	0.02
2700	7	Vailo	VAI-AI-727-46-D (4w)	242	4	60.50	100%	1694	1.1%	19	>70	12	0.03
2700	14	Tula Comfort (Down)	5w LED Very Wide Flood 80°	261	5	52.25	100%	3658	0.0%	0	>70	12	0.06
2700	1	Ray 180 Short	20w LED Ultra Wide Flood 93°	1255	20	61.75	100%	1255	0.0%	0	>70	12	0.02
2700	2	Semita Urban	6w LED OC	738	6	123.00	100%	1476	0.0%	0	>70	12	0.01
2700	1	Viva City PRO	15w LED PWB70	1606	15	107.07	100%	1606	0.0%	0	>70	12	0.01
2700	1	Viva City PRO	40w LED PWB70	4210	40	105.25	100%	4210	0.0%	0	>70	12	0.04

Notes

1. Do not scale this drawing. All dimensions must be checked/verified on site, if in doubt ask.

2. This drawing is to be read in conjunction with all relevant architect, engineers and specialists drawings and specifications.

3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.

4. Any discrepancies noted on site are to be reported to the engineer immediately.

Key Plan

Issues & Revisions

P1	24.06.22	Preliminary Issue	CEB	OK
Rev	Date	Details of issue / revision	Drawn	Rev

Client

Liberty Care Developments Ltd

Birmingham | 0121 233 3322

Leeds | 0115 233 8000

London | 020 7487 3819

Manchester | 0161 233 4260

Nottingham | 0115 924 1100

www.bwbconsulting.com

Drawing Title

Electrical Services

Proposed External Lighting Layout

Proposed Site Plan

Drawn: G. E. Maher

Reviewed: D. Alastair

BWB Ref: 220454

Date: 09.06.22

Scale: 1:100

Drawing Status: PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number: YTCH-BWB-XX-XX-DR-E-2300

Status: S2

Rev: P1

Appendix 3: Proposed External Lux Plot Layout



Colour Temperature (K)	City	Range	Light Source	Luminaire Lumens (lm)	Watts (W)	Lm/W	LCR	Total lumens	UOLR	Upward lumens	CRI	** ART Hour Per Day	CO ₂ Calculation Per A Year	
													CO ₂ (Tonnes)	Kwh/Hour
2700	2	Viva City PRO	40w LED AYB70	3261	40	81.63	100%	6482	0.0%	0	>70	12	0.07	350.40
2700	2	Vallo	VAl-SY-727-S9-D (9.5w)	515	9	57.22	100%	1030	1.1%	11	>70	12	0.02	78.84
2700	7	Vallo	VAl-AY-727-45-D (4w)	242	4	60.50	100%	1694	1.1%	19	>70	12	0.03	122.64
2700	14	Tula Comfort (Down)	5w LED Very Wide Flood 80°	261	5	52.25	100%	3658	0.0%	0	>70	12	0.06	306.60
2700	1	Ray 180 Short	20w LED Ultra Wide Flood 91°	1235	20	61.75	100%	1235	0.0%	0	>70	12	0.02	87.60
2700	2	Semita Urban	8w LED OC	738	6	123.00	100%	1476	0.0%	0	>70	12	0.01	52.56
2700	1	Viva City PRO	15w LED FWRB70	1606	15	107.07	100%	1606	0.0%	0	>70	12	0.01	65.70
2700	1	Viva City PRO	40w LED FWRB70	4210	40	105.25	100%	4210	0.0%	0	>70	12	0.04	175.20



Simulate Schedule						
Symbol	Day	Label	Arrangement	LED	Description	
	1	A	SINGLE	0:00	40W LED 2700K 200mA vdc Pro 30414w with internal spill shield A7000 Optic column mounted at 6m	
	2	B	SINGLE	0:00	9.5W LED 2700K 200mA vdc 1m High beam with A7000 Optic	
	3	C	SINGLE	0:00	10W LED 2700K 200mA vdc 1m High Beam with Warm Optic	
	4	D	SINGLE	0:00	30W LED 2700K 200mA vdc 3m long with 1m wide footcandle by beam foot mounted at 2.4m	
	5	E	SINGLE	0:00	40W LED 2700K 200mA vdc Pro 30414w with internal spill shield A7000 Optic column mounted at 6m	
	6	F	SINGLE	0:00	10W LED 2700K 200mA vdc Pro 30414w with internal spill shield Warm Optic column mounted at 6m	
	7	G	SINGLE	0:00	40W LED 2700K 200mA vdc Pro 30414w with internal spill shield Warm Optic column mounted at 6m	
	8	H	SINGLE	0:00	20W LED Ray 100 short LED recessed into battery spotlight. (15270524-030-50)	
Caddition Summary						
Label	Category	Units	avg	max	min	min/max
Recessed Pathways	Recessance	LUX	8.13	34	1.37	0.09
Recessed Wall	Recessance	LUX	10.01	40	1.57	0.06
Path Area	Recessance	LUX	16.50	50	4	0.06
Calc PAI	Recessance	LUX	12.09	42	4	0.03

Table 1 compliance			
Phenomena and Events	ES		
Key flow	Temp	Height of	Speed
	°C	1' 1/2"	20%
Source: Interdy compliance			
Min surface	10.0°	70%	70%
Peak surface	1.00%	70%	70%
Light frequency and wavelength			
Min surface	10%	2	10%
Peak surface	10%	2	10%

Compliance Status:		
Pr. 04	Substantive findings and high priority	Pass
Item 01	no significant nonconformities	Pass
Item 03	no critical and essential finding items	Pass

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Key Plan

P1	24.06.22	Preliminary Issue	GE
Rev	Date	Details of issue / revision	Dw

Issues & Revisions

 Birmingham | 0121 233 3300
Leeds | 0113 233 8000
London | 020 7407 3879
Manchester | 0161 233 4200
Nottingham | 0115 924 1100
www.bwbconsulting.com

**Liberty Care Developments
Ltd**

Project Title

**Yew Tree Care Home
Northern Moor**

Drawing Title

**Electrical Services
Proposed External Lux Plot
Layout
Proposed Site Plan**

Drawn:	G. E. Maher	Reviewed:	D. Alasfar
BWB Ref:	220454	Date:	09.06.22
		Scale@A0:	1:10
Drawing Status			
PRELIMINARY			
Project - Originator - Zone - Level - Type - Role - Number			Status
YTCH-BWB-XX-XX-DR-E-2301			S2

Appendix 4: Proposed Luminaire Type

Datasheet

Viva-City Pro



Product Description

A modular, slimline, performance street lantern with improved efficacy and output. Viva-City Pro offers a choice of optics with asymmetrical distribution including an area optic.

Specification Text

The luminaire shall be manufactured from high-pressure die-cast aluminium. It shall have an LED efficacy of up to 150.0 lm/W and will be capable of producing up to 24,660 luminaire lumens at 4000K with a CRI >70. It shall have an asymmetric forward throw optic and is rated at IP66 and IK08.

Specify 2700K for IDA compliance.

Specification

Weight: 4.5 - 9.1kg

Windage: 0.04m²

Material: Die-cast Aluminium

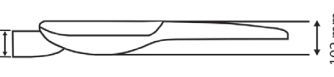
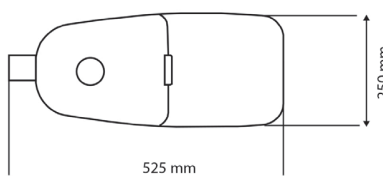
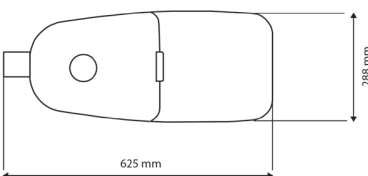
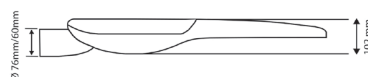
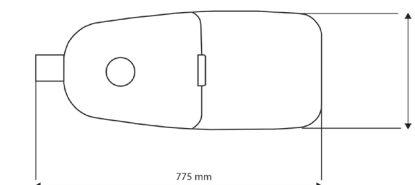
Paint finish: RAL7016 Anthracite Grey Finish

Key Features

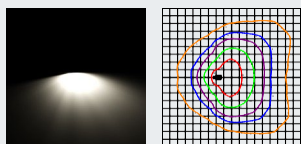
- 15.0 - 180.0W
- 2,250 - 24,660 Luminaire Lumens
- Efficacy up to 150.0 lm/W
- 4000K, CRI >70
- Lifetime >100,000hr, L80



Dimensions



Optics



Asymmetric Forward Throw Optic 70°



Code	Power	Luminaire Lumens	Drive Current	Optic	CCT(K)	IP	IK	Weight kg	Paint Finish	Driver Included	Driver Type
VCYP-FW70-4.3-15D	15.0	2,250	640	Asymmetrical Forward Throw Optic - 70°	4000	IP66	IK08	4.5	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.3-15DPEC	15.0	2,250	640		4000	IP66	IK08	4.6	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.8-40D	40.0	5,880	805		4000	IP66	IK08	6.0	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.8-40DPEC	40.0	5,880	805		4000	IP66	IK08	6.1	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.6-60D	60.0	8,760	610		4000	IP66	IK08	6.0	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.6-60DPEC	60.0	8,760	610		4000	IP66	IK08	6.1	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.8-80D	80.0	11,040	805		4000	IP66	IK08	6.0	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.8-80DPEC	80.0	11,040	805		4000	IP66	IK08	6.1	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.6-120D	120.0	17,760	620		4000	IP66	IK08	9.0	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.6-120DPEC	120.0	17,760	620		4000	IP66	IK08	9.1	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.8-180D	180.0	24,660	880		4000	IP66	IK08	9.0	RAL7016 Anthracite Grey Finish	Driver inc	Dali
VCYP-FW70-4.8-180DPEC	180.0	24,660	880		4000	IP66	IK08	9.1	RAL7016 Anthracite Grey Finish	Driver inc	Dali



Accessories & Options

Mounting Options

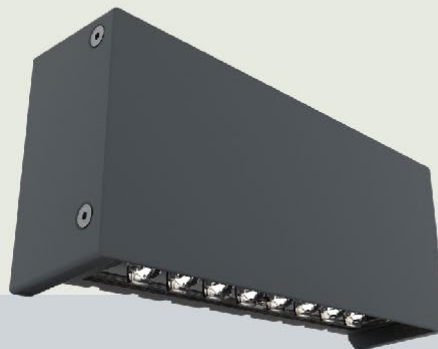
- Post top 60mm
[Contact for details](#)

Other Options

- Part Night Dimming
- Colour Temperature Option
- Photocell Option
- Emergency Option
[Contact for details](#)

Datasheet

Semita Urban



Product Description

Designed and engineered in the UK, Semita Urban is a contemporary, slimline wallpack. The newest addition to our popular wallpack family is available with street, path or flood optics and comes equipped with an optional 'click on' comfort diffuser for a softer output.

Specification Text

The luminaire shall be manufactured from high-pressure die-cast aluminium. It shall have an LED efficacy of up to 146.0 lm/W and will be capable of producing up to 146.0 luminaire lumens at 4000K with a CRI >70. It shall have an asymmetric forward throw optic and is rated at IP66 and IK10.

Specify 2700K for IDA compliance.

Specification

Weight: 2.4kg

Material: Die-cast Aluminium

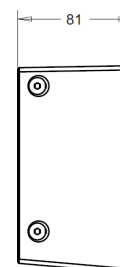
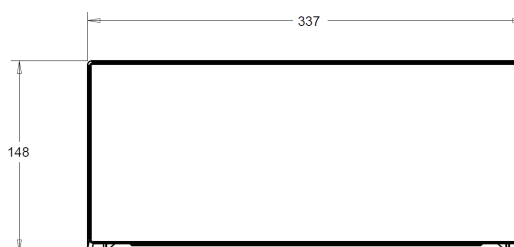
Paint finish: RAL7016 Anthracite Grey Finish

Key Features

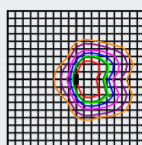
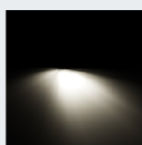
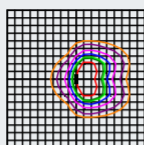
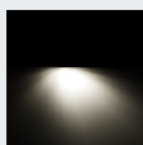
- 6.0 - 11.0W
- 812 - 1,611 Luminaire Lumens
- Efficacy up to 146.0 lm/W
- 4000K, CRI >70
- Lifetime >100,000hr, L80



Dimensions

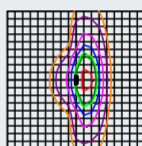
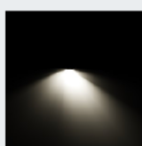
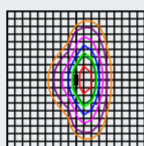
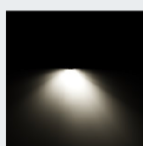


Optics



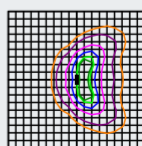
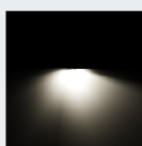
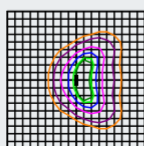
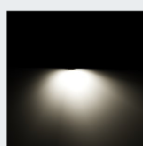
Comfort Flood Light Optic

Flood Light Optic



Comfort Path Optic

Path Optic



Comfort Street Optic

Street Optic



Code	Power	Luminaire Lumens	Drive Current	Optic	CCT(K)	IP	IK	Weight kg	Paint Finish	Driver Included
SEMUFL08D	6.0	812	205	Asymmetrical Flood Light Optic FL	4000	IP66	IK10	2.4	RAL7016 Anthracite Grey Finish	Driver inc
SEMUFL15D	11.0	1,611	410		4000	IP66	IK10	2.4	RAL7016 Anthracite Grey Finish	Driver inc
SEMUOC08D	6.0	802	205	Asymmetrical Path Optic OC	4000	IP66	IK10	2.4	RAL7016 Anthracite Grey Finish	Driver inc
SEMUOC15D	11.0	1,570	410		4000	IP66	IK10	2.4	RAL7016 Anthracite Grey Finish	Driver inc
SEMUST08D	6.0	783	205	Asymmetrical Street Optic ST	4000	IP66	IK10	2.4	RAL7016 Anthracite Grey Finish	Driver inc
SEMUST15D	11.0	1,496	410		4000	IP66	IK10	2.4	RAL7016 Anthracite Grey Finish	Driver inc

Accessories & Options

Mounting Options

- Wall Mount
- [Contact for details](#)

Other Options

- Colour Temperature Option
- Photocell Option
- Emergency Option
- [Contact for details](#)



Datasheet

Ray Series



Product Description

The Ray series is a range stainless steel down lighters available in an array of sizes and beam angles. Perfect for canopy lighting and wall washes.

Specification Text

The luminaire shall be manufactured from high-pressure die-cast aluminium. It shall have an LED efficacy of up to 128 lm/W and will be capable of producing up to 1,150 luminaire lumens at 4000K with a CRI >80. It shall have an asymmetric forward throw optic and is rated at IP68 and IK08.

Specification

Weight: 0.8 - 2.4kg
Material: Extruded Aluminium
Paint finish: Stainless Steel Finish

Key Features

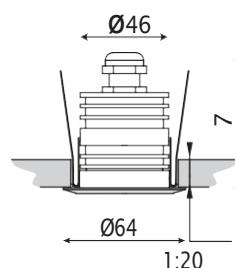


- 4.0 - 12.0W
- 1,450 - 1,150 Luminaire Lumens
- Efficacy up to 128 lm/W
- 4000K, CRI >80
- Lifetime >60000hr, L80

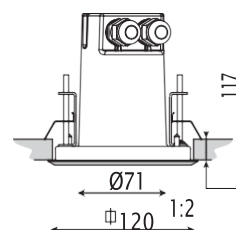


Dimensions

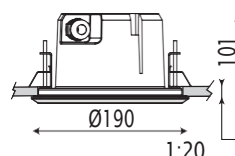
Ray 55



Ray 110

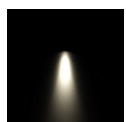


Ray 180

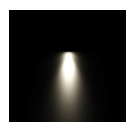
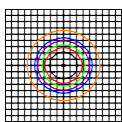


All units of measurement in mm.

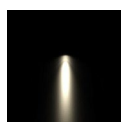
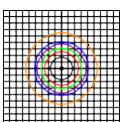
Optics



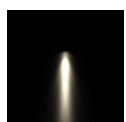
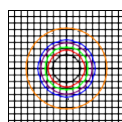
Medium 24°



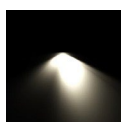
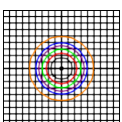
Medium 25°



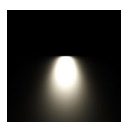
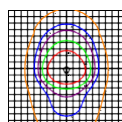
Medium 17°



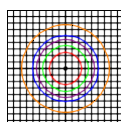
Narrow 10°



Wide 30°

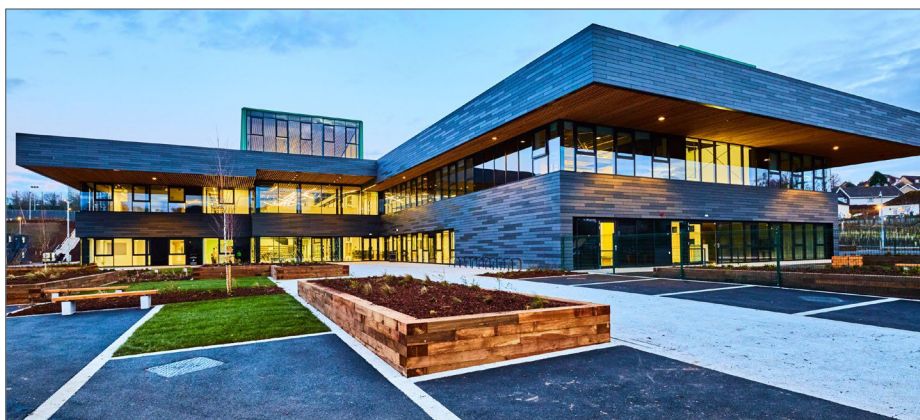


Wide Flood 46°



Wide Flood 47°

Code	Power	Luminaire Lumens	Optic	CCT(K)	IP	IK	Weight kg	Paint Finish	Driver Included
RAY55-SY25-840-4-30	4.0	450	Medium 25°	4000	IP68	IK08	0.8	Stainless Steel Finish	Driver not included
RAY55-SY46-840-4-30	4.0	375	Wide 46°	4000	IP68	IK08	0.8	Stainless Steel Finish	Driver not included
RAY110S-SY10-840-4-30	4.0	520	Narrow 10°	4000	IP67	IK09	0.9	Stainless Steel Finish	Driver not included
RAY110S-SY24-840-4-30	4.0	510	Medium 24°	4000	IP67	IK09	0.9	Stainless Steel Finish	Driver not included
RAY110S-SY47-840-4-30	4.0	460	Wide 47°	4000	IP67	IK09	0.9	Stainless Steel Finish	Driver not included
RAY180S-SY17-840-12-30	12.0	1,150	Medium 17°	4000	IP67	IK07	2.4	Stainless Steel Finish	Driver inc
RAY180S-SY30-840-12-30	12.0	1,100	Wide 30°	4000	IP67	IK07	2.4	Stainless Steel Finish	Driver inc



Accessories & Options

Mounting Options

- Recessed Mount
- [Contact for details](#)

Other Options

- Colour Temperature Options
- Paint Finish Options
- [Contact for details](#)



A **CAF** GROUP COMPANY



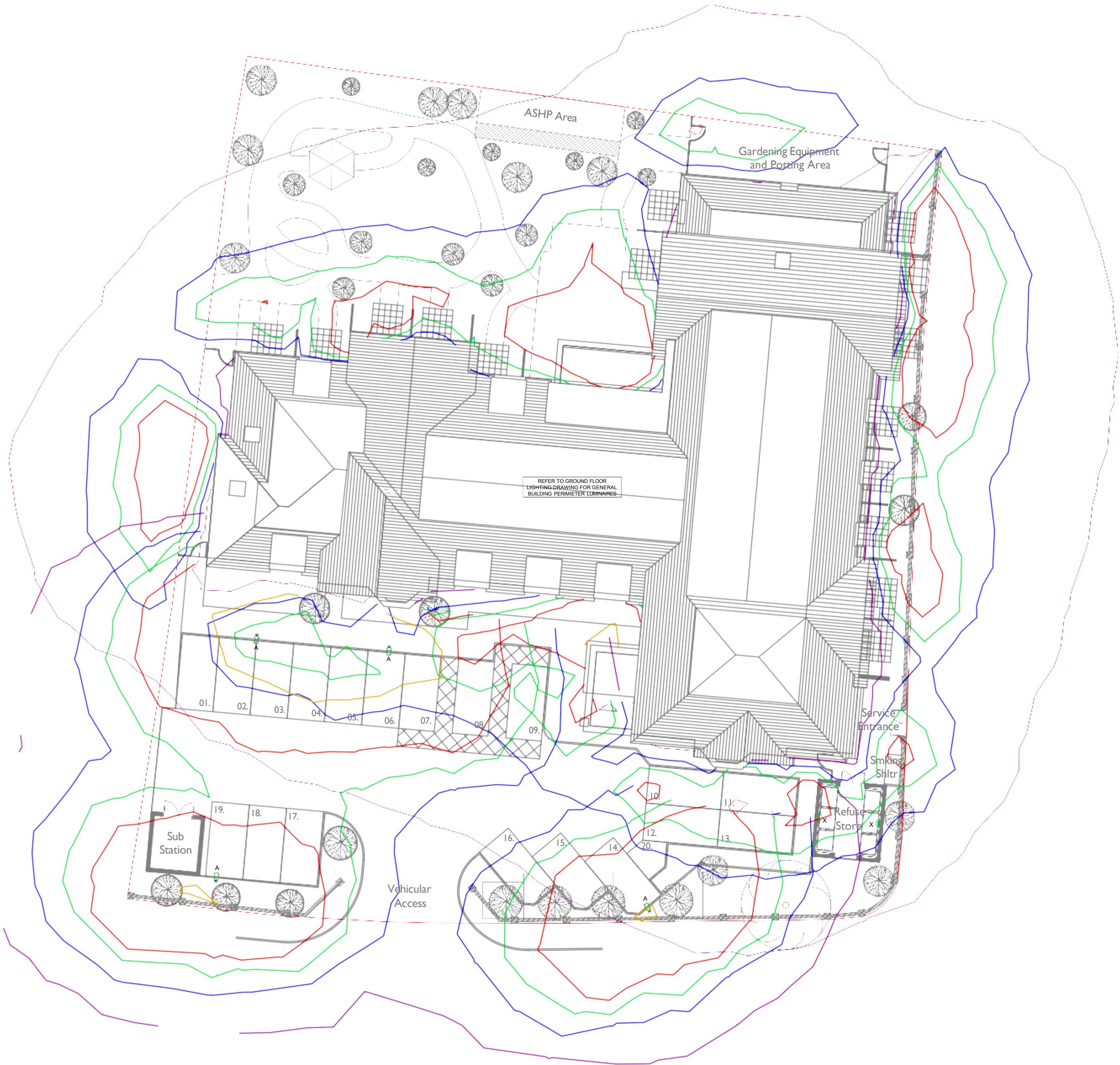
Technical design submission (original)

Building Outline Information	
Architect's Drawing No.	Date
2516-Technical - Site Master	09.12.2024

- Notes
- This drawing shall be read in conjunction with the specification and all other relevant drawings and documentation.

EXTERNAL LIGHTING LEGEND		
Symbol	Image	Description
		Xcite LED Lighting 'XCRL30DL', IP65 rated column mounted LED road lantern. 30W LED, 3600lm. Mounted @ 6.0m.
		Saxby Lighting 'HERO', Wall mounted external IP65 rated LED luminaire with black bezel. 18W, 3000K LED. Mounted @ 3.50m.

EXTERNAL LIGHTING ISOLINES	
ISO Colour	Lux Level
Magenta	1 lx
Blue	3 lx
Green	5 lx
Red	7.5 lx
Yellow	10 lx



P01	Preliminary issue.	JH	17.06.25
Rev.	Revision details	Chkd	Date
 2 Cromford Way, Broughton Ashley, Leicester LE9 6UT Tel: 01455 550371 Mob: 07774 670127 e-mail: admin@jhelectricservices.co.uk			
Client: LNC Property Developments Ltd			
Project: Lovett Care Northern Moor			
Drawing Title: External Lighting Layout Planning			
Scale: 1:100 @ A0		Date: 17.06.25	
Drawn by: DJS		Checked: JH	
Drawing Number: 240327-E-LTG-XX-9000			Rev: P01
Drawing Status: PRELIMINARY			
This drawing is copyright and may not be reproduced either in part or full without written permission from JH Electrical Services. DO NOT SCALE OFF THIS DRAWING			

Architect's Drawing No.	Date
2516 - Ground Floor	30.10.2024

1. This drawing shall be read in conjunction with the specification and all other relevant drawings and documentation.
2. Coordination of services are in-line with interior designer's drawing numbers: CAT101001_GF_GA_V3, CAT101002_GF_GA_V1, CAT101003_FF_GA_V3 and CAT101004_SF_GA_V3. Refer to interior designer's information for the details and the setting out of the decorative lighting.

[illegible]

Client:  **LNC Property
Developments Ltd**

Drawing Title:
Ground Floor
Lighting Layout

Drawn by: DJS	Checked: JH
---------------	-------------

Drawing Number:	Rev.
240327-E-LTG-GF-1001	C08

This drawing is copyright and may not be reproduced either in part or full without written permission from JH Electrical Services.

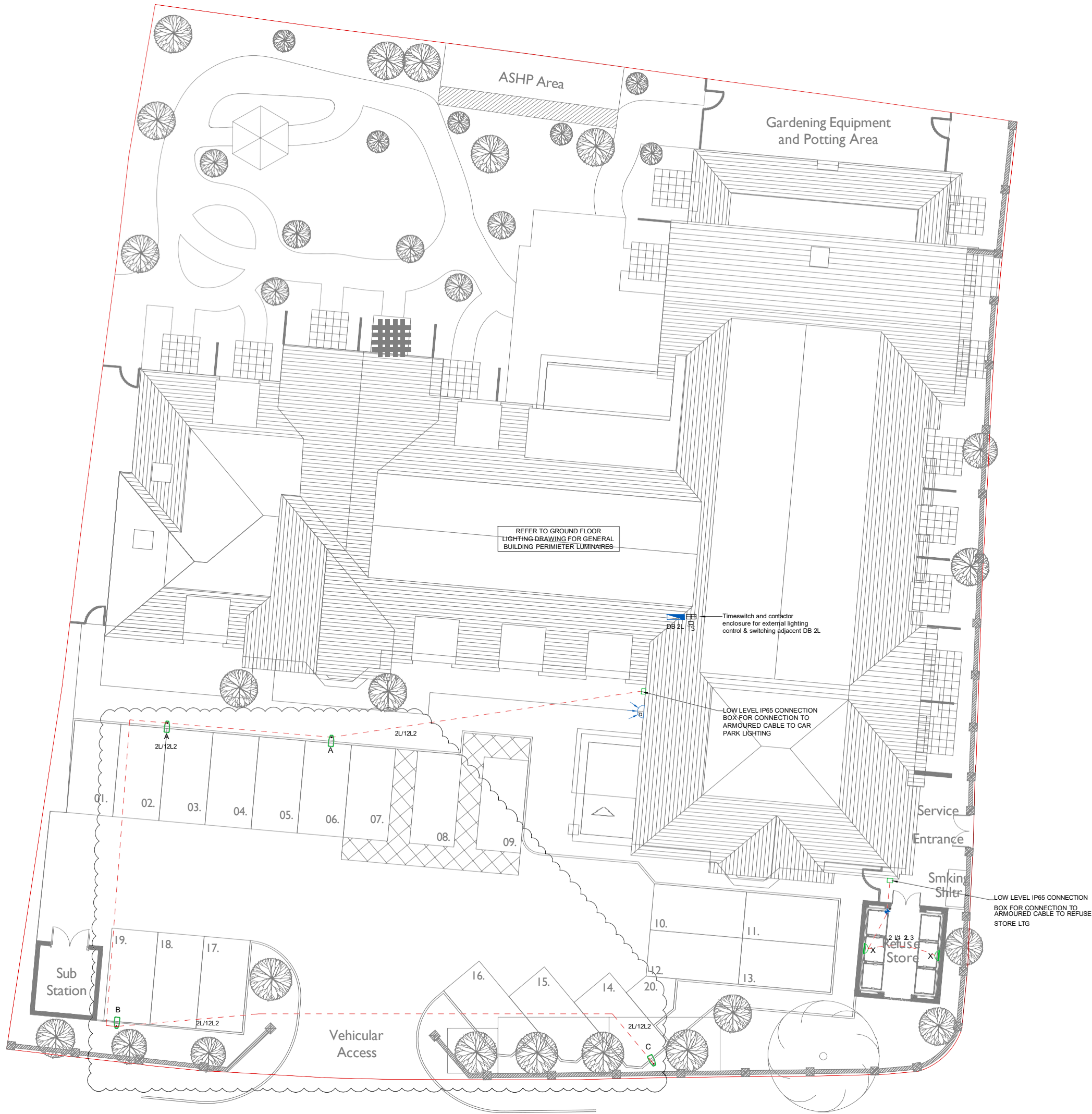
DO NOT SCALE OFF THIS DRAWING



Building Outline Information	
Architect's Drawing No.	Date
2516-Technical - Site Master	09.12.2024

- Notes
- This drawing shall be read in conjunction with the specification and all other relevant drawings and documentation.

EXTERNAL LIGHTING LEGEND		
Symbol	Image	Description
		Kingfisher Lighting 'VIVA-CITY Pro'. Column mounted LED road lantern mounted @ 6.0m. 40W AYB70.
		Kingfisher Lighting 'VIVA-CITY Pro'. Column mounted LED road lantern mounted @ 6.0m. 40W FWB70.
		Kingfisher Lighting 'VIVA-CITY Pro'. Column mounted LED road lantern mounted @ 6.0m. 20W FWB70.
		Saxby Lighting 'HERO'. Wall mounted external IP65 rated LED luminaire with black bezel. 18W. 3000K LED. Mounted @ 3.50m.
		Distribution board
		Timeswitch and contactor enclosure
		External dusk until dawn photocell
		External underground armoured cable route
		IP65 PIR detector for local light control



C03	Lighting references and legend updated.	JH	11.08.25
C02	Column lighting locations updated.	JH	17.08.25
C01	Construction Issue. Column mounted luminaires added.	JH	10.12.24
P05	PIR added to Bin Store. Circuits added.	JH	18.09.24
P04	External lighting updated.	JH	04.09.24
P03	General building lgt moved to GF Ltg (ing Circuits added.	JH	23.07.24
P02	Preliminary issue.	JH	20.07.24
P01	Preliminary issue.	JH	05.07.24
Rev.	Revision details	Chk'd	Date

2 Cromford Way, Broughton Astley, Leicester LE9 6UT
Tel: 01455 550371 | Mob: 07774 670127
e-mail: admin@jhelectricalservices.co.uk

Client:

LNC Property Developments Ltd

Project:

Lovett Care
Northern Moor

Drawing Title:

External Lighting Layout

Scale:	1:100 @ A0	Date:	11.08.25
Drawn by:	DJS	Checked:	JH
Drawing Number:	240327-E-LTG-XX-8000	Rev:	C03
Drawing Status:	CONSTRUCTION		
This drawing is copyright and may not be reproduced either in part or full without written permission from JH Electrical Services.			
DO NOT SCALE OFF THIS DRAWING			

Technical design submission (updated)

Building Outline Information

Architect's Drawing No.

Date

2516-Technical - Site Master

09.12.2024

Kingfisher Lighting
A Division of LUCOOP group

Project Number: 46483

Project Title - Liberty Care Developments - Yew Tree Care Home, Northern Moor

Date: 07/10/2025

BREEAM®

Sustainability Approved (2020)	Luminaire Image	Qty	Luminaire	Light Source	Watts (W)	Luminaire (Lumens lm)	lm/W	LICR	Total Lumens	UICR	Upward Lumens	Light Engine			BIP GN01 - Table 1 & Table 7			BREEAM Only 2		CO2 Calculation for A Year				
												Output Intensity (lm)	1 Value	2 Value	Rated Life (hrs)	1 Value	2 Value	Beam Angle	Shy-Glow Effect	Glow Effect	Source Intensity (lm/1000 ft² @ 100' to 100')	Source Intensity (lm/1000 ft² @ 100' to 100')	** Airt Tight Test	CO2 [Tons/yr]
		2	VIVA CITY Pro	VCP-40W LED AYB70	40.0	3308	82.70	100%	6616	0.0%	0	2700	L80	820	100,000	370	62.5°	Minimum	Some	3021	n/a	12	0.07	300.40
		1	VIVA CITY Pro	VCP-40W LED FWB70	40.0	4073	101.83	100%	4073	0.0%	0	2700	L80	820	100,000	270	62.5°	Minimum	Some	77	n/a	12	0.04	175.20
	1	VIVA-CITY Pro	VCP-20W LED FWB70	20.0	1555	77.75	100%	1555	0.0%	0	2700	L80	820	100,000	270	62.5°	Minimum	Some	37	n/a	12	0.02	87.60	

BREAM Summary

GN01 - 2021

** Environmental Zone to be confirmed by assessor **

Environmental Zone

E3

Upward Light Ratio (ULR) - Table 6

Target

Achieved

Status

5.0%

6.0%

Pass

Note - Not a BREAM requirement for Cut-Off Lanterns (See POL4 Assessment Criteria above)

Table 2: Noise Intensity (Equivalent)

Pro Cutflow - A₀ > 0.5

10,000

Pass

Pro Cutflow - A₀ > 0.5

1,000

Pass

Table 3: Light Trespass into Windows (LW)

Pro Cutflow

10

Pass

Pro Cutflow

2

Pass

Total Installation Lumens

12644

Total Upward Light

0.0%

Total CO2 Per Year (Tonnes)

0.13

Total Electric Consumption (kWh)

0.14

Total Electric Consumption Per Year (kWh)

613.2

Average Luminance Lumens Per Circuit Watt

90.3

Compliance Summary

Pa1

Reduction Of Night Time Light Pollution

Pass

Enc03

Energy Efficient External Lighting

Pass

Hea01

Internal And External Lighting Levels

Pass

Note: - HEART in this report only applies to exterior lighting
* ART - (Average Run Time)

95539

Saxby HeroPRO CCT

Ref X Luminaires complete with eyelid attachment, 3000k / 9w

FEATURES

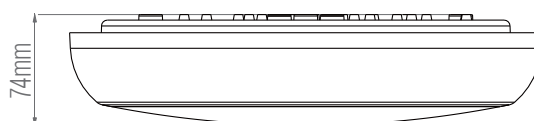
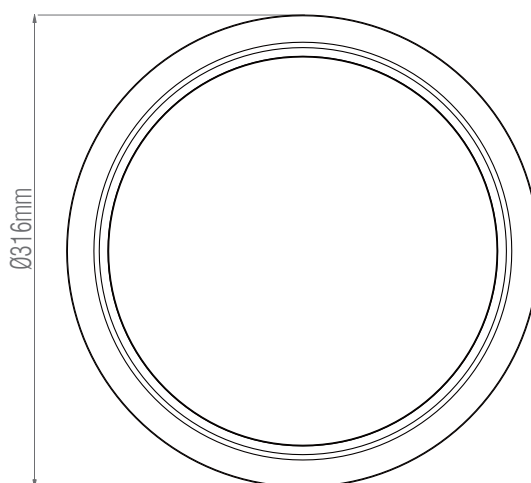
- 5 years (2 years + 3 years) extended warranty
- Matt white textured & opal PC finish
- Constructed from polycarbonate
- IP65
- IK10
- Fast fit hinged gear tray
- Interchangeable bezels

SPEC DATA

Product Wattage:	9/14/18W
Product Lumen:	900/1400/1800Lm
Lumen/W:	100
Kelvin:	3000/4000/6000K
Energy Rating:	D
Dimmable:	No
Beam Angle:	120°
Power Factor:	>0.9
CRI:	>80
Lifetime (Hours):	35000
LED Brand:	Epistar
SDCM:	<6
Driver Type:	Constant Current 180mA
Inrush Current at Start Up:	≤10A
Product Voltage:	220-240V
Hertz:	50/60
Surge Protection (KV):	1.5
Operating Temp.:	-20 to 45 Degree
Product Weight (KG):	0.8
Terminal Block:	4-way fast fix
Class:	2

ACCESSORIES

- 95545, Hero chrome bezel
- 95546, Hero white eyelid bezel
- 95547, Hero white grill bezel
- 95548, Hero black plain bezel
- 95549, Hero black eyelid bezel
- 95550, Hero black grill bezel
- 95551, Hero anthracite grey plain bezel
- 95552, Hero anthracite grey eyelid bezel
- 95553, Hero anthracite grey grill bezel



Lux Meter Calibration Certification

CERTIFICATE OF CALIBRATION

Issued By EXPRESS INSTRUMENT HIRE LTD

Date of Issue 20 February 2025

Certificate Number
17962

Page 1 of 2 Pages



EXPRESS HOUSE, CHURCH ROAD
TARLETON, PRESTON, LANCASHIRE
PR46UP
TEL: 01772 815600
email: sales@expresshire.net

Approved Signatory



Customer: Express Instrument Hire Ltd
Express House, Church Road
Tarleton, Preston Lancashire PR4 6UP

Date Received :

Instrument -	System ID:	1835	
	Description :	Light Meter	
	Manufacturer :	Tenmars	
	Model Number :	TM-209M	
	Serial Number :	170402146	Last Certificate Number: 17509
	Procedure Version :	1.00	Last Calibration Date : 06/02/2024

Environmental Conditions

Temperature :	20°C +/- 5°C	Mains Voltage :	240V +/- 10V
Relative Humidity :	50% +/- 20%	Mains Frequency :	50Hz +/- 1Hz

Comments

Procedure written to manufacturers specification.
Instrument was placed in lab and allowed to stabilise before calibration.
Comparison test against calibrated TM-209M

Traceability Information

Instrument description	Serial number	Certificate number	Cal. Date	Cal. Period
Tenmars TM-209M	141200243	141200243/86238	13/02/2025	52

Calibrated By : P Smith

Date of Calibration : 20 February 2025

This certificate provides traceability of measurement to recognised National Standards, and to the units of measurement realised at the National Physical Laboratory or other recognised National Standards laboratories.

Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except with the prior written approval of the issuing laboratory.
This certificate complies with the requirements of BS EN ISO 10012:2003.



CERTIFICATE OF CALIBRATION

Certificate Number

17962

Page 2 of 2 Pages

Test Title	Tolerance	Applied Value	Reading	Pass/Fail
400 Lux Range				
40Lux Range	576mlux	19.20Lux	18.90Lux	Pass
400Lux Range	1.5Lux	51.3Lux	50.5lux	Pass
400Lux Range	10.9Lux	364.2Lux	361.6Lux	Pass
4000 Lux Range				
4000Lux Range	18.2Lux	605Lux	599Lux	Pass
4000Lux Range	62.7Lux	2 089Lux	2 075Lux	Pass

End of results

Uncertainties

Light 20 to 1000 Lux
Light 1K to 20klux

20 to 200 Lux $\pm 4.6\%$ 1.2Lux: 200 to 1000Lux $\pm 4.3\%$ 1.2Lux
1k to 2klux $\pm 4.6\%$ 1.2Lux : 2k to 20klux $\pm 9\%$ 1.2Lux

Luminaire Unique References

Building Outline Information

Architect's Drawing No. Date

2516-Technical - Site Master 09.12.2024



Project Number 46483

Project Title - Liberty Care Developments - Yew Tree Care Home, Northern Moor

Date 07/10/2025

BREEAM®

BREEAM Approved (2020)	Luminaire Image	Qty	Luminaire	Light Source	Watts (W)	Luminaire (Lumens, lm)	lm/W	LICR	Total Lumens	UICR	Upward Lumens	Light Engine			BIP GN01 - Table 1 & Table 7			Subtotal Only 2	CO2 Calculation for A Year					
												Output Intensity (lm)	1 Value	2 Value	Rated Life (hrs)	1 Value	2 Value	3 Value	4 Value	5 Value	Source Intensity and (lm/W)	1 Value (lm/W)	2 Value (lm/W)	3 Value (lm/W)
		2	VIVA-CITY Pro	vcp-40W LED AYB70	40.0	3308	82.70	100%	6616	0.0%	0	2700	L80	820	100,000	270	62.5"	Minimum	Some	1021	n/a	12	0.07	300.40
		1	VIVA-CITY Pro	vcp-40W LED FWB70	40.0	4073	101.83	100%	4073	0.0%	0	2700	L80	820	100,000	270	62.5"	Minimum	Some	77	n/a	12	0.04	175.20
		1	VIVA-CITY Pro	vcp-20W LED FWB70	20.0	1555	77.75	100%	1555	0.0%	0	2700	L80	820	100,000	270	62.5"	Minimum	Some	37	n/a	12	0.02	87.60

BREAM Summary

GN01 - 2021		
** Environmental Zone to be confirmed by assessor **		
Environmental Zone	E3	
Upward Light Ratio (ULR) - Table 6	Target	Achieved Status
	3.0%	0.0% Pass

Note - Not a BREEAM requirement for Cut-Off Luminaires (See PD14 Assessment Criteria above)		
Table 1 - Source Intensity (Candelas)		
Pro Cutflow - A ₀ > 0.5	10,000	Pass
Pro Cutflow - A ₀ > 0.5	1,000	Pass
Table 3 - Light Trespass into Windows (lm)		
Pro Cutflow	10	Pass
Pro Cutflow	5	Pass

Total Installation Lumens	12644	Total Upward Light	0.0%
Total CO2 Per Year (Tonnes)		0.13	
Total Electric Consumption (kWh)		0.14	
Total Electric Consumption Per Year (kWh)		613.2	
Average Luminaire Lumens Per Circuit Watt		90.3	

Compliance Status Summary		
Pol 04	Reduction Of Night Time Light Pollution	Pass
End 01	Energy Efficient External Lighting	Pass
Has 01	Internal And External Lighting Levels	Pass

Note - IEART in this report only applies to exterior lighting
= ART - (average Room Time

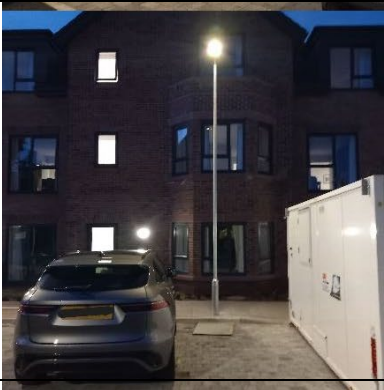
Luminaire Schedule									
Symbol	Qty	Label	Arrangement	LLF	Description	Luminaire LW	UWLR	Light Engine	Total Watts
	1	B	SINGLE	0.900	40W VIVA-CITY Pro-2700K-1050mA-FWB70 spill control forward throw optic column mounted at 6m	102	0.00		40
	2	A	SINGLE	0.900	40W VIVA-CITY Pro-2700K-1050mA-AYB70 spill control street optic column mounted at 6m	88	0.00		80
	1	C	SINGLE	0.900	20W VIVA-CITY Pro-2700K-540mA-FWB70 spill control forward throw optic column mounted at 6m	98	0.00		20
Calculation Summary									
Label	CalcType	Units	Avg	Max	Min	MinAvg	MinMax	Meter Type	Description
Car Park	Illuminance	Lux	13.27	41	3	0.23	0.97	Horizontal	
ObtrusiveLight_0_III_Seg3	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg2	Obtrusive - III	Lux	0.13	1	0	0.00	0.00	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg1	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg3	Obtrusive - III	Lux	0.13	1	0	0.00	0.00	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg2	Obtrusive - III	Lux	0.25	2	0	0.00	0.00	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg1	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg3	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg2	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg1	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg3	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg2	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg1	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg3	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg2	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg1	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg3	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg2	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg1	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg3	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg2	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	
ObtrusiveLight_0_III_Seg1	Obtrusive - III	Lux	0.00	0	0	N.A.	N.A.	Vert-PerpCCW	

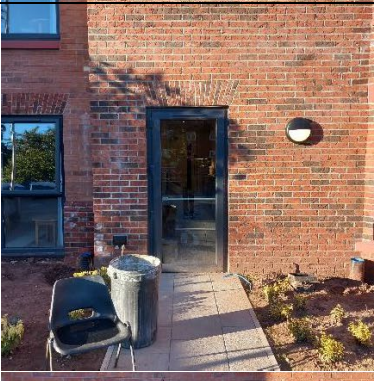
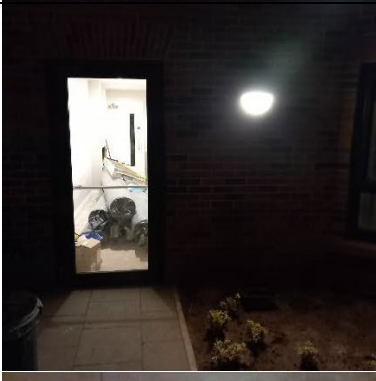
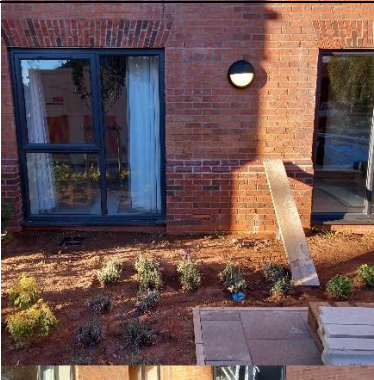
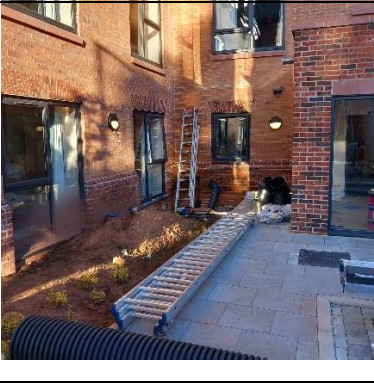
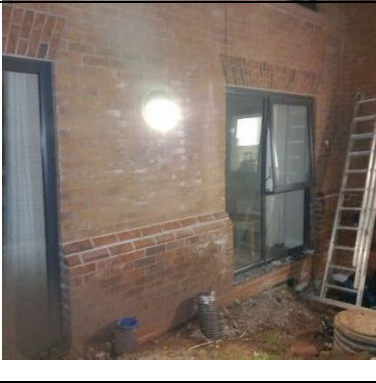
EXTERNAL LIGHTING LEGEND		
Symbol	Image	Description
A		Kingfisher Lighting VIVA-CITY Pro Column mounted LED road lantern mounted @ 6.0m. 40W AYB70.
B		Kingfisher Lighting VIVA-CITY Pro Column mounted LED road lantern mounted @ 6.0m. 40W FWB70.
C		Kingfisher Lighting VIVA-CITY Pro Column mounted LED road lantern mounted @ 6.0m. 20W FWB70.
X/XE		Saxby Lighting HERO Wall mounted external IP65 rated LED luminaire with black bezel & eyelet attachment. 10W. 3000K LED. Mounted @ 1.80m. XE - Emergency version
F		Surface mounted IP65 rated LED luminaire. 4000lm. XCN15NW.
		Distribution board
TS		Timeswitch and contactor enclosure
P		External dusk until dawn photocell
		External underground armoured cable route
P		IP65 PIR detector for local light control

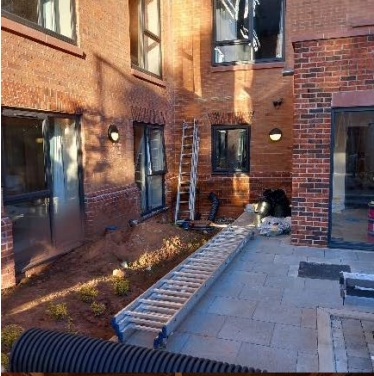
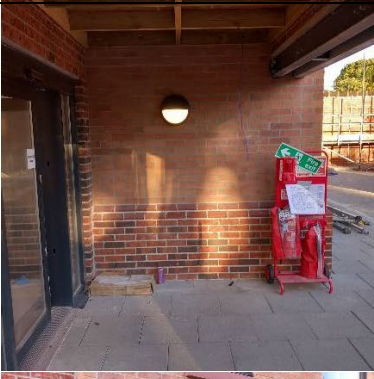
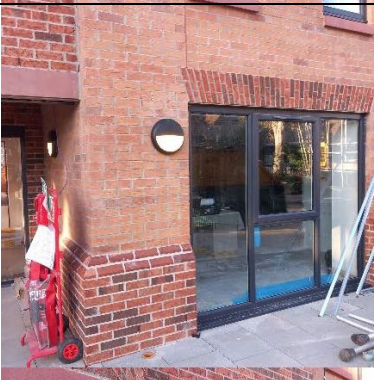
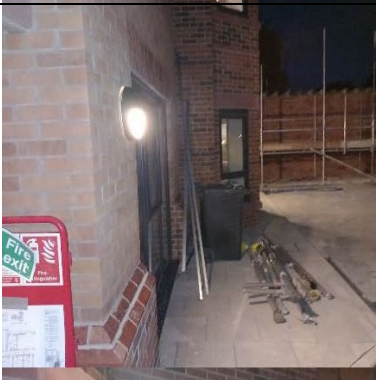
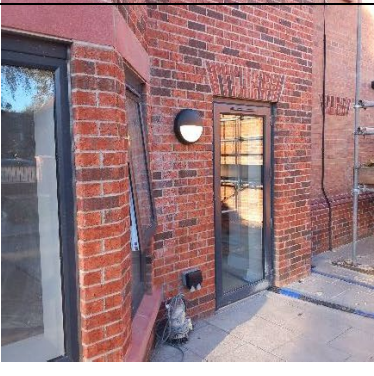
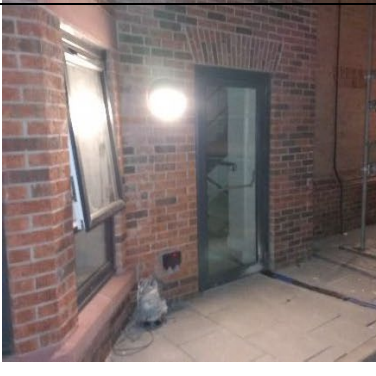
AF	As Fitted.	JH	08.10.25
Rev.	Revision details	Chk'd	Date
 JH Electrical Services			
2 Cromford Way, Broughton Astley, Leicester LE9 6UT Tel: 01455 550371 Mob: 07774 670127 e-mail: ashraf@electricservices.co.uk			
Client: LNC Property Developments Ltd			
Project: Lovett Care Northern Moor			
Drawing Title: External Lighting Layout c/w Lux Levels			
Scale: 1:100 @ A0		Date: 08.10.25	
Drawn by: DJS		Checked: JH	
Drawing Number: 240327-E-LTG-XX-8000		Rev: AF	
Drawing Status: AS FITTED			
This drawing is copyright and may not be reproduced either in part or full without written permission from JH Electrical Services.			
DO NOT SCALE OFF THIS DRAWING			

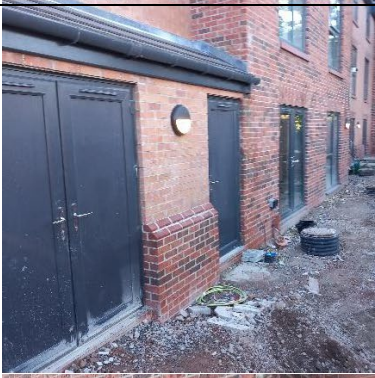


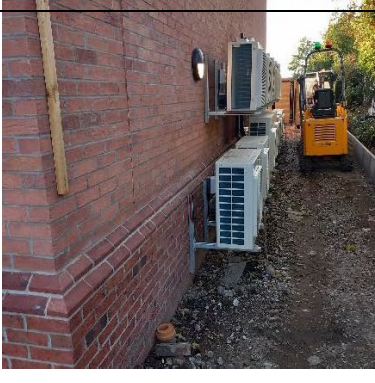
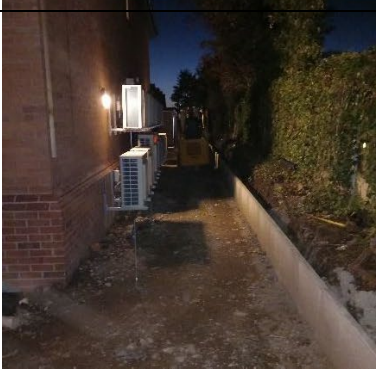
Photographic Luminaire Record

Luminaire Unique Reference	Daytime Photo		Nighttime Photo	
C1				
C2				
C3				
C4				

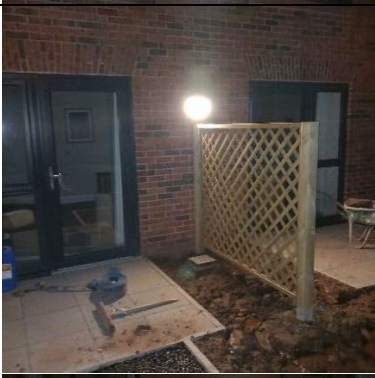
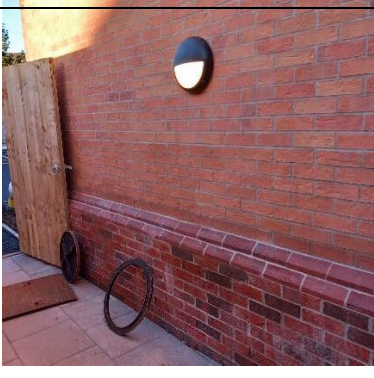
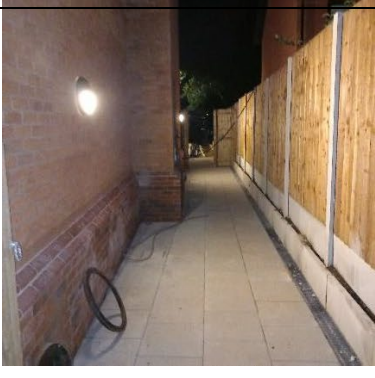
W1		
W2		
W3		
W4		

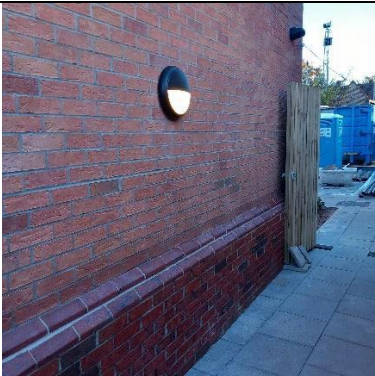
W5		
W6		
W7		
W8		

W9		
W10		
W11		
W12		

W13		
W14		
W15		
W16		

W17		
W18		
W19		
W20		

W21		
W22		
W23		
W24		

W25		
W26		
W27		