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25037 MCFC PROJECT TAVERNA EXTERIOR LIGHTING DESIGN

GRIFFITHS / EVANS

Issue and Revision Schedule

Rev / Issue	Date	Description	Revision Details	Prepared	Checked
P01	06/02/2026	RIBA Stage 2	DRAFT FOR COMMENT	JNG	JS
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Overview:

This Lighting Impact Assessment has been prepared in support of a planning application by Manchester City Football Club Limited for a new entertainment venue at the Etihad Campus to accommodate Project Taverna. The proposed development will be located on the Etihad Collar Site and will form part of the wider leisure and entertainment offer within the Campus.

The Etihad Campus is an established major destination for sport, leisure and visitor attractions. The Collar Site is specifically identified within local planning policy as an appropriate location for high-quality leisure and entertainment uses of regional and national significance. Project Taverna will contribute to this established role by introducing a distinctive and complementary venue within an area that already contains significant event, hospitality and public realm infrastructure.

External lighting will form an important element of the proposed development, supporting safe access and circulation, enhancing the visitor experience, and contributing to the visual character of the venue and surrounding public realm. This assessment therefore considers the nature and extent of proposed lighting associated with Project Taverna and evaluates its potential effects on the surrounding environment.

The purpose of this report is to:

- Describe the existing lighting conditions within and around the etihad collar site;
- Identify relevant sensitive receptors;
- Establish appropriate design criteria and target light levels;
- Assess potential impacts arising from the proposed lighting installation; and
- Outline mitigation and control measures to ensure that lighting is designed and operated in a responsible manner.

The assessment has been undertaken with reference to current industry standards and best practice guidance and takes account of the urban context of the Etihad Campus, the presence of nearby residential properties, and the need to manage cumulative effects alongside other established uses.

The proposed lighting strategy has been developed to balance functional requirements, safety and way-finding needs, and the creation of an attractive arrival environment, while ensuring that potential impacts such as glare, light spill and visual intrusion are appropriately controlled. This report demonstrates how these objectives can be achieved through considered luminaire selection, careful design, and the implementation of suitable operational controls.



Site Location and Context

The proposed Project Taverna development is located on the Etihad Collar Site within the Etihad Campus, East Manchester. The site lies immediately to the west of Alan Turing Way and forms part of a wider area established as a major leisure, sport and entertainment destination.

The Etihad Campus is characterised by large-scale venues, public realm spaces, transport infrastructure and supporting commercial uses. Surrounding development includes the Etihad Stadium, the Co-op Live arena, associated hospitality and leisure facilities, and extensive areas of highway, parking and event-related infrastructure. The area is therefore an established urban environment with significant existing levels of artificial lighting, particularly during evening periods.

Surrounding Land Uses

The site is bounded and influenced by a mix of uses which are relevant to the assessment of lighting impacts:

- To the east, beyond Alan Turing Way, lie established residential areas which represent the nearest sensitive receptors to the proposed development.
- To the west and north are other components of the Etihad Campus, including the large-scale event venue - Co-op Live and associated public realm.
- To the south lies The Etihad Stadium and the proposed North stand/hotel development, further campus-related facilities and access routes.
- The Ashton Canal corridor runs to the north and east of the site and represents a potentially sensitive ecological and visual receptor.

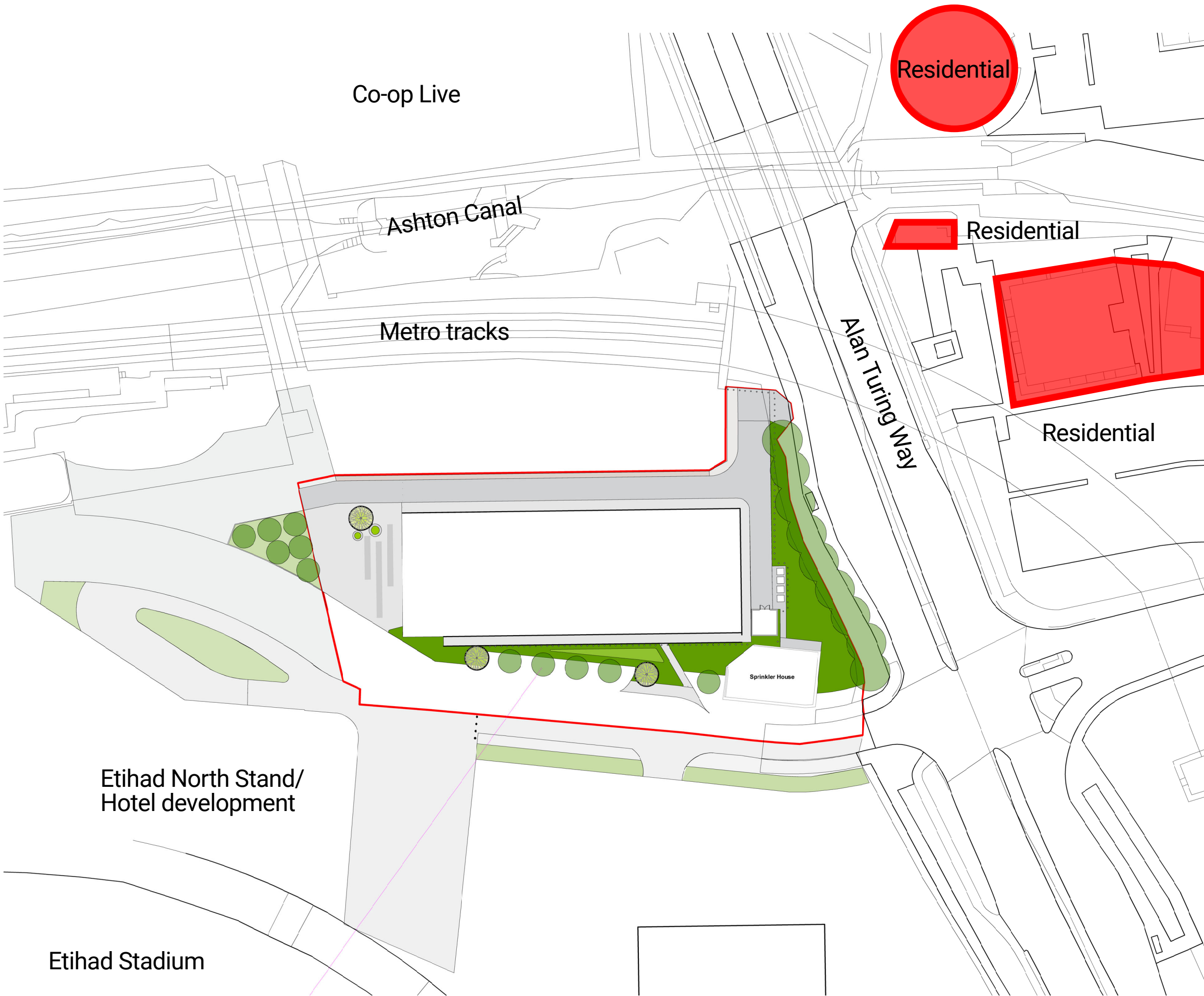
The immediate setting of the site is therefore predominantly commercial and leisure-focused, with residential receptors located at a greater distance across major transport infrastructure.

Existing Lighting Environment

The Etihad Campus and its surroundings operate within a relatively bright urban night-time environment. Existing sources of lighting in the area include:

- Highway lighting along Alan Turing way and surrounding roads;
- Illuminated signage and architectural lighting associated with existing venues;
- Public realm lighting throughout the campus;
- Transport infrastructure lighting; and
- Intermittent event-related lighting during major events.
- The Ashton canal tow path is also lit.

As a result, baseline ambient light levels in the vicinity of the site are already higher than those found in typical suburban or rural contexts. The lighting character is consistent with an established entertainment and transport hub where night-time activity is expected and managed.



Introduction and Methodology

A baseline night-time lighting survey was undertaken to establish existing ambient light conditions surrounding the Project Taverna site. The purpose of the survey was to quantify prevailing lighting levels at representative sensitive receptors and within the wider context area, in order to inform the assessment of potential lighting impacts arising from the proposed development.

Measurements were recorded using a Martindale LM195 digital light meter, calibrated on 06/02/2026. A copy of the current calibration certificate is provided in Appendix A of this report.

All measurements were taken at a standard height of 1.5 meters above finished floor/ground level (AFFL), representing typical eye level and consistent with recognised good practice for obtrusive light assessments.

Measurement Approach

The survey comprised a combination of:

- Vertical illuminance measurements at identified sensitive receptor locations, including residential properties and publicly accessible areas, to assess potential light intrusion levels;
- Horizontal illuminance spot checks to record ambient ground-plane lighting conditions for contextual comparison; and
- Additional readings taken at regular intervals around the site perimeter to establish representative background light levels within the wider area.

Vertical readings were oriented toward the site where relevant to replicate the likely direction of potential light spill. Horizontal readings were recorded with the sensor facing upward to measure incident light levels representative of the existing environment.

The combination of vertical and horizontal measurements provides a robust understanding of both potential receptor exposure and prevailing district brightness.

South Site Boundary Constraints

It was not possible to obtain meaningful baseline readings along the southern boundary of the site. At the time of survey, this area formed part of an active construction zone associated with works to the North Stand. The presence of temporary site lighting, construction plant, stacked portacabins and associated infrastructure introduced atypical and transient lighting conditions that were not representative of the established baseline environment.

Given the temporary and dynamic nature of these lighting sources, readings obtained in this area would not provide a reliable indication of prevailing long-term ambient conditions. As such, measurements from the southern boundary have not been relied upon in defining baseline lighting character. Instead, representative contextual readings have been taken from stable locations surrounding the remainder of the site.





Looking towards site from Alan Turing Way - night



Looking towards site from Alan Turing Way - day



Looking towards Alan Turing Way - Residential - day



Looking towards Alan Turing Way - Residential - night



Looking towards Co-op Live from Alan Turing Way - day



Looking towards Co-op Live from Alan Turing Way - night



Looking South Along Alan Turing Way - Residential - day



Looking South Along Alan Turing Way - Residential - night



Looking West Along Ashton Canal Towpath - night



Looking West Along Ashton Canal Towpath - day



Looking towards Co-op Live from site - night



Looking towards Co-op Live from site - day



Looking West Along Ashton Canal Towpath - night



Looking West Along Ashton Canal Towpath - day



Looking towards site - night (spill from Co-op Live screens)



Looking towards site - day

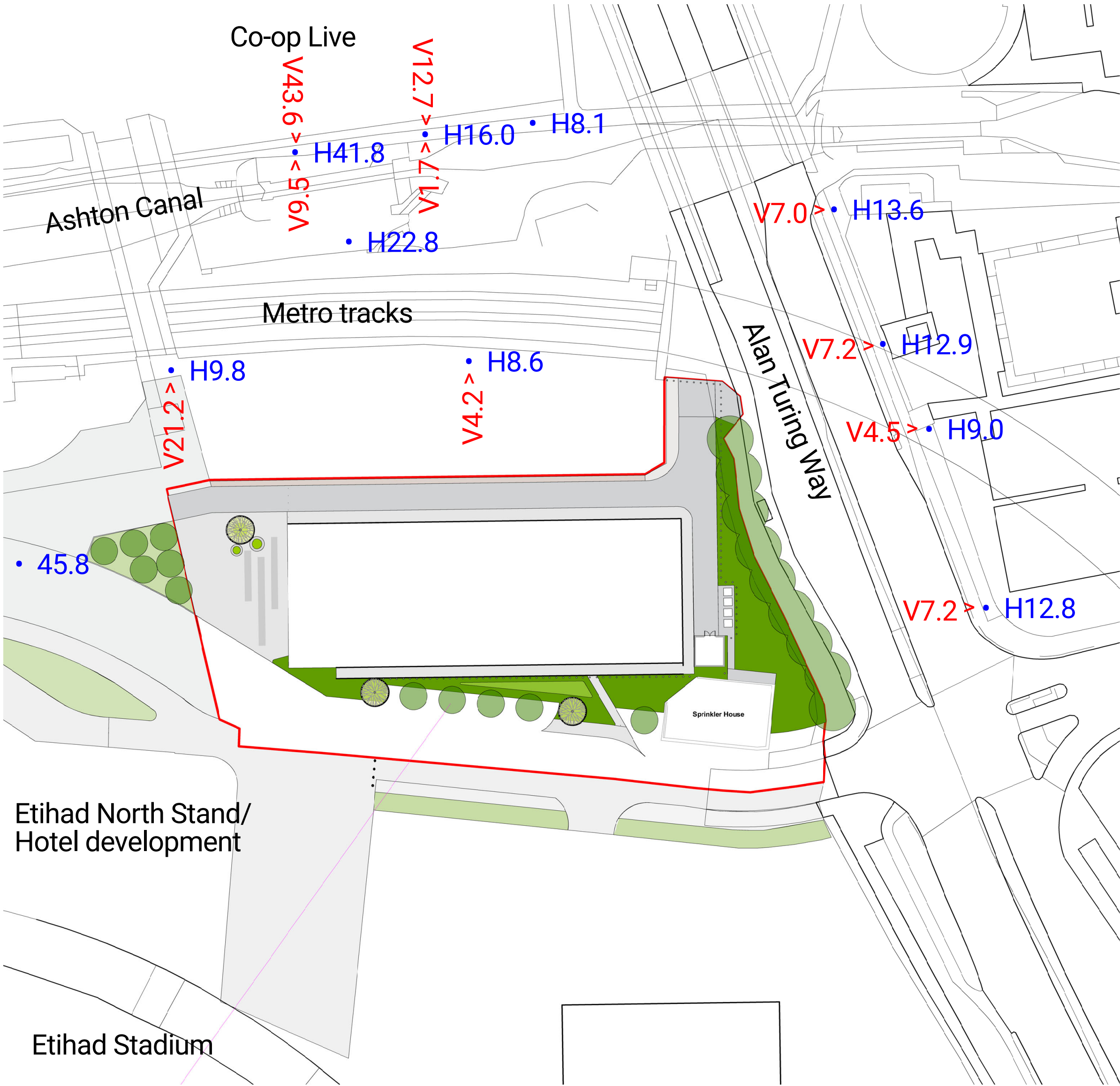
Overview of results

The baseline survey results confirm that the site is located within an established urban lighting environment influenced by large-scale adjacent developments and highway infrastructure. Horizontal illuminance measurements (blue values), taken at 1.5 m AFFL, generally range between approximately 8–23 lux around the northern and eastern boundaries. Significantly higher readings recorded along the Ashton Canal corridor are directly attributable to spill light from the Co-op Live media screens, which were operational at the time of survey. In addition, the canal towpath itself is estimated to be lit to approximately 10 lux average by pole-mounted floodlighting, contributing to an already elevated baseline. The canal edge, surrounding trees and associated vegetation are therefore subject to substantial existing spill light from both the Co-op Live facade media installations and the functional towpath lighting.

Horizontal light levels to the west of the site are also generally elevated. The pedestrian and vehicular routes connecting from Joe Mercer Way and the adjacent Metro corridor are well lit, resulting in comparatively higher ambient illuminance values in this direction. This reflects the highly managed public realm environment associated with the wider Etihad Campus, where functional lighting is designed to support high pedestrian flows and event conditions.

Vertical illuminance measurements (red values), taken with the meter oriented as indicated by arrow markers showing the direction of light hitting the light meter, generally range between approximately 2–13 lux, with higher readings observed on the canal directly in front of the Co-op Live illuminated sign. The measurements taken along Alan Turing Way reflect the influence of existing highway lighting, with recorded levels indicating spill light from the road lighting installations rather than site-specific sources. It should be noted that meaningful baseline readings were not obtained along the southern boundary of the site, as this area formed part of an active construction zone associated with the North Stand development at the time of survey. Temporary construction lighting, stacked porta-cabins and site infrastructure created atypical and transient lighting conditions, and readings from this area would not have been representative of stable ambient conditions.

Overall, the survey demonstrates that the site sits within a context of moderate to relatively high ambient light levels, particularly along the canal, western public realm and highway edges, where existing media facades, highway lighting and functional pedestrian lighting already contribute to measurable spill light



Sensitive Receptors

An essential element of the Lighting Impact Assessment process is the identification of receptors that could be affected by new or altered lighting associated with the proposed development. For Project Taverna, receptors have been identified based on proximity, sensitivity to light, and potential lines of sight to the site.

For the purposes of this Lighting Impact Assessment, the principal sensitive receptors are identified as:

- Residential properties located to the east of Alan Turing Way, which have potential views toward the site;
- Users of nearby pedestrian routes and public spaces;
- The Ashton Canal corridor and associated ecological interests; and
- Road users on adjacent highways who may be affected by glare or distraction.
- The Hotel forming part of the North stand development

These receptors have informed the approach to lighting design and the assessment of potential impacts.

Site Characteristics Relevant to Lighting

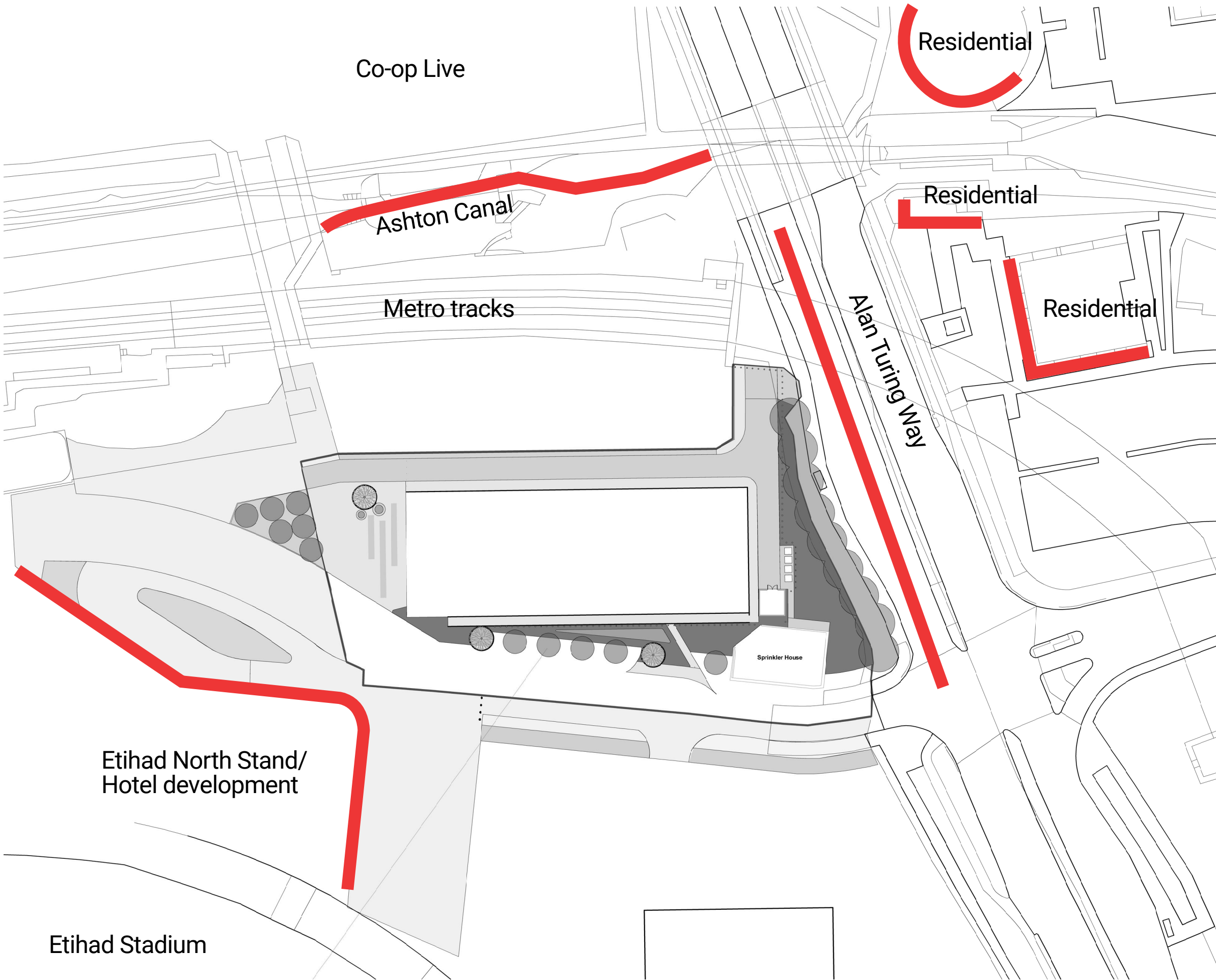
The Collar Site is currently characterised by hard-standing and open development plots, with limited existing structures. This provides an opportunity for new lighting to be carefully planned and integrated from the outset. The open nature of the site means that any external lighting associated with the proposed venue has the potential to be visible over distance if not appropriately controlled.

The proposed Project Taverna venue will introduce a new building form, access routes, service areas and public realm. External lighting will be required to support safe movement, operational requirements and the visitor experience. The design of this lighting must respond to the surrounding context and ensure that impacts on identified receptors are appropriately minimised.

Summary

In lighting terms, the site sits within an established urban entertainment environment with relatively high existing ambient brightness. Nevertheless, the proximity of residential properties and the presence of the Ashton Canal corridor mean that new lighting must be carefully designed and managed.

This Site Description provides the contextual basis for defining appropriate target light levels, design criteria and mitigation measures, as set out in the subsequent sections of this assessment.



Overview

The potential effects of external lighting associated with Project Taverna have been considered using a structured methodology consistent with current industry best practice.

The assessment process comprises the following key stages:

1.Establishing Baseline Conditions

Existing ambient lighting levels and sources have been reviewed in order to understand the current night-time character of the area and to provide a reference point against which new lighting can be considered.

2.Defining Appropriate Design Criteria

Target lighting performance levels for the proposed development have been established based on recognised standards and guidance. These targets are set out separately within the report and inform the design intent for different external areas.

3.Consideration of Potential Impacts

Potential effects on identified receptors have been considered in relation to:

- light spill and vertical illuminance,
- glare and direct view of light sources,
- changes to the night-time visual environment, and
- cumulative effects alongside existing lighting.

4.Mitigation and Control Measures

Where potential impacts are identified, appropriate design and operational controls are proposed to ensure that lighting remains within acceptable limits.

Relevant guidance

The assessment of potential lighting impacts associated with Project Taverna has been undertaken with reference to the following standards and best practice guidance:

Obtrusive Light and Impact Assessment

- Institution of Lighting Professionals (ILP), Guidance Note 1: The Reduction of Obtrusive Light (GN01/21), 2021 – primary UK industry guidance for controlling light spill, glare, sky glow and environmental impacts from exterior lighting installations.
- International Commission on Illumination (CIE), CIE 150:2017 (2nd Edition) – Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations – internationally recognised technical guidance forming the basis for the assessment of obtrusive lighting effects.

Ecology and Environmental Considerations

- Institution of Lighting Professionals (ILP), Guidance Note 08: Bats and Artificial Lighting in the UK (GN08) – good practice guidance for avoiding or minimising potential ecological impacts from artificial lighting, particularly in relation to sensitive habitats and commuting corridors.

Illuminated Signage and Media Elements (where applicable)

- Institution of Lighting Professionals (ILP), Professional Lighting Guide 05 (PLG05): The Brightness of Illuminated Advertisements, 2023 – guidance on the assessment and control of luminance and operational characteristics of illuminated signage and static backlit displays.

National Planning Policy Framework (2024).

- Key compliance criteria and design considerations are summarised within Appendix B, which highlight the need for the exterior lighting installation to limit the impact of light pollution on the local amenity and respect the environment of which it is installed. User safety is paramount, and the selection and control of fittings must prioritise energy efficiency.

Regulating Light Spill

The following tables are excerpts from the Guidance Notes for the Reduction of Obtrusive Light by the Institute of Lighting Engineers. The tables provide the limits of illuminance to minimise light spill, depending on different darkness zones and road classifications.

Obtrusive Light Limitations for Exterior Lighting Installations – General Observers						
Environmental Zone	Sky Glow ULR [Max %]	Light Intrusion (into Windows) Ev [lux]		Luminaire Intensity I [candelas]		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m²]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

Table 1.2.2a – Guidance Notes for the Reduction of Obtrusive Light by the Institute of Lighting Engineers, table 2

Environmental Zone:
 E0 – Protected surrounding, dark lighting environment
 E1 – Natural surroundings, intrinsically dark lighting environment
 E2 – Rural surrounding, low district brightness lighting environment
 E3 – Suburban surrounding, medium district brightness lighting environment
 E4 – Urban surrounding, high district brightness lighting environment

Abbreviations:
 ULR = Upward Light Ratio of the installation
 Ev = Vertical illuminance in Lux
 I = Light intensity in Candelas (cd)
 L = Luminance in candelas per square meter (cd/m²)
 Curfew = the time after which stricter requirements (for the control of obtrusive light) will apply.
 * = Permitted only from only public road lighting installations

For the purpose of comparison with the collated baseline readings, the current environmental zone for the site is considered to be best represented by E3 – Suburban surroundings (medium district brightness). Based on ILP GN01/21 guidance, the principal criteria to limit obtrusive light for general observers within an E3 environment are:

- Light intrusion into windows (vertical illuminance, Ev): light trespass on the vertical plane of any adjacent building should be ≤10 lux pre-curfew and ≤2 lux post-curfew.
- Luminaire intensity (I): the maximum luminous intensity of any individual luminaire in potentially intrusive directions should be ≤10,000 cd pre-curfew and ≤1,000 cd post-curfew.
- Upward Light Ratio (ULR): to control sky glow, the upward light ratio of the installation should be limited to ≤5% within Environmental Zone E3.

It should be noted that these figures are guidance values and may be supplemented or replaced by local planning requirements, including any locally defined curfew times, receptor-specific limits, or additional controls imposed through planning conditions.

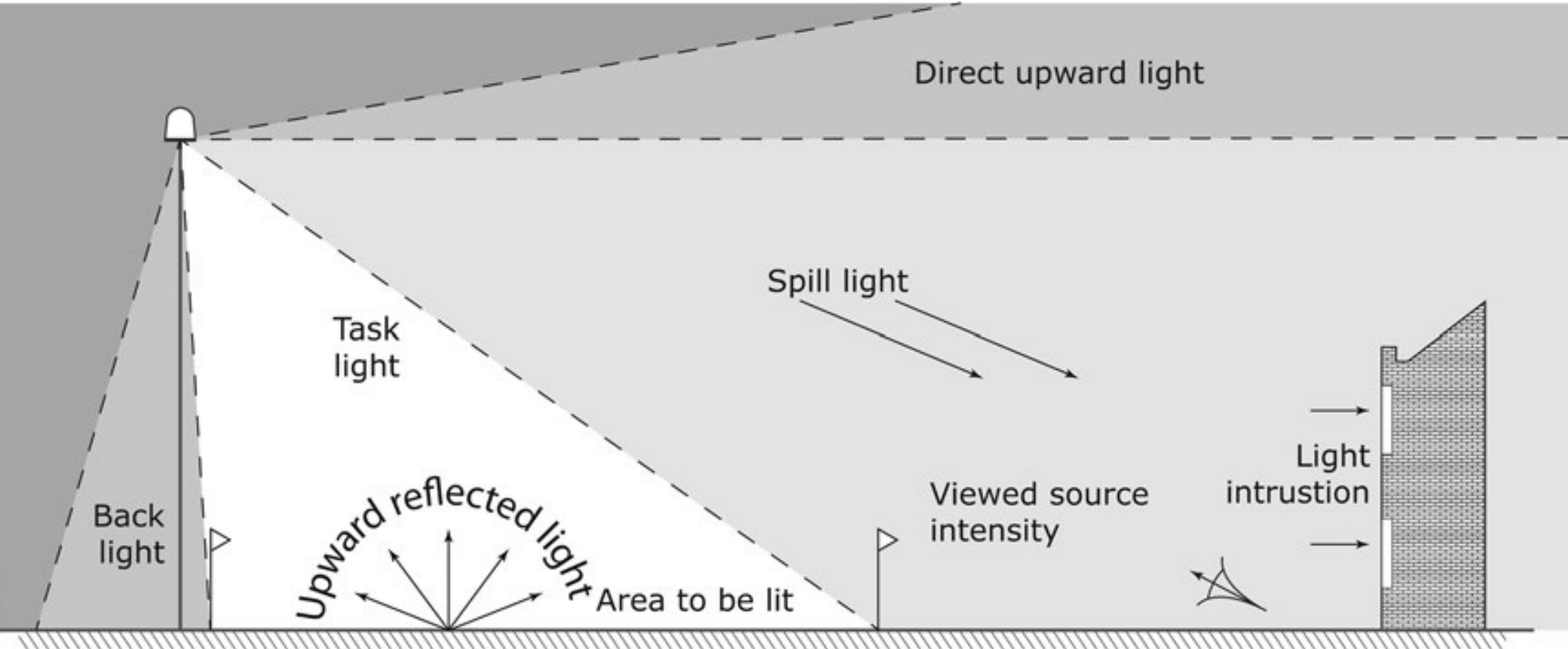
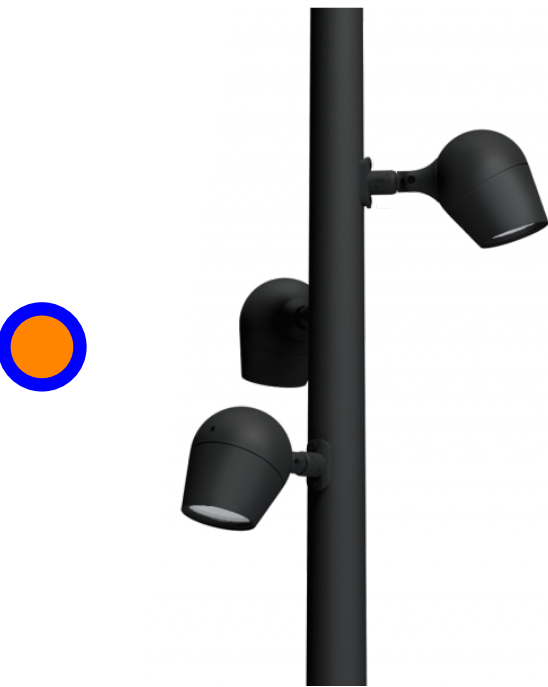


Table 1.2.2a – Guidance Notes for the Reduction of Obtrusive Light by the Institute of Lighting Engineers, Figure 1: Types of obtrusive light

Existing/proposed lighting positions and types taken from the stage 4 design for the proposed MCFC North stand landscape lighting design are shown here. The lighting design for this development should work with the proposals to create a co-ordinated design.



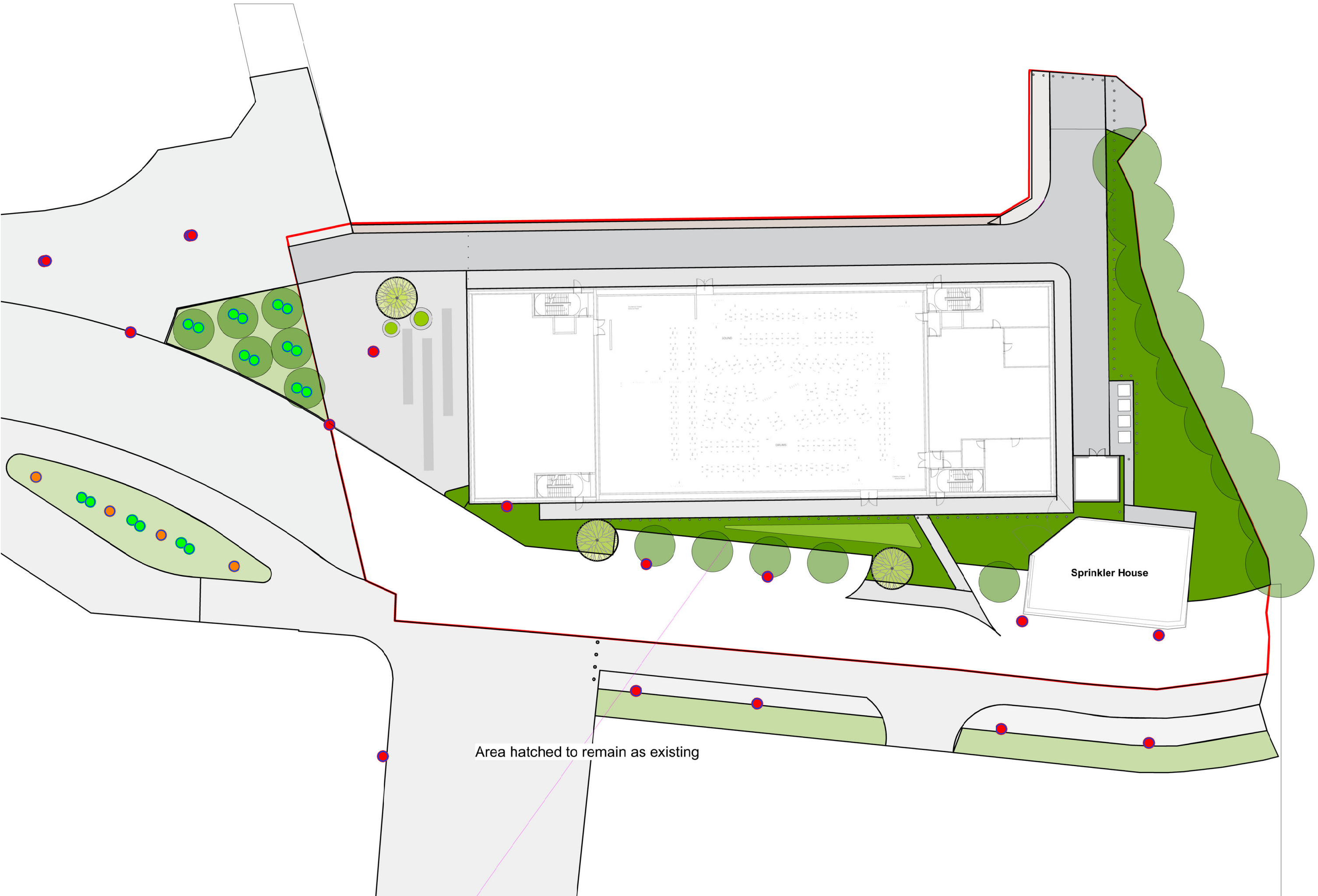
Functional and efficient pole mounted area/street lighting is the predominant type around the new proposed site. These are 6 meters in height, some are double headed. Positions will need to be changed to respond to the new development.



More refined column mounted projectors are proposed in the softscape in front of the hotel to the South West of the new development. These are 8 meters in height with adjustable projectors.



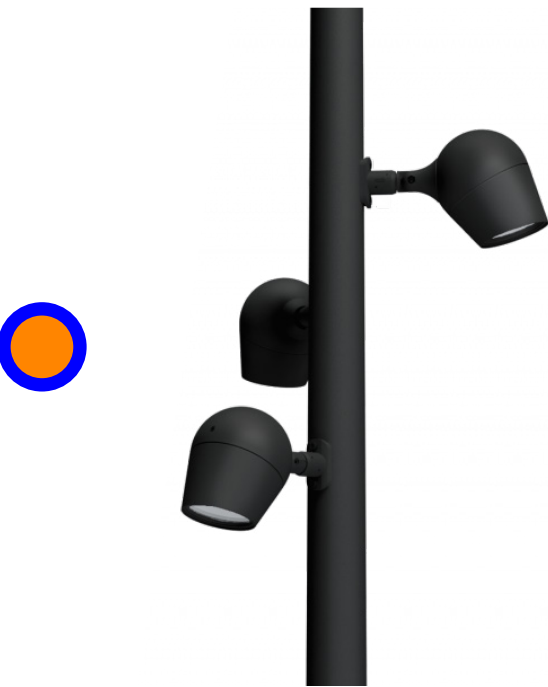
In-ground up-lighting is proposed in the softscape in front of the hotel to the South West of the new development and the triangular softscape adjacent to the arrival plaza for the new development.



Minor changes to the existing lighting design that intersects with the new development are shown, the pole mounted area/street light in the arrival plaza is omitted and the three immediately to the South of the building need minor positional changes.



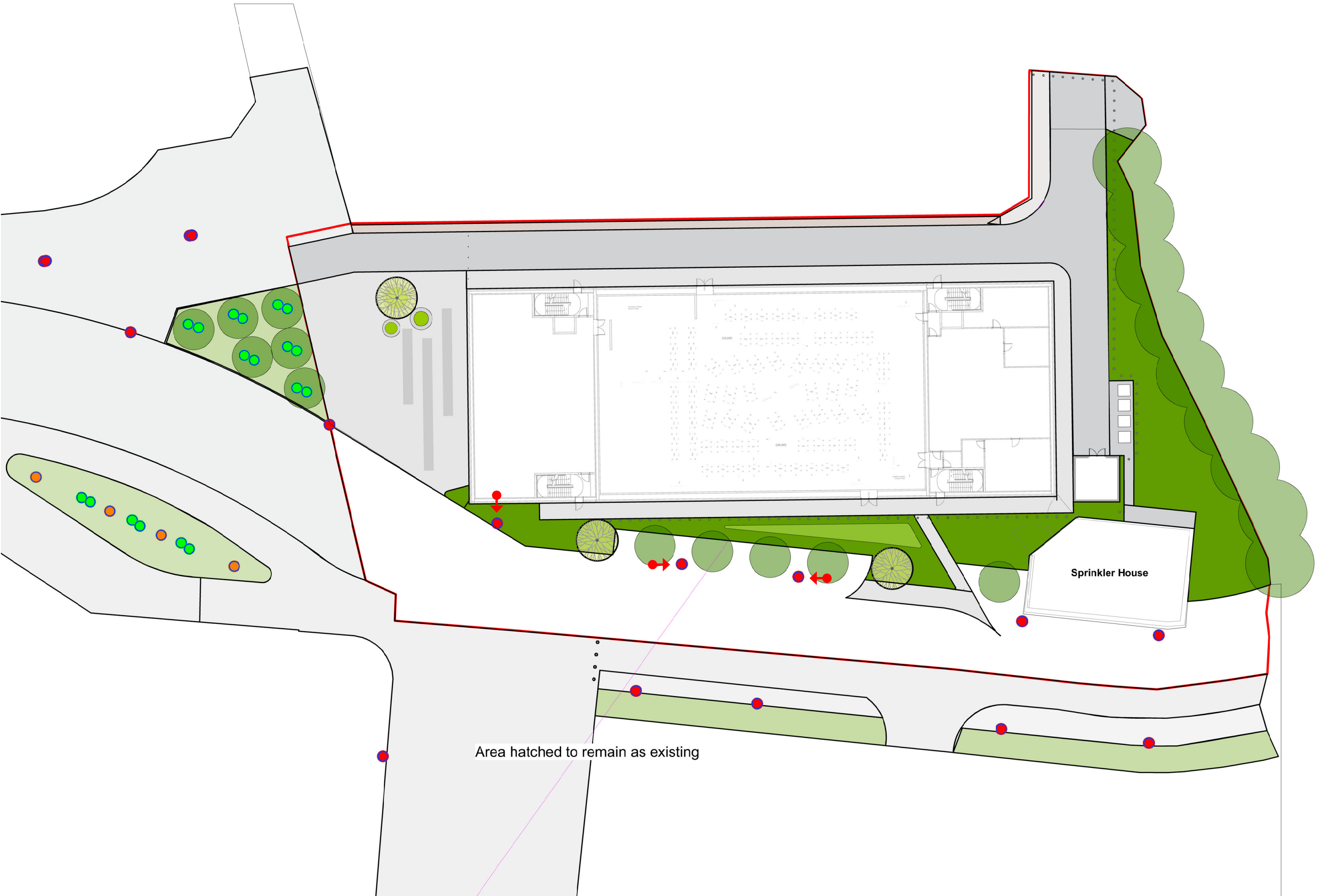
Functional and efficient pole mounted area/street lighting is the predominant type around the new proposed site. These are 6 meters in height, some are double headed. Positions will need to be changed to respond to the new development.



More refined column mounted projectors are proposed in the softscape in front of the hotel to the South West of the new development. These are 8 meters in height with adjustable projectors.



In-ground up-lighting is proposed in the softscape in front of the hotel to the South West of the new development and the triangular softscape adjacent to the arrival plaza for the new development.



This section defines target external lighting performance levels for new site.

The targets aim to:

- Provide safe pedestrian and vehicular movement,
- Support way-finding and arrival experience, and
- Establish clear benchmarks for detailed lighting design.

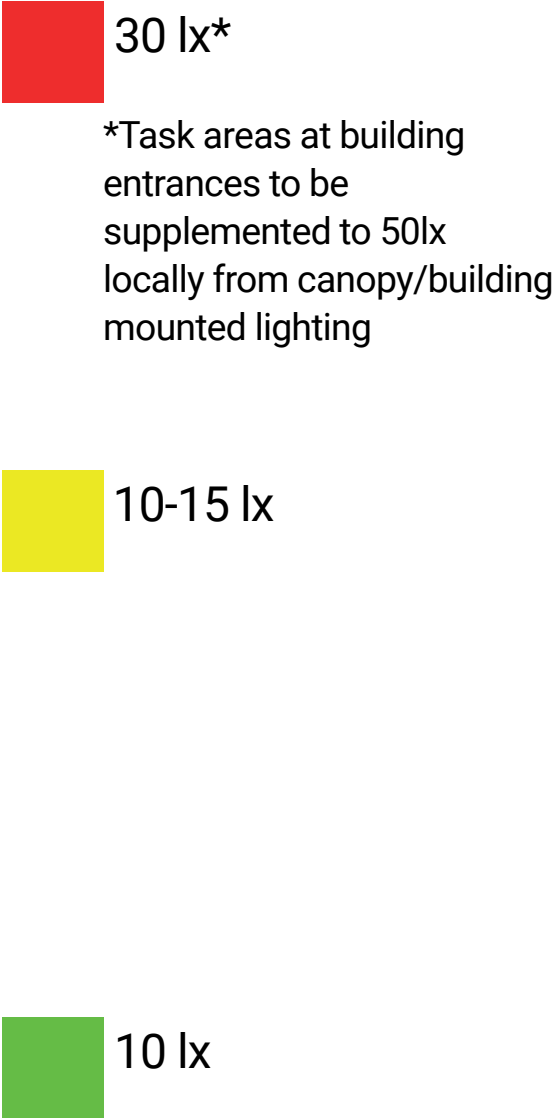
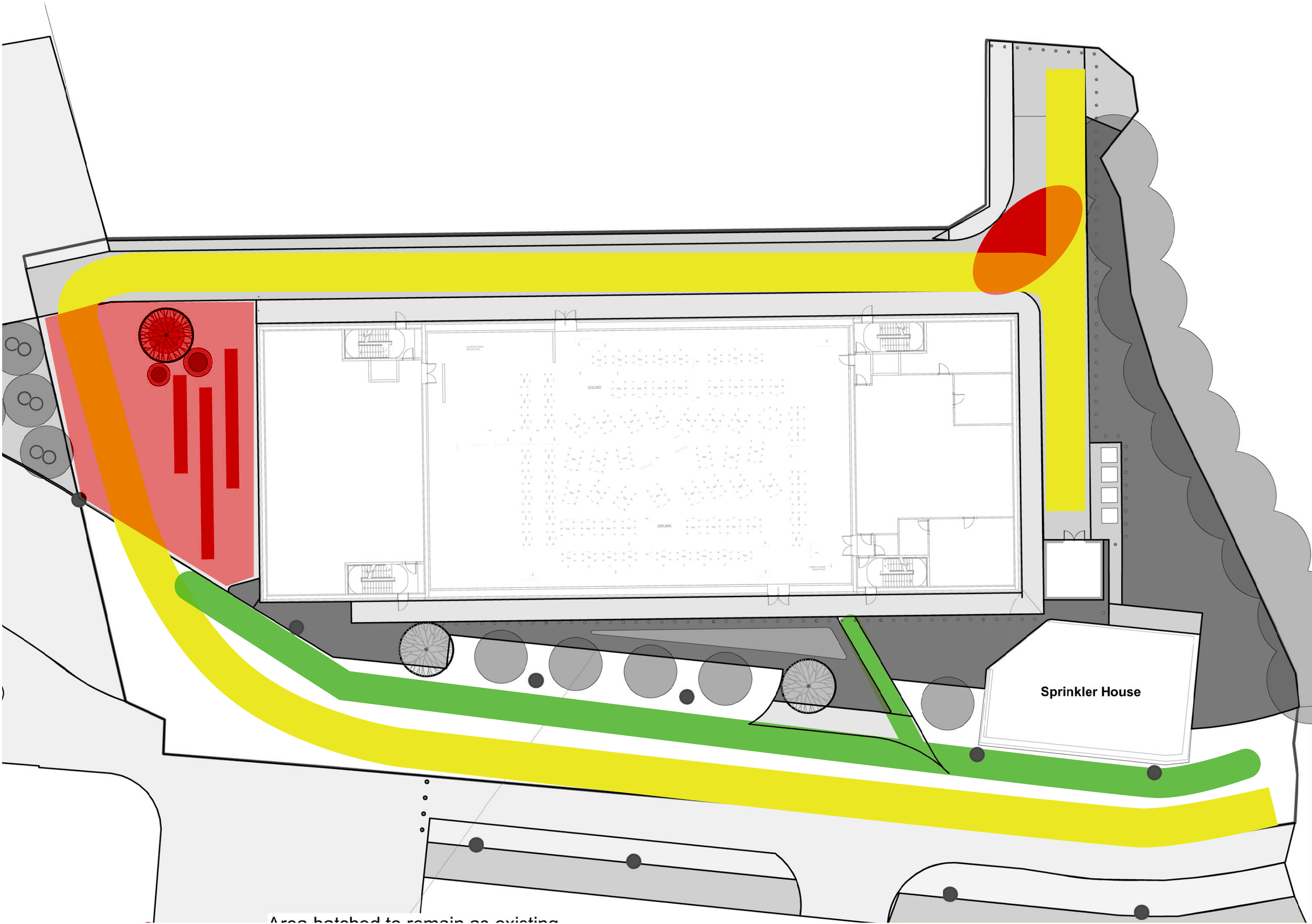
The target levels set out were formed in line with the following best practice guidance:

BS EN 12464-2:2024 – Light and lighting. Lighting of work places – Part 2: Outdoor work places
Primary reference for outdoor task/workplace areas (including circulation and operational outdoor spaces).

SLL/CIBSE Lighting Guide 06 (LG06): 2016 – Lighting Guide 06: The exterior environment
UK exterior lighting design guide commonly used to set public realm / exterior environment targets and design approach.

BS EN 13201-2:2015 – Road lighting – Performance requirements
Basis for selecting lighting performance for roads and access routes via lighting classes (M/C/P). Useful where your “south access road” could function as a road or campus route.

BS 5489-1:2020 – Design of road lighting – Lighting of roads and public amenity areas. Code of practice
UK code of practice used alongside EN 13201 for road and public amenity area lighting design, including approaches for different road/route contexts.



An illustrative external lighting scheme has been developed to facilitate this assesment, this is subject to confirmation but the final design will align with the guidance documents and design principles set out in this report. Luminaire types have been chosen with controlled beam distributions, high-quality optics, and appropriate colour temperature to achieve the required illuminance and uniformity while minimising glare, spill light, and upward light output. Equipment has been selected to allow precise aiming and effective control, ensuring that lighting performance meets operational and safety needs without unnecessary brightness. The luminaire palette reflects a balance between these technical requirements, environmental considerations, and the aesthetic intent of the project, enabling a compliant and visually appropriate lighting solution. The scheme includes a limited number of narrow-beam, low-output tree uplighters aimed into the canopy, where most light is absorbed by vegetation, resulting in minimal direct sky emission. As a small component of the overall installation, their upward flux does not materially affect the installation ULR, allowing compliance with ILP GN01/21 Environmental Zone E3 (max ULR 5%), with aiming, shielding and curfew dimming further reducing sky glow.




Refined column mounted projectors 6 meters in height with adjustable heads, and honeycomb glare louvers. Zero upward light/full cut off optics. 3000k . 3 x 1800lm.



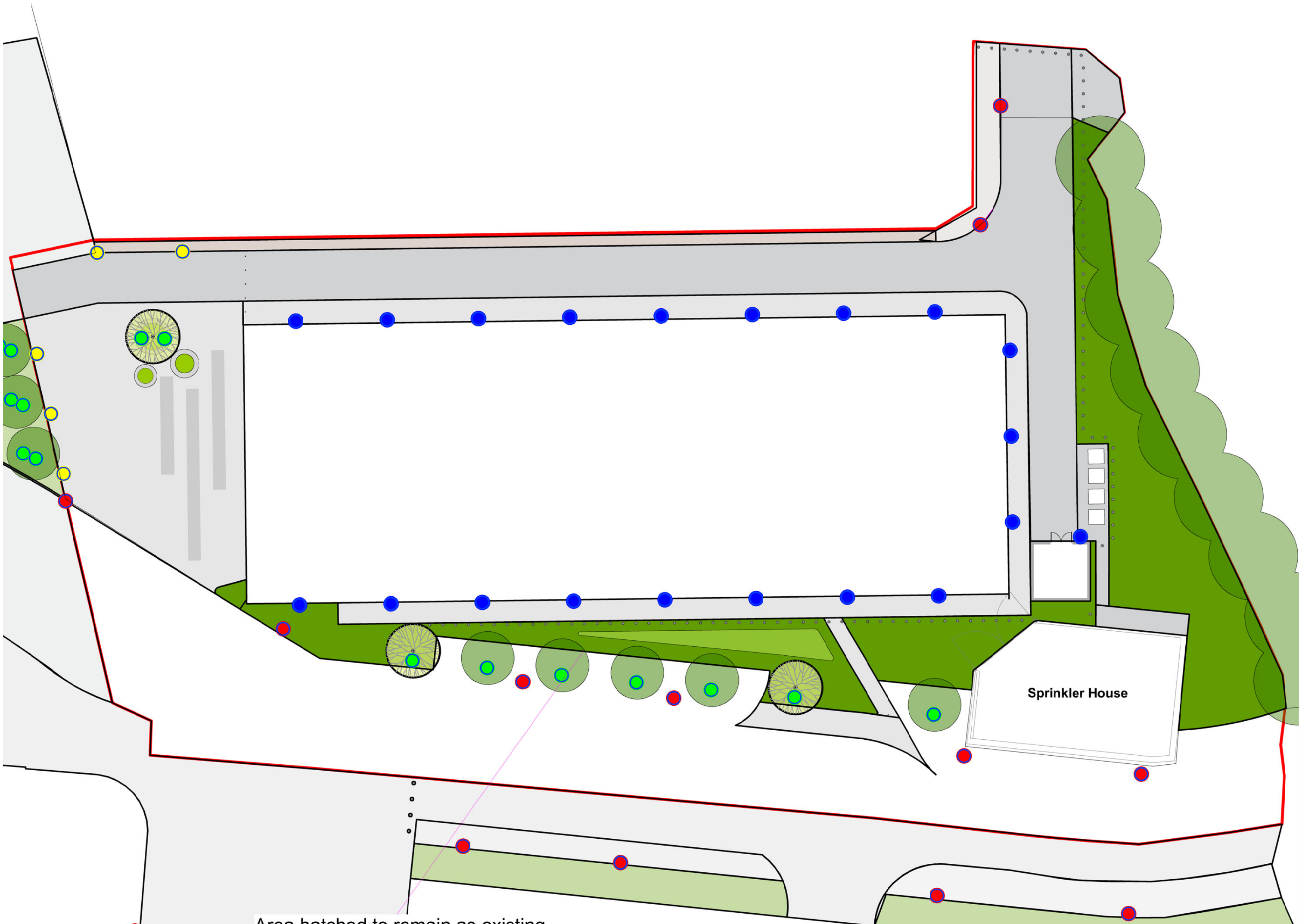

Building mounted floodlight with zero upward light/full cut off optics. 3000k . 1500lm.




In-ground up-lighting is proposed for the trees to the South of the building and the larger tree in the plaza.




Functional and efficient pole mounted area/street lighting is the predominant type around the new proposed site. These are 6 meters in height, some are double headed. Positions will need to be changed to respond to the new development.



Assessment of Predicted Light Spill

Lighting calculations have been undertaken to assess the potential for light spill arising from illustrative lighting proposals. Vertical illuminance values have been calculated at all relevant sensitive receptor locations surrounding the site, including nearby residential properties, the Ashton Canal corridor, and Alan Turing Way. The results of these calculations are set out in the lighting calculation report in appendix A.

In accordance with ILP GN01/21 guidance for Environmental Zone E3, the primary assessment criteria for general observers are:

- A maximum vertical illuminance of 10 lux pre-curfew and 2 lux post-curfew, and
- Appropriate control of luminaire intensity and upward light.

To ensure a robust assessment, the results have been reviewed with reference to the maximum predicted vertical illuminance (Emax) at each receptor location.

Residential Receptors

Calculated vertical illuminance at the nearest residential receptors demonstrates very low levels of light trespass:

- Residential Receptor 1: Emax = 0.12lux
- Residential Receptor 2: Emax = 0.17 lux
- Residential Receptor 3: Emax = 0.09 lux

All predicted values are significantly below the applicable E3 limits of 10 lux pre-curfew and 2 lux post-curfew. The results confirm that the proposed lighting will not result in material intrusion of light into nearby residential properties.

Ashton Canal Corridor

The Ashton Canal corridor has been assessed using a vertical calculation plane at 1.5 m height, representing potential views experienced by users of the towpath and adjacent ecological receptors. The maximum predicted vertical illuminance at this location is:

- Ashton Canal: Emax = 0.71 lux

This value is well within the E3 guidance limits and demonstrates that light spill toward the canal environment is minimal and effectively controlled.

Alan Turing Way

Horizontal illuminance has been assessed at Alan Turing Way to determine the extent of any light spill onto the highway environment. The calculation results show:

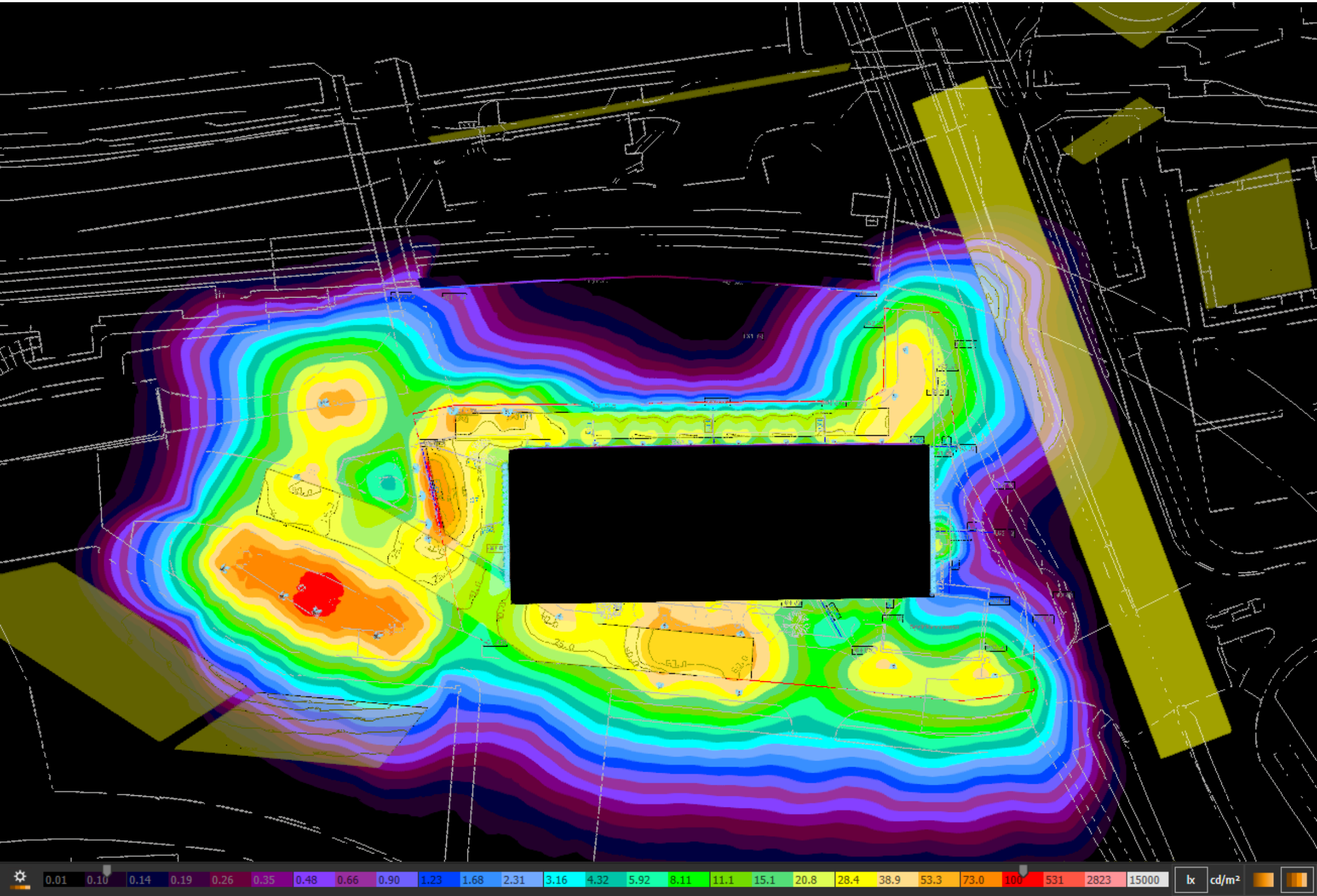
- Alan Turing Way: Emax = 2.06 lux

This level is substantially below the pre-curfew E3 limit of 10 lux and is not considered to represent a material change to existing lighting conditions along the carriageway. The results indicate that the proposed scheme will not introduce significant spill light toward the highway.

North Stand Hotel

Vertical Illuminance has been assessed at the facades of the North stand hotel. Levels are below the post curfew maximum, note - this spill light is from the column mounted projectors that form part of the North Stand public realm lighting design and are therefore not part of this scope.

- Hotel Receptor 1: Emax = 1.89lux
- Hotel Receptor 2: Emax = 1.81 lux



Summary

Across all assessed receptor locations, the predicted maximum vertical illuminance values are comfortably within the relevant Environmental Zone E3 limits. The results demonstrate that:

- Light spill beyond the site boundary is minimal;
- Sensitive receptors will not experience intrusive levels of illumination; and
- The lighting design effectively contains light within the intended operational areas.

These outcomes reflect the use of luminaires with controlled optics, appropriate mounting heights and careful orientation. On this basis, the proposed lighting installation is considered to achieve a high level of compliance with ILP GN01/21 guidance, and no adverse impacts from light spill are anticipated.

The proposed development may incorporate illuminated elements including advertising screens and illuminated signage. These features differ from conventional external lighting in that they are self-luminous and are intended to be directly visible. Their potential impacts must therefore be considered in terms of luminance, glare and light trespass, in addition to the general external lighting controls assessed elsewhere in this report. At the current stage of design, detailed specifications and photometric information for such elements have not yet been finalised. However, the advertising boards/screens have been assessed based on estimated photometry which has been added to the calculation with a 200cd/m2 luminance as outlined below.

Applicable Guidance

- The control of illuminated displays and signage will be undertaken in accordance with:
- ILP Professional Lighting Guide 05 (PLG05): The Brightness of Illuminated Advertisements, which sets out recommended luminance limits and operational controls appropriate to different environmental zones; and
 - ILP Guidance Note 1 (GN01/21): The Reduction of Obtrusive Light, particularly in relation to light trespass to residential receptors and potential glare to road users.

The site is considered to fall within **Environmental Zone E3** (suburban / medium district brightness). All illuminated elements will therefore be designed to operate within parameters appropriate to this classification.

Proposed Luminance Controls

Any illuminated screens or self-luminous advertising elements will be subject to the following controls, consistent with PLG05 guidance for an E3 environment:

Advertisement board & facade lighting luminance limits

- Maximum luminance ≤ 200 cd/m² for displays 10 m² or larger
- Post-curfew reduction to 50% of the above limits, or switched off

Operational requirements

- Automatic dimming linked to ambient light levels
 - Time-clock controlled curfew settings
 - Static or slowly changing content where visible from sensitive receptors or the highway
- These measures will ensure that any illuminated features remain proportionate to their context and are consistent with accepted good practice for an E3 location.



Relationship to Light Spill

Illuminated screens, facade lighting and signage have the potential to contribute to overall light spill and to increase vertical illuminance at nearby receptors. As the detailed specifications for these elements are not yet confirmed, advertising boards/screens have been assessed based on estimated photometry which has been added to the calculation with a 200cd/m2 luminance.

For details of this preliminary assessment see the next page demonstrating that they can achieve compliance with the GN01/21 limits for Environmental Zone E3 and with the luminance caps set out. Appropriate mitigation measures, including reduced luminance and operational controls, will be applied where necessary to ensure that obtrusive light remains within acceptable levels.

Summary

The project will adopt clearly defined luminance limits and operational controls in line with PLG05 guidance. While further detailed modeling may be required once screen specifications are finalised, the commitments set out in this section provide a robust framework to ensure that illuminated screens, facade lighting and signage can be integrated without causing unacceptable impacts on surrounding receptors.

Predicted Light Spill with screens

In addition to the lighting calculations undertaken to assess the potential for light spill arising from the proposed illustrative lighting proposals, the advertising boards/screens have been assessed. Estimated photometry for these elements has been added to the calculation with a 200cd/m2 luminance. Vertical illuminance values have been calculated at all relevant sensitive receptor locations surrounding the site, including nearby residential properties, the Ashton Canal corridor, and Alan Turing Way.

In accordance with ILP GN01/21 guidance for Environmental Zone E3, the primary assessment criteria for general observers are:

- A maximum vertical illuminance of 10 lux pre-curfew and 2 lux post-curfew, and
- Appropriate control of luminaire intensity and upward light.

To ensure a robust assessment, the results have been reviewed with reference to the maximum predicted vertical illuminance (Emax) at each receptor location.

Residential Receptors

Calculated vertical illuminance at the nearest residential receptors demonstrates acceptable levels of light trespass pre curfew:

- Residential Receptor 1: Emax = 9.70lux
- Residential Receptor 2: Emax = 2.48 lux
- Residential Receptor 3: Emax = 1.26 lux

Predicted values are below the applicable E3 limits of 10 lux pre-curfew however to meet the 2 lux post-curfew the display facing Alan Turing way would need to be turned off or dimmed to 20% output.

Ashton Canal Corridor

The Ashton Canal corridor has been assessed using a vertical calculation plane at 1.5 m height, representing potential views experienced by users of the towpath and adjacent ecological receptors. The maximum predicted vertical illuminance at this location is:

- Ashton Canal: Emax = 0.49 lux

This value is well within the E3 guidance limits and demonstrates that light spill toward the canal environment is minimal and effectively controlled.

Alan Turing Way

Horizontal illuminance has been assessed at Alan Turing Way to determine the extent of any light spill onto the highway environment. The calculation results show:

- Alan Turing Way: Emax = 14 lux

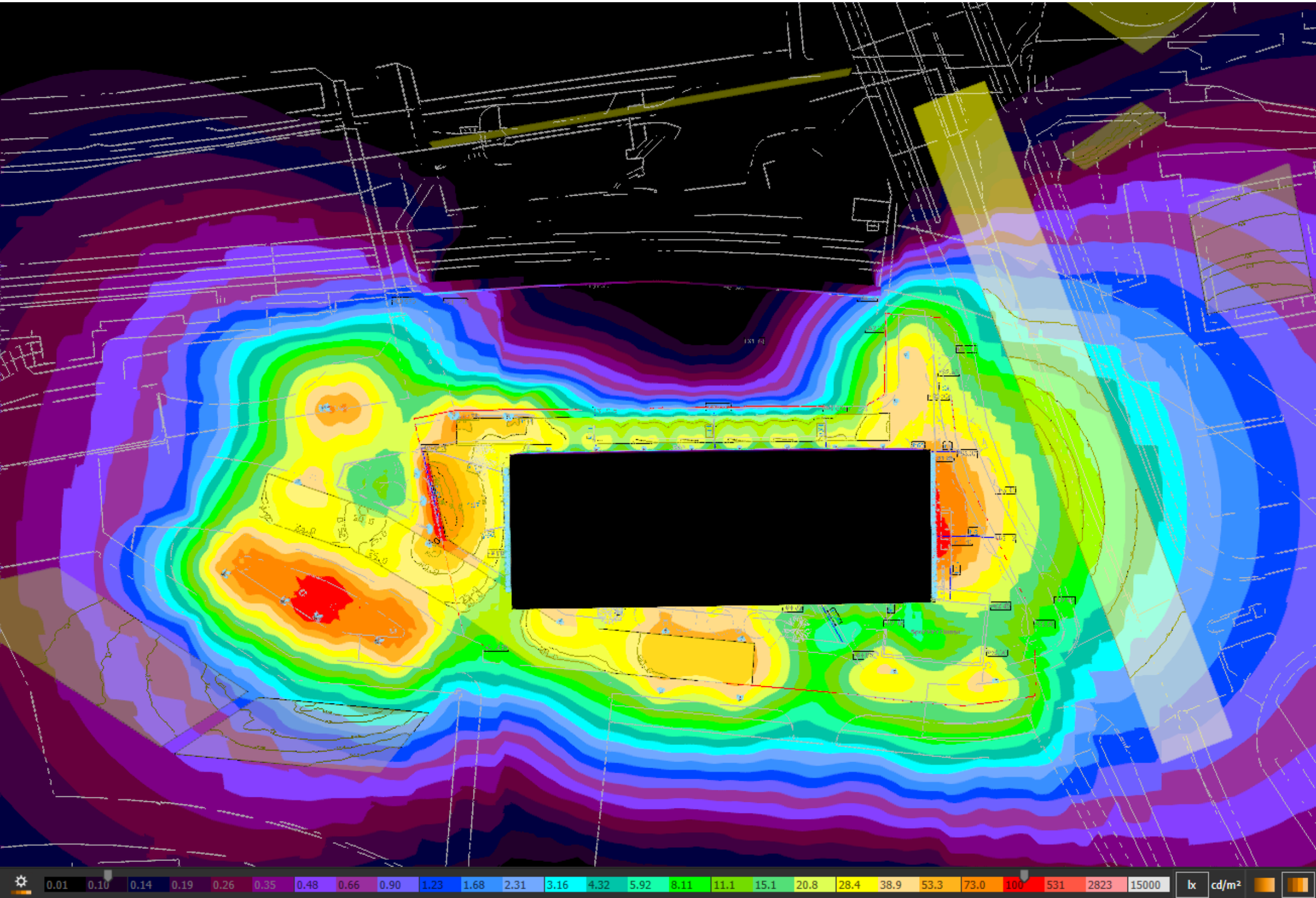
A substantial amount of light spill onto the highway could be apparent due to the illuminated screen facing Alan Turing Way. As driver effects are governed primarily by apparent brightness, viewing direction and contrast rather than illuminance alone, the final screen specification and operational settings will be selected in accordance with ILP GN01/21 and PLG05 to ensure the installation operates appropriately within the urban context without causing undue distraction or discomfort to road users.

North Stand Hotel

Vertical Illuminance has been assessed at the facades of the North stand hotel.

- Hotel Receptor 1: Emax = 8.52lux
- Hotel Receptor 2: Emax = 8.43lux

Levels are below the pre curfew maximum, however to meet the 2 lux post-curfew the display facing the hotel would need to be turned off or dimmed to 20% output.



Summary

Across the assessed receptor locations, predicted maximum vertical illuminance values remain within Environmental Zone E3 pre-curfew limits, including where the estimated screens have been modeled. The results indicate that: Light spill beyond the site boundary is generally well controlled; Residential receptors are not expected to experience unacceptable illumination; Spill toward the Ashton Canal corridor remains low. The main consideration relates to visibility of the screen to highway users and post curfew light intrusion to surrounding properties. Post-curfew compliance would require reduced operation or switching off of the display, consistent with ILP guidance for illuminated advertisements. Overall, the controlled distribution of the lighting within an already bright urban context demonstrates the scheme can comply with ILP GN01/21 and PLG05 guidance, subject to appropriate screen specification and operation.

Appendix A -

CERTIFICATE OF CALIBRATION

Issued By Specialist Instrument Services

Certificate Number NOR082108

Date of Issue 06 February 2026



**Specialist Instrument Services
Unit 2 Diamond Point
Diamond Road
Norwich
NR6 6AW**

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Approved Signatory

Stevie Curtis ☐

Jason Ball

Customer : JAMIE GREEN
1 MOOR LANE, GUISELEY
LEEDS, LS20 9DX

Date Received : 05 February 2026

Instrument :	System ID :	IDSIS56834	Job Number :	01014258-1
	Description :	Lux Meter	Customer Ref :	
	Manufacturer :	Martindale		
	Model Number :	LM195		
	Serial Number :	318263375		
	Procedure :	2867 : V1.00		

Environmental Conditions

Temperature :	22°C ± 1°C	Mains Voltage :	235V ± 12V
Relative Humidity :	45%RH ± 20%RH	Mains Frequency :	50Hz ± 1Hz

Comments

Instrument was placed in lab and allowed to stabilise before calibration.

Traceability Information

Instrument Description	Serial Number	Certificate Number	Cal. Date	Cal. Period
T-10 Lux Meter	52931092	160763/ABU	23/12/2025	52

Calibrated By : Amy Gardner

Date of Calibration : 06 February 2026

This certificate provides traceability of measurement to recognised National standards, and to the units of measurements 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
NOR082108

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AS FOUND RESULTS

Test Title	Tolerance	Applied Value	Reading	Pass / Fail
LUX				
50Lux	2Lux	50.0Lux	50.3Lux	PASS
300Lux	9.5Lux	300.0Lux	302.0Lux	PASS
3000Lux	140Lux	3.00kLux	3.01kLux	PASS
10000Lux	350Lux	10.00kLux	10.07kLux	PASS

– **END OF TEST DATA**

Uncertainties