



Co-Op Live
CANALSIDE MANCHESTER

Lighting Impact Assessment

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Issue and Revision Schedule

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Figure 3: Architectural conceptual render looking North.



Figure 2: Architectural conceptual render looking Southeast from Co-op Live external podium.



Figure 4: Architectural conceptual render looking Southwest from Co-op Live external podium.

1.0 INTRODUCTION

1.1 Background

This lighting impact assessment has been prepared by ME Engineers to support the planning application for the proposed Canalside Manchester container buildings within the existing Co-Op Live boundary.

This report considers and assess the lighting impact effects, if any that would result from the proposed development and its lighting scheme. Some new interior and exterior lighting is expected to be incorporated into buildings design proposals. New lighting schemes can also carry the risk of being viewed as excessive or insensitive, contributing to discomfort, disruption or hazard in the area local to it if not designed with consideration.

The characteristics of the project that are particularly relevant to this assessment are:

- New internal and external lighting introduced as part of the proposed new building;
- And, the proximity of the adjacent Aston Canal to the proposed building.

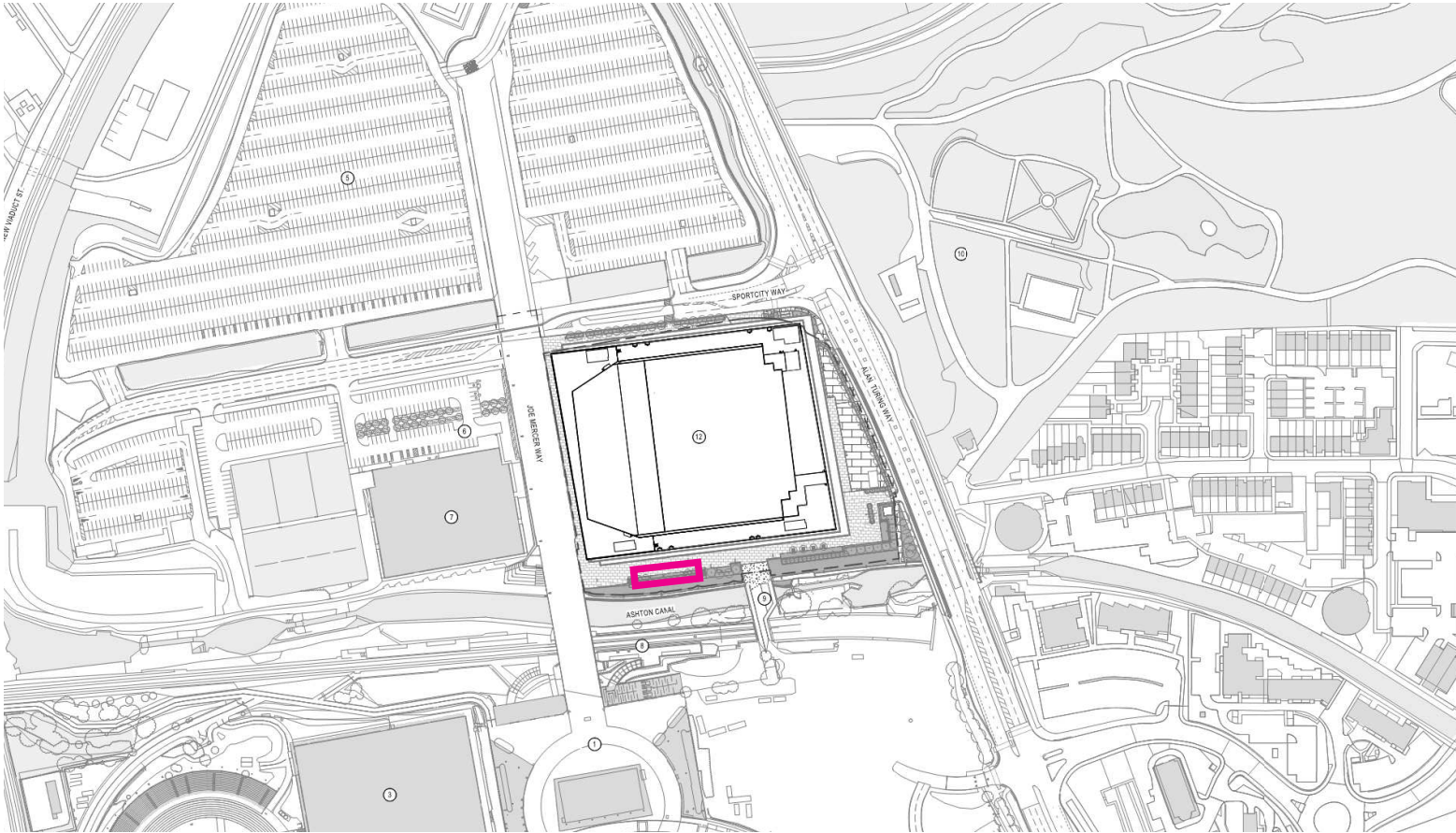


Figure 5 - Position of proposed site in the wider campus context

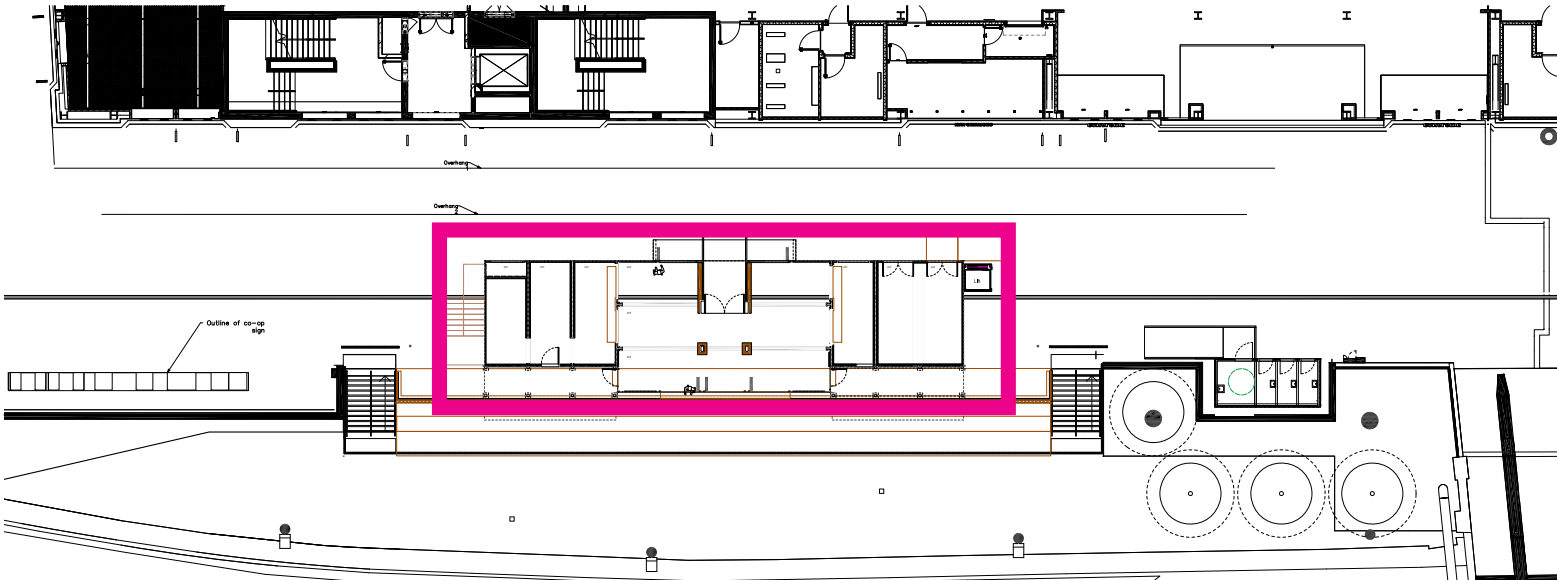


Figure 6 - Layout plan of proposed site

2.0 SITE CONTEXT

2.1 Baseline Description

This section provides an overview of the site conditions in terms of urbanisation, landscape, and night lighting conditions of the site and the immediate wider context. In the process of defining baseline condition, potential sensitive receptors are revealed, and a high level assessment of the application site’s impact is on the nightscape visual envelope. A baseline assessment establishes existing lighting conditions on the site and adjacent to the application site. The baseline assessment provides observations on the existing external lighting conditions so that the effects of a new lighting installation can be quantified and managed. Specific focus is made to observe existing lighting with respect to local ecology, especially in relation to the Ashton Canal.

2.1.1 Urbanisation Context

The proposed site of the Canalside Manchester unit is located within the existing Co-Op Live site between the Co-Op Live Arena building to its North and the Ashton Canal to the South highway to the East. Immediately adjacent to the South lies the Ashton Canal.

In the wider context, the proposed site is part of the Etihad Stadium campus containing sports and leisure facilities, and external car parks as part of a commercial zoned development.

2.1.2 Illuminated Context

Currently, the proposed site contains exterior artificial illumination primarily for pedestrian circulation as part of the external concourse of the Co-Op Live Arena. The concourse is lit using asymmetric ‘street optic’ LED floodlights mounted to 6-metre columns, and a continuous line of light wrapping around the base of the arena building.

The Arena building also contains a digitised LED advertising screen and concealed architectural accent illumination at high level.

In the wider context, there is regulatory LED floodlights mounted to columns along Joe Mercer Way, Sportcity Way, Forge Lane and Alan Turing Way.

2.1.3 Existing brightness conditions

The Institute of Lighting Professionals Guidance Note 01/21 ‘The Reduction of Obtrusive Light’ assists Local Planning Authorities and designers to categorise the proposed site’s surroundings into

‘Environmental Zone’ categories in order to provide guidance for the allowable qualitative metrics of illumination with particular concern of obtrusive light (light spill, luminous intensity, facade luminaire, skyglow).

For the lighting impact assessment for the Co-Op Live Arena, the assessment recommended the area is categorised as an ‘E3’ environmental zone. An ‘E3’ environmental zone is considered to be a suburban setting with medium district brightness. With the proposed site, the illumination strategy should also be sensitive to maintain good lighting control characteristics associated with an ‘E3’ zone.

2.1.4 Sensitive Receptors

Receptors that are likely to experience a noticeable change in their lighting condition are expected to be those within the immediate vicinity of the development site. All others will be obstructed by existing landforms / built structures or be subject to different and more immediate sources of lighting local to them.

Potential sensitive receptors which may be affected by light from installations associated with the construction and operation of the proposed site include:

- Ecological receptors using the Ashton Canal for foraging. This may include bats, birds, owls or other species known to have a sensitivity to light or a change in the static lighting condition (none identified at the time of this report).

The Co-Op Live Arena impact assessment included potential residential receptors immediately East of Alan Turing Way on Stuart Street and Gibbon Street. Whilst these residences may have direct views of the proposed building, they are positioned over 165-metres away. And there will be no measureable effect from the lighting installation. The building’s West elevation does not contain any windows, and there is negligible interior spill light from the interior lighting facing these residences. Therefore, the residences along Alan Turing Way are not considered a sensitive receptor.

The proposed site’s proximity relationship to the Ashton Canal requires a thoughtful approach to lighting design, so that the night sky and environment are not further encroached upon. It is recognised, though,

that some receptors are already exposed to some degree of obtrusive light from existing sources.

2.1.5 Ecological conditions

Ecologically designated areas may include habitats used by light sensitive species. Such areas are primarily impacted by light intrusion onto protected habitats and are not sensitive to glare and sky glow. On this basis receptors located over 2 km from the site are unlikely to be impacted by light intrusion from the proposed development.

An ecology survey has been provided and the information available has been reviewed. No statutory designated ecological sites have been identified within this radius of the Site. However, due to the adjacent Ashton Canal, it is possible that bats frequent the area on occasion, and as such, the proposed installation should not increase the amount of spill lighting to the canal.

The Ashton Canal potentially acts as an ecological corridor, and therefore, is considered a sensitive habitat on site for bats and other species. As a result, the lighting scheme has been designed to ensure that any lighting impacts to the canal have been minimised, this has been achieved by:

- Design to the minimum light levels recommended by good practice guidance for each space and task area.
- Internal lighting is designed to focus within the building itself.
- Use dimmable lighting controls to fine tune the lighting treatments throughout the course of the evening utilising programmable digital timeclock.
- The street lighting column previously erected to this edge have been removed and will not be replaced.
- Using warm white light sources to both internal and external spaces of the building.
- Only LED light sources with intrinsically negligible UV output will be utilised.
- All external lighting will abide by the recommendation set forth in the Institute of Lighting Professionals (ILP) Guidance Note (GN08/23) ‘Bats and Artificial Lighting at Night (2023).

As a result of the above, the following assessment demonstrates that there will be minimal lighting affects to the Ashton Canal using an indicative lighting scheme and an associated desktop calculation study.

3.0 EXISTING CONDITION

3.10 EXISTING LIGHTING

A variety of new and old street lighting luminaires are employed around the proposed site, as detailed on this page. Two of the lighting columns will be removed to accommodate the building; these columns will not be replaced.

It should be noted that existing 4-metre column lighting runs along the Ashton Canal, and therefore, there is existing spill illumination onto the canal walkway and canal.

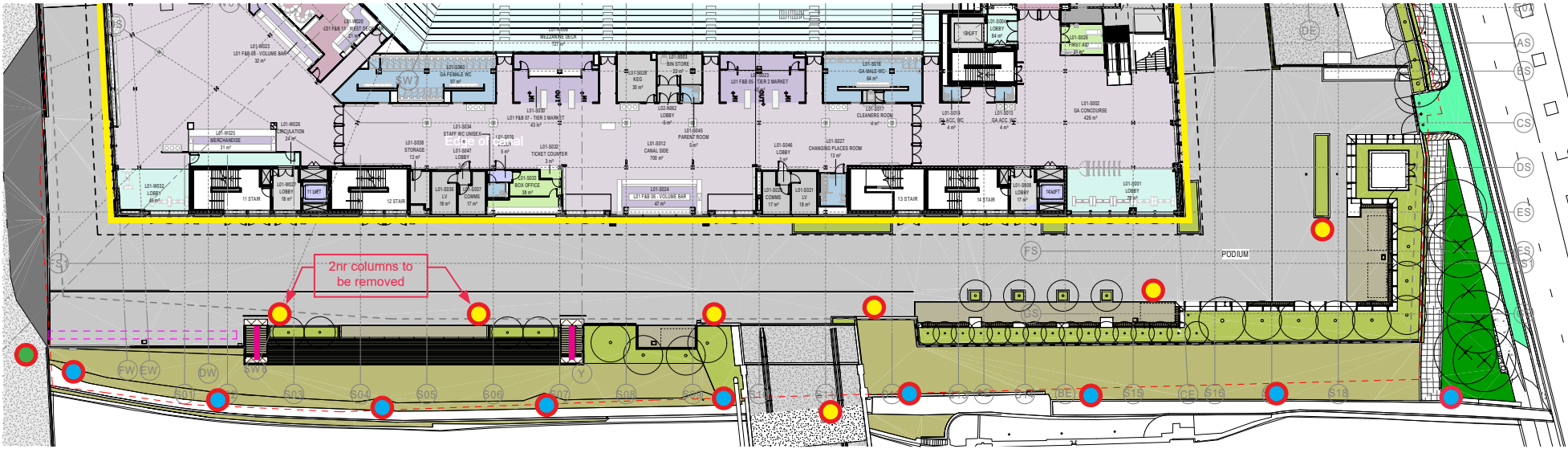


Figure 7 - Plan showing existing luminaire positions along the arena podium, canal, etc.



Figures 8, 9 and 10 (from left to right) - 8m tall LED lighting columns along Joe Mercer Way, 4m tall LED lighting columns along the Ashton Canal, and 6m tall rectangular style feature columns on the canal side external concourse of the arena.

- Existing Lighting Luminaires:**
- 6m tall lighting columns along the arena podium
 - 4m tall lighting columns on the Ashton Canal tow-path
 - 8m tall lighting columns on Joe Mercer Way
 - Building mounted continuous RGBW colour change illumination along the arena building perimeter
 - Integrated handrail lighting for canal side seating

4.0 Proposed Development

4.1 PROPOSED LIGHTING

A potential indicative lighting scheme has been designed for the proposed site. The scheme has been conceived with the intention of keeping obtrusive light low as possible whilst providing sufficient light for amenity, safety and efficient navigation. Because of the buildings nature, some feature lighting is part of the design, but has been thoughtfully implemented.

The diagram opposite (figure 11) shows an image from the lighting calculation software (Dialux Evo) showing the potential appearance of the proposed development.

Internally, general illumination is provided by surface mounted LED downlights. Externally, downlights are provided on the ground level overhangs, LED striplighting is introduced to the stair treads, and festoon stringlighting is provided at high level as a feature treatment. The calculation model also contains feature accent lighting to the vertical supports between the glazing panels on the first floor level.

The calculation model considers the effect of illumination from the arena’s 6m column lighting along the Canalside podium and building mounted illumination of the arena. The calculation model does not account for the lighting effect of the existing 4m lighting columns along the tow-path. This is to isolate the contribution of the newly introduced lighting effects from the arena and proposed site.

It should be noted that the proposed footprint of the building will require the removal of 2nr existing lighting columns.

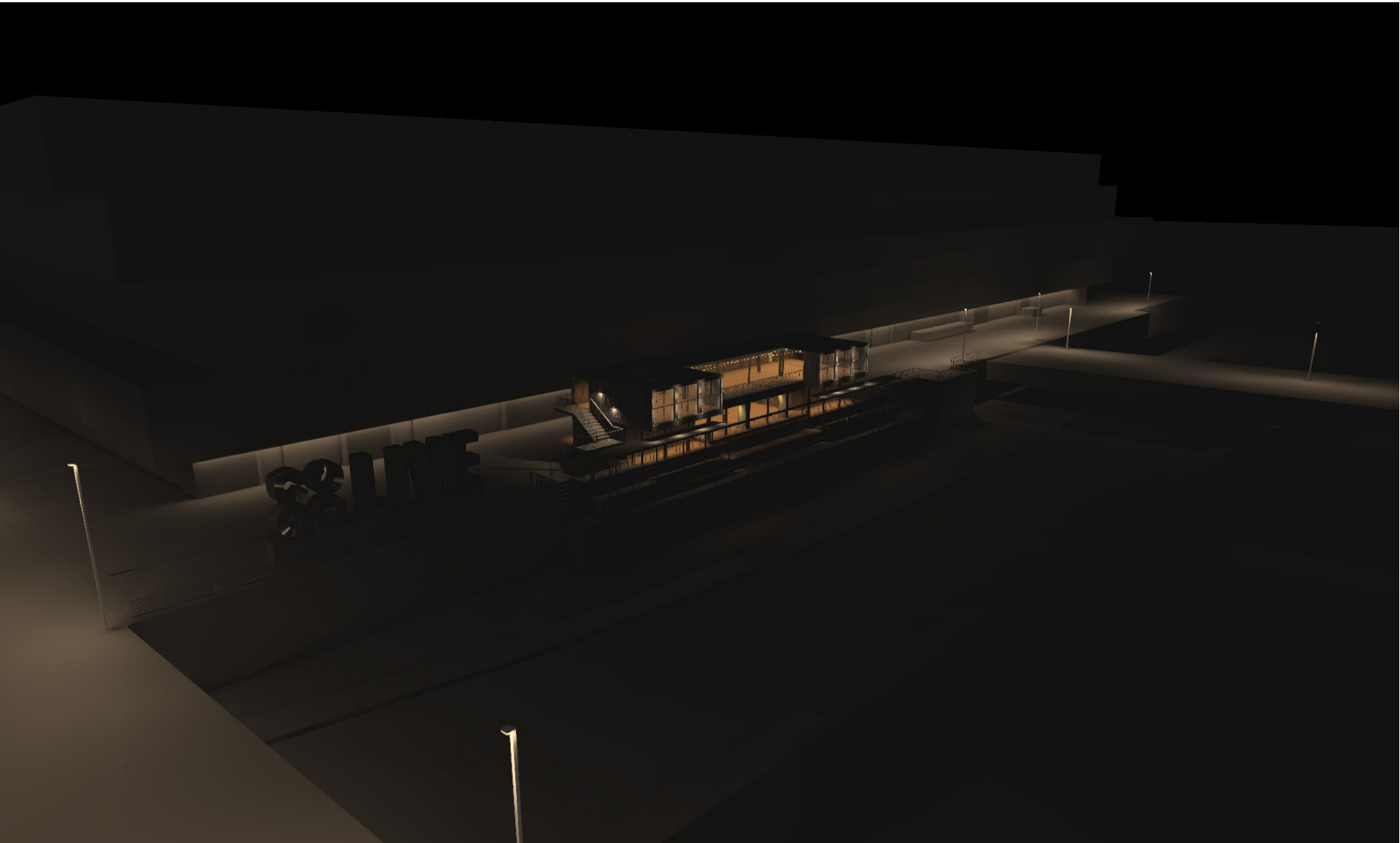


Figure 11 - Lighting calculation render (Dialux Evo software) of the proposed exterior artificial lighting scheme

4.0 Proposed Development

4.1 PROPOSED LIGHTING

The indicative lighting scheme used in the lighting calculations generates light levels and light uniformity typically associated with hospitality and bar/ restaurant illumination. The calculation model assumes a lighting design level of 100 lux average maintained illuminance and a general uniformity of 0.4.

The calculation model does not account for blockage of spill illumination from curtains, blinds, or furnishings. Therefore, the model provides a ‘worst-case’ scenario.

Figure 12: Surface mounted, small aperture downlights. 7W LED, 650 lumen, 2700K / 90CRI



Figure 13: Wall mounted, external accent (up/down illumination). 9W LED, 500 lumen, 2700K / 90CRI



Figure 14: Festoon stringlight (feature illumination). 1.4W LED per globe (450mm spacing), 45 lumens each, 2400K / 90CRI



Figure 15: External stair lighting. 4.5W LED per metre, 317 lumens per metre, 2700K/90CRI

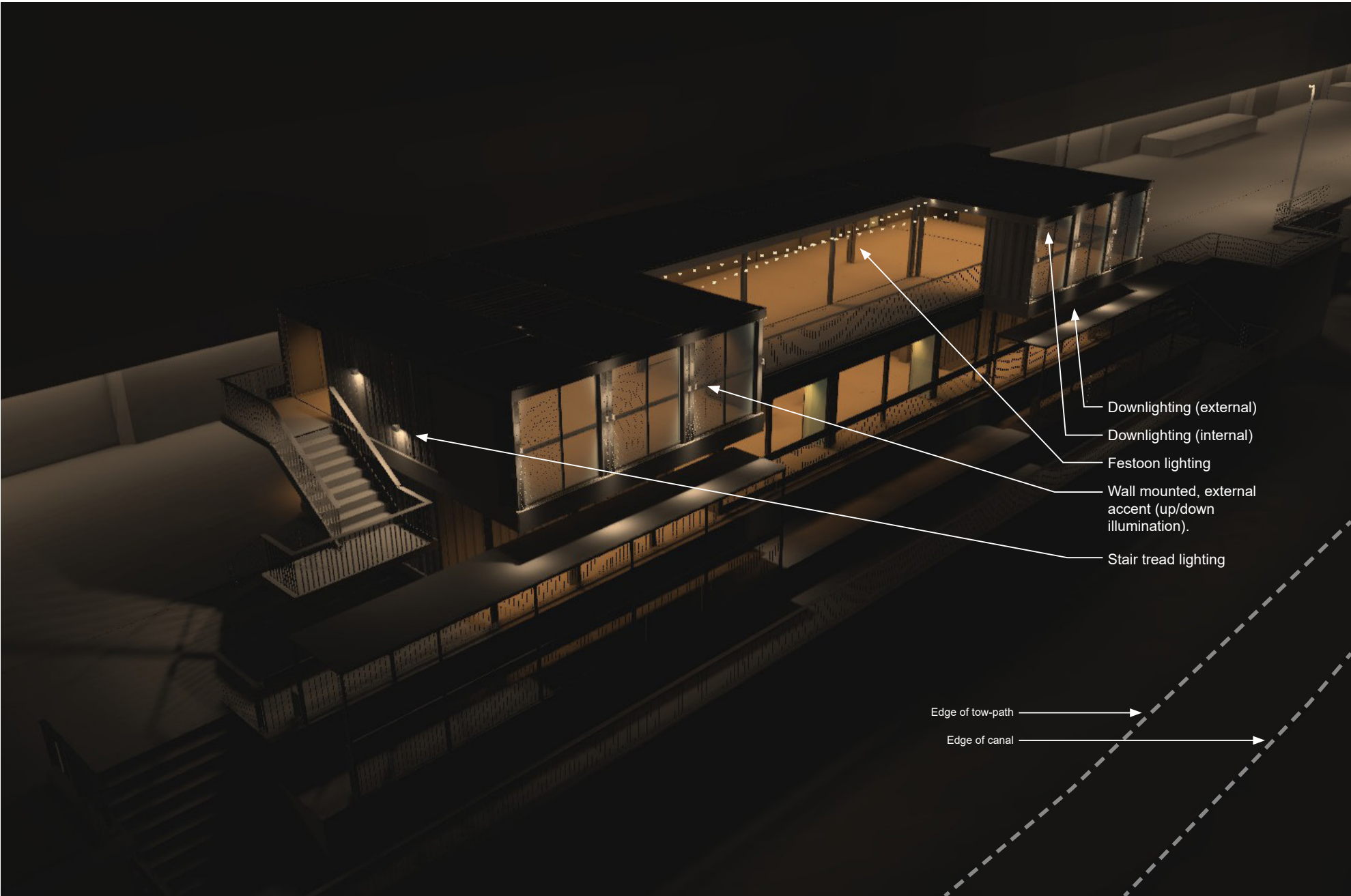


Figure 16 - Lighting calculation render (Dialux Evo software) of the proposed exterior artificial lighting scheme

4.0 Proposed Development

4.2 PROPOSED LED MEDIA SCREENS

There are illuminated advertisement installations proposed to the North and West elevations of the building (as shown in Figures 17 through 19). These illuminated advertisements are LED digital screens and will be fully programmable and controllable, utilising dimming in order to comply with the Institute of Lighting Professionals (ILP) PLG05 The Brightness of Illuminated Advertisements (2023). In England, the brightness of the screen shall be no greater than 300cd/sqm in accordance with an E3 Environmental Zone.

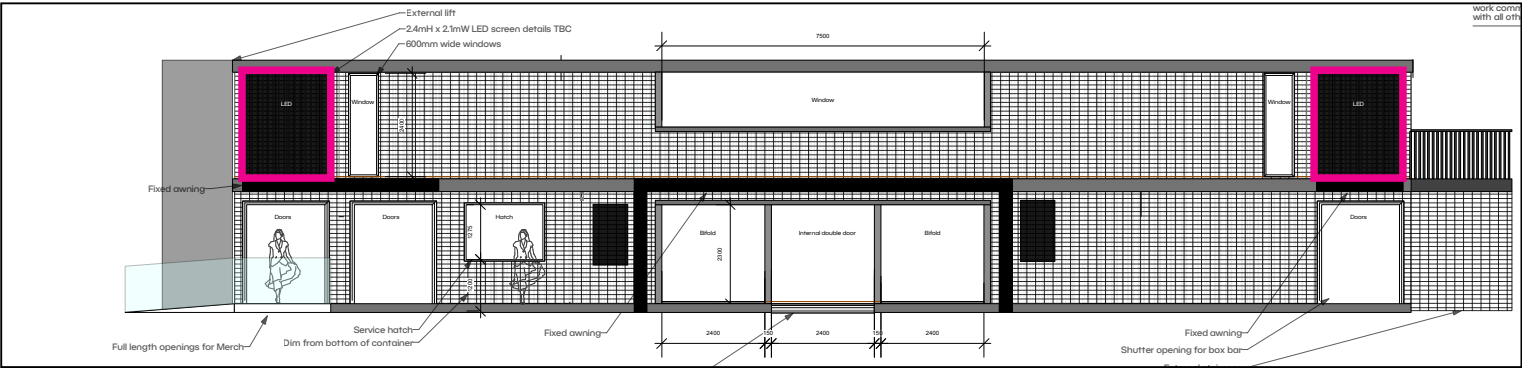


Figure 17 - North Elevation (facing the Co-Op Live) contains two proposed LED media screens.

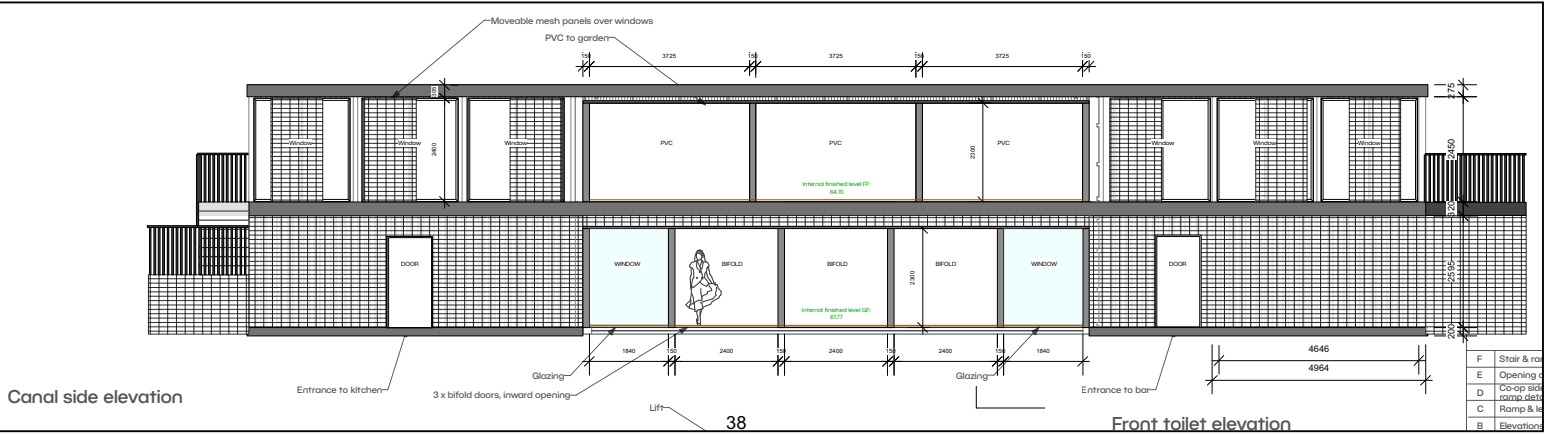


Figure 18 - South Elevation (facing the Ashton Canal)

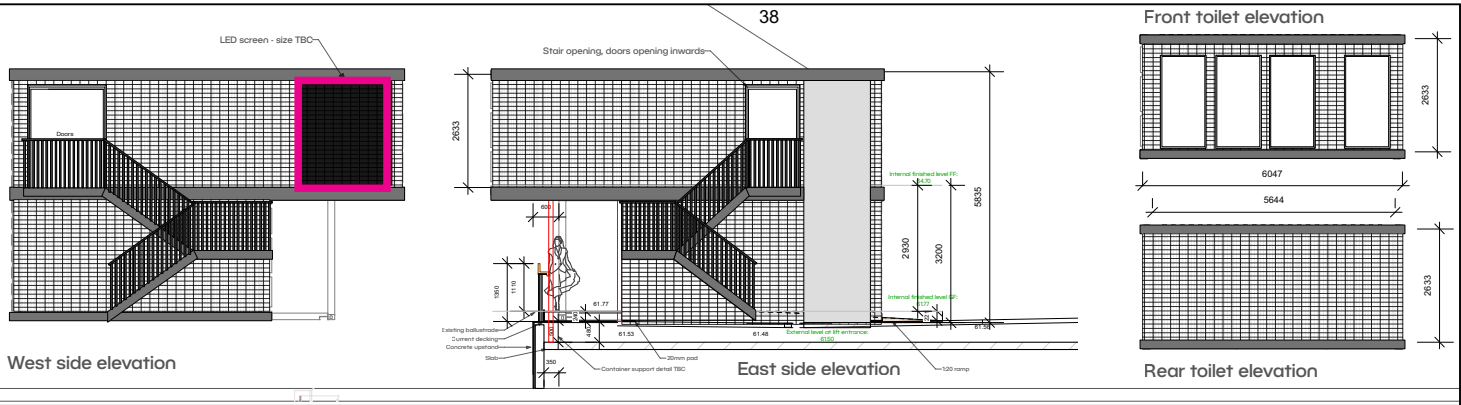


Figure 19 - West Elevation (facing Joe Mercer Way) proposes a single LED media screen while the East and toilet block elevations do not contain any screens.

4.0 Proposed Development

4.3 LIGHTING CALCULATIONS

The following calculations were performed on the DIALux Evo software using an 3D model of the proposed building. Typical UV glazing is modelled, though no furniture, curtains or other fit-out elements are modelled. Figure 17 displays the pseudo colour light level distribution in a perspective view. Note the site topography is not fully represented, however, the spatial relationship with the tow-path and canal is accurate.

The following page displays another pseudo colour light level plot (figure 18) shown from a birds-eye perspective.

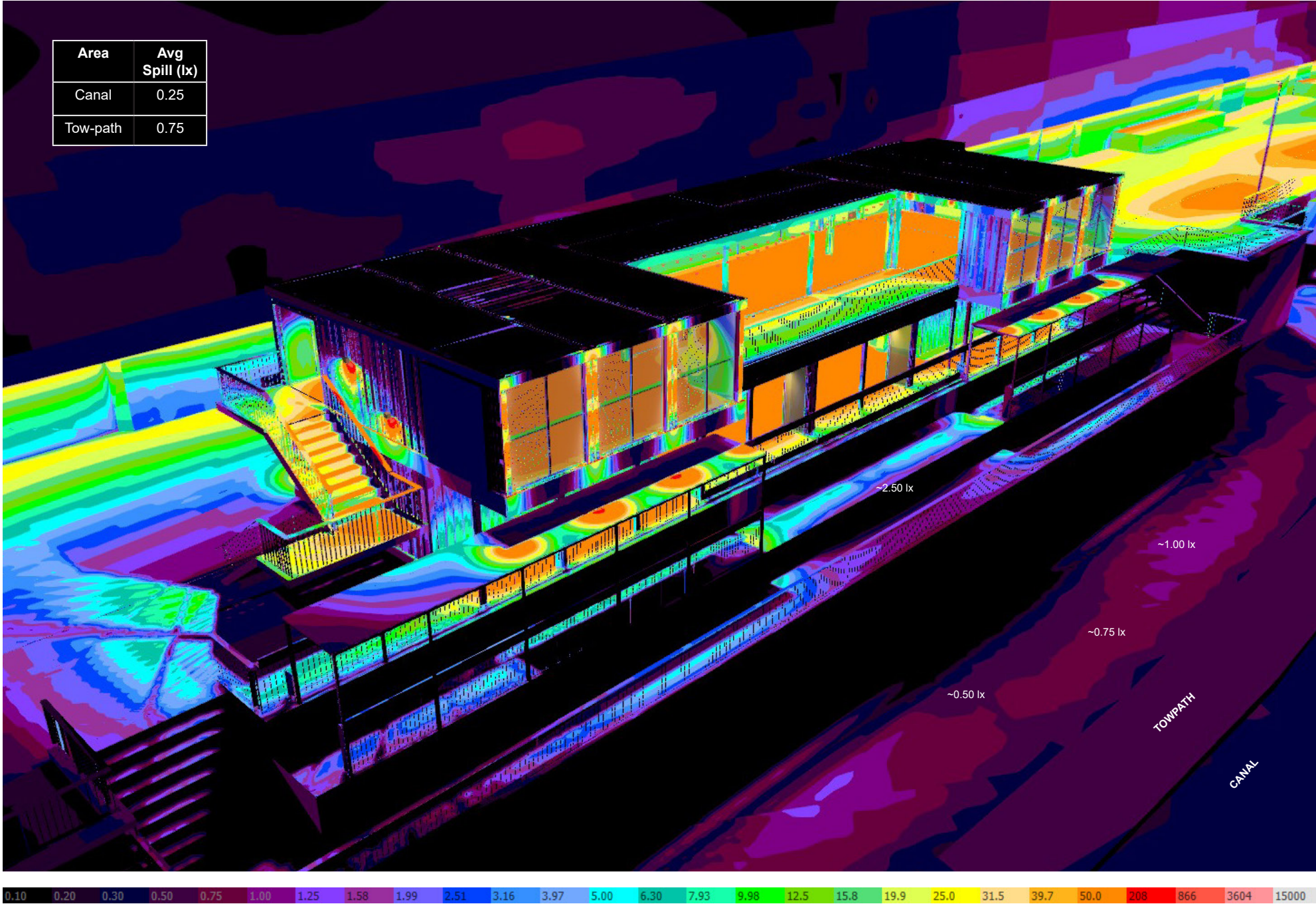


Figure 20 - Perspective view of pseudo coloured lux plot for proposed lighting scheme. Lux scale shown directly under.

4.0 Proposed Development

4.3 LIGHTING CALCULATIONS

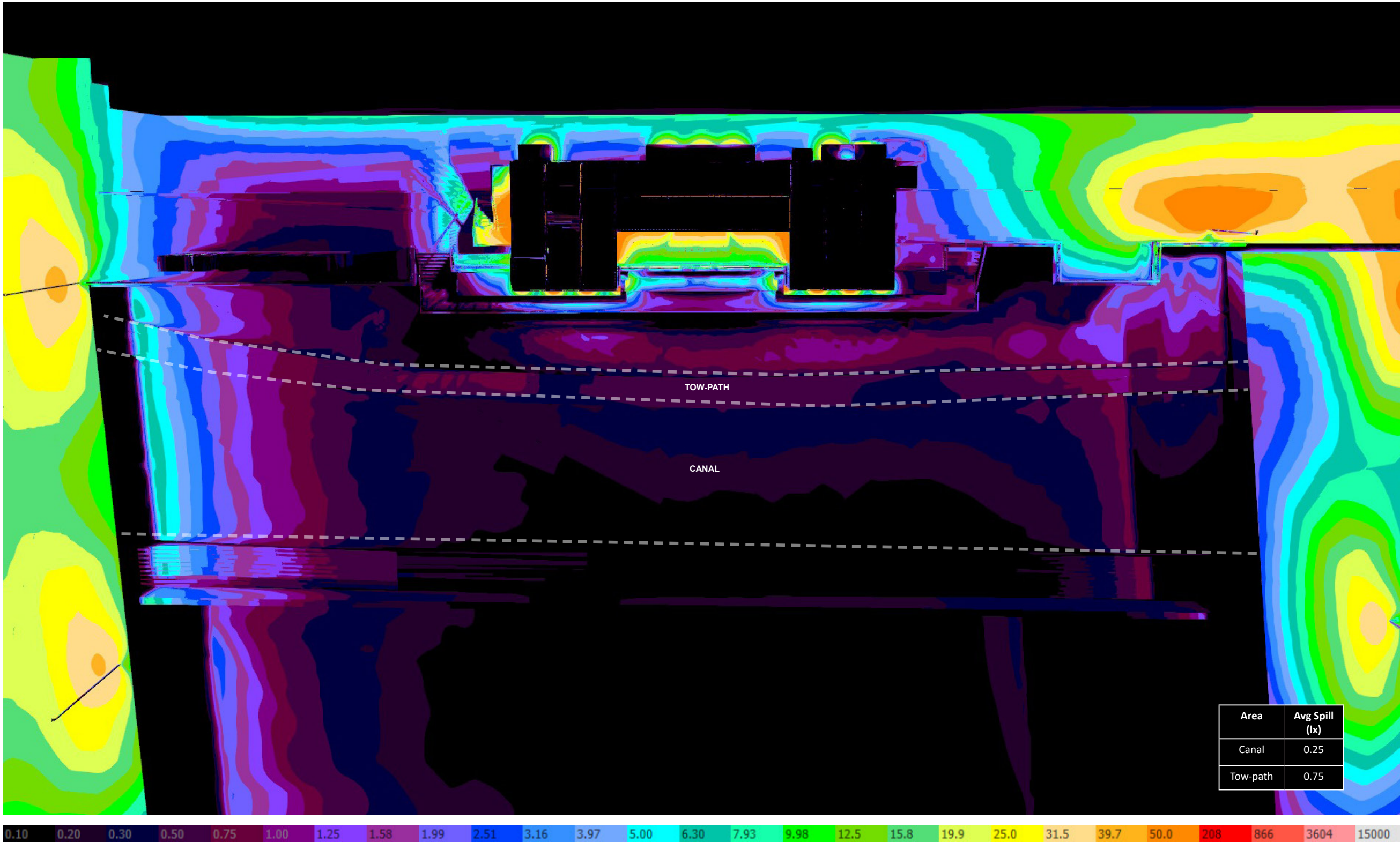


Figure 21 - Plan view of pseudo coloured lux plot for proposed lighting scheme. Lux scale shown directly under.

4.0 Proposed Development

4.3 LIGHTING CALCULATIONS

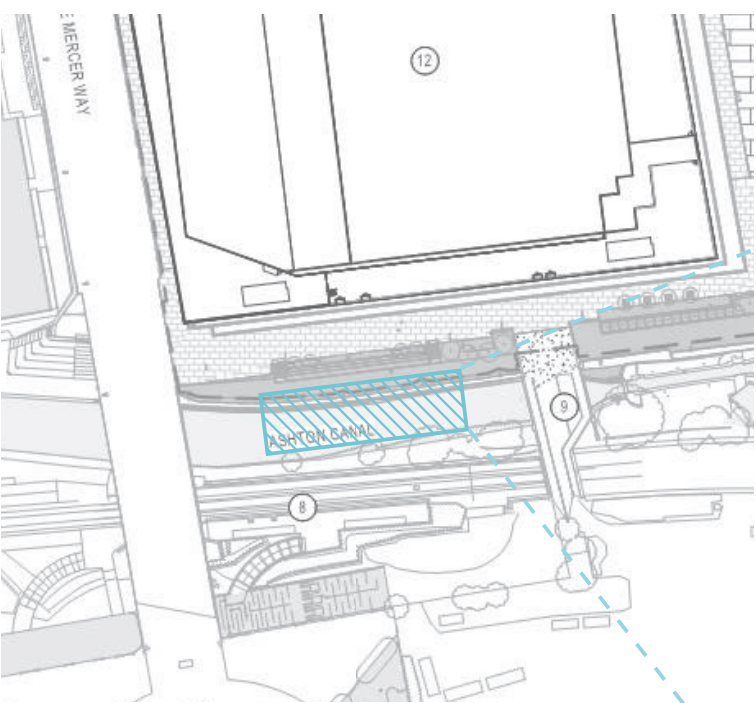
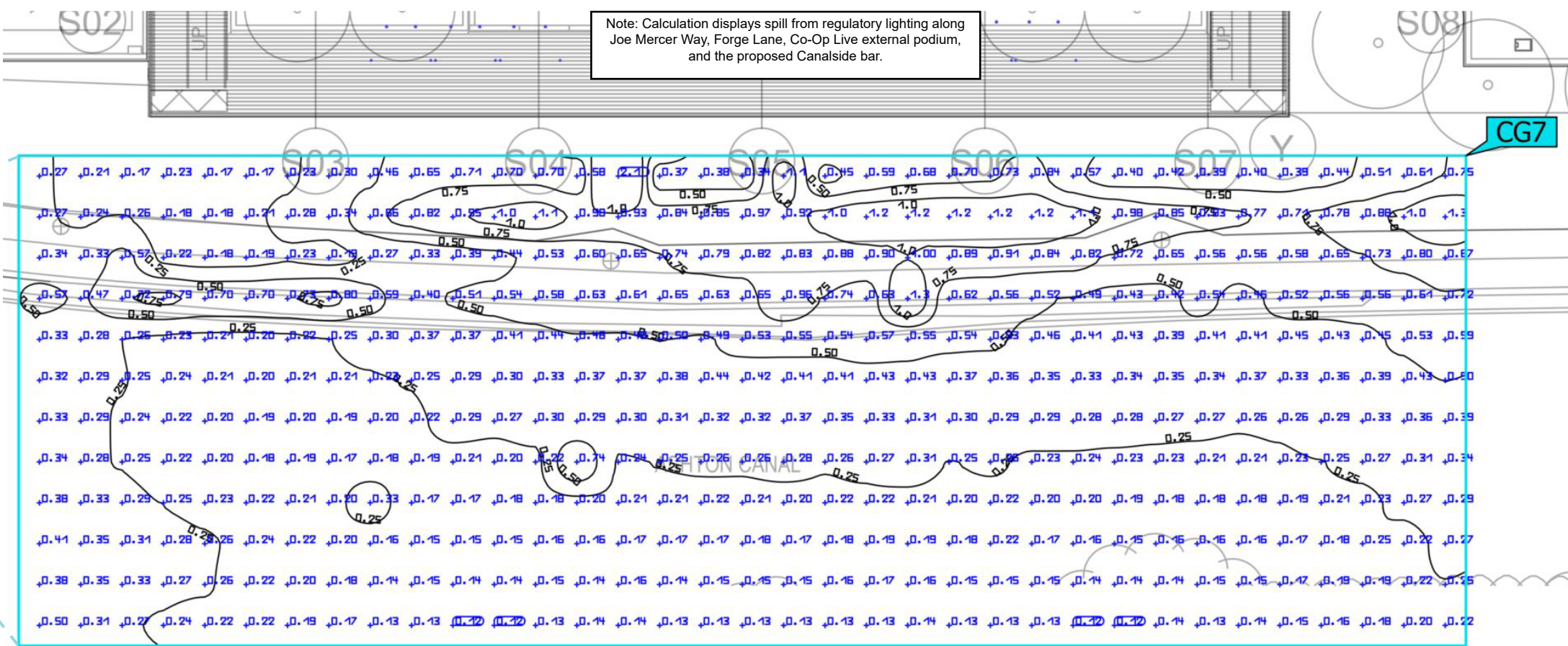


Figure 19 - Key plan indicating spill lighting calculation surface location



5.0 SUMMARY

5.1 Impact Summary

The illuminated effects of the proposed site’s lighting systems may result in slight change to the local night time lighting conditions. The lighting calculation analysis of the indicative lighting scheme demonstrates a sensitive approach can be applied both internally and externally, resulting in minimal impact. The calculations show less than 1 lux (average) is incident onto the Ashton Canal as a result of a lighting scheme designed to provide illuminance levels appropriate to the use of a restaurant/bar hospitality space of 100 lux. This amount of spill illumination onto the Ashton Canal is negligible.

A carefully designed lighting scheme will exhibit the following design measures, all of which are included within the indicative proposal and simulated lighting calculations.

- Design to the minimum light levels recommended by good practice guidance for each space and task area.
- Internal lighting is designed to focus within the building itself.
- Use dimmable lighting controls to fine tune the lighting treatments throughout the course of the evening utilising programmable digital timeclock.
- Using warm white light sources to both internal and external spaces of the building. And, use only LED light sources with intrinsically negligible UV output will be utilised.