

10-18 Regents Wharf
All Saints Street
London

Light Pollution Study
In relation to Conditions 30 & 31
P2019/3481/FUL

Issue 1





Client Name: Regents Wharf
Property Unit Trust

Client Address: c/o Bentall Green Oak
7 Seymour Street
London W1

Property: 10-18 All Saints Street
London
N1 9RL

Project Reference: 4671

Issue: 1

Date: April 2023

Prepared by: MG

Checked by: MG / MC

Validated by: MDC



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1.00 INTRODUCTION

Watkins Payne have been requested to carry lighting calculations to illustrate the external lighting levels around 10-18 All Saints Street redevelopment, with regard to the potential light pollution created by the new Regents Wharf development.

The proposal consists of the redevelopment of the site at 10 - 18 All Saints Street including the demolition of 14, 16 and 18 All Saints Street and construction of a new five storey building providing Class B1 office accommodation along with additional A1/A3 space at ground floor level. Further works consist of the refurbishment and extension of 10-12 All Saints Street to provide additional Class B1 office accommodation with further A1/A3 space at ground floor and associated hard and soft landscaping.

The site is located within London's central zone 1, on the fringe of the Central Activity Zone set out within the London Plan. The Islington Local Plan Policies Map identifies the site as an Employment Growth Area. Furthermore, the site is in close proximity of King's Cross station and Kings Place, which have a high level of night-time activity.

The purpose of this study is to determine the levels of obtrusive light from the internal and external luminaires to the following areas:

- The adjacent residential windows

The Light Pollution Study has been carried out in relation to Planning Conditions 30 & 31, associated with the planning application reference P2019/3481/FUL.

This report is submitted in support of an application for a non-material amendment to Conditions 30 and 31. Further detail can be found within the covering letter prepared by DP9, but in brief, we are seeking to amend Conditions 30 and 31 so that they require compliance with the recommendations in this report.

The applicable environmental zones for each of the facades noted in the condition wording has been assessed., see the WSP report appended to the document, and the resultant environmental zones to be used are:

- E3 • The canal tow path
- E4 • Treaty Street façade
- E4 • Ice Wharf facade
- E4 • All Saints Street facade

The calculations and the results in this report are presented using the following pre and post curfew times and definitions.

• Pre Curfew	0700 to 1900hours	Occupied building. Lighting in operation and under automatic control. External lighting on.
• Post Curfew	2230 to 0700 hours	Unoccupied building. All internal & external lighting off
• Post Curfew – cleaning/security	2230 to 0700 hours	Unoccupied building but in cleaning and/or a security patrol mode. One floor of lighting on at reduced output (2 nd floor modelled as an example of a typical floor)

The proposed development results are compared with the environmental zones, noted above, pre and post curfew requirements and additionally they are compared with the estimated light spillage from the previous existing buildings on the site.



2.00 BASIS OF THE CALCULATION

The illuminance levels have been calculated using the Dialux suite of lighting software.

The proposed development calculations are based on the following criteria:

- The office lighting is based on 350lux on the office working plane.
- The proposed office luminaires have excellent optics to reduce the glare in the office and light spillage from the building. The office luminaires have a Universal Glare ratio (UGR) of below 19. A luminaire with a UGR of 19 forms a narrow distribution of light from the fitting.
- The lighting calculations are based on an open plan office layout.
- The potential positive effect of the proposed landscaping is not included in the calculations.
- The potential positive effect of the existing trees and shrubs is not included in the calculations.
- The model does not include for the canal balconies which have the potential to reduce the light levels to the canal environment.

The proposed scheme incorporates the following features to help reduce the light spill from the buildings:

- Lighting strategies that reduce the output of luminaires closer to the façades.
- Low glare luminaires.
- Motion sensors to switch lights off when spaces are unoccupied (operational 24/7)
- External fins on the western elevation of Thorley Works
- Glazing with a 50% light transmission.
- Reduced illuminance external lighting to the north façade to consist of dimmable 6W LED luminaires that incorporate narrow beam optics to up light on to the building.
- The default setting of the internal and external lighting is off after the post curfew time.
- The curfew is proposed to be at an earlier time of 2230 hours rather than 2300 hours.
- The lighting control measures included are as follows:
 - All lighting has motion sensor control. Small groups of luminaries have PIR control. With the absence of occupants being detected the default operation of that control group of luminaires is off.
 - The ability to dim all luminaires individually
 - The lighting control system can change the illumination levels gradually to reduce the impact of the lighting levels changing with the PIR control.
 - Restrict the light output of the luminaires for post curfew activities such as cleaning and security patrols.

The estimated existing building illumination levels includes the following:

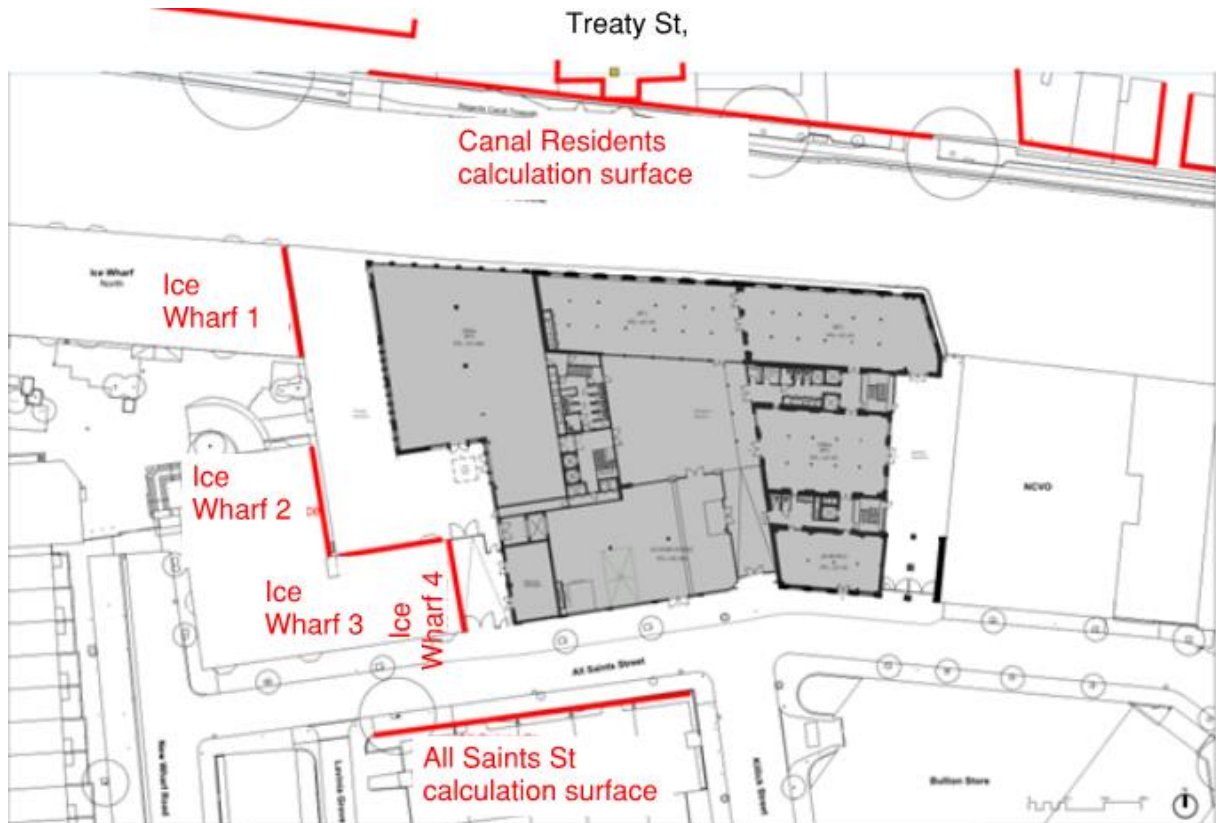
- The glazing light transmission is estimated as being 90%
- The luminaires have the same point source values as the proposed building and have a UGR of 19
- Daylight dimming and presence detection lighting control functions are not included.
- The existing external lighting to the canal facade which consists of 250W SonT flood lights.

The calculation surfaces, for ease of calculation, have been measured as a single wall for each set of the calculations.

Multiple runs of calculations have been undertaken for the Post Curfew – cleaning / security scenario to ascertain the lighting control settings (the dimmed luminaires) required to meet the applicable E3 and E4 zone limits on the adjacent residential facades.



As per the planning requirements the following calculation surfaces have been considered in the analysis.





3.00 SUMMARY OF RESULTS

The pre curfew compliance with the E3 zone illuminance limits are summarised below.

Pre Curfew	E3 Compliance	Comments
Canal tow path	Non-Compliant	The predicted illuminance is maximum 13.7 Lux which is a 64% improvement over the existing building and is of a similar level to those measured on the tow path at the access to Treaty Street and Copenhagen School, see the WSP report in the appendix for the existing measurements. However, as the proposed lighting level is 64% less than the estimated existing building lighting levels, we believe that the intent of Condition 30 to prevent the development having any adverse impact on the biodiversity of the Regent's Canal by way of light pollution has been shown.

The pre curfew compliance with the E4 zone illuminance limits are summarised below.

Pre Curfew	E4 Compliance	Comments
Treaty Street façade	Compliant	-
Ice Wharf façade north (1)	Compliant	-
Ice Wharf façade south (2)	Compliant	-
Ice Wharf façade south (3)	Compliant	-
Ice Wharf façade south (4)	Compliant	-
All Saints Street facade	Compliant	-

The post curfew compliance with the E3 zone illuminance limits are summarised below.

Post Curfew	E3 Compliance	Comments
Canal tow path	Compliant	-
Post Curfew – cleaning/security		
Canal tow path	Compliant	-

The post curfew compliance with the E4 zone illuminance limits are summarised below.

Post Curfew	E4 Compliance	Comments
Treaty Street façade	Compliant	-
Ice Wharf façade north (1)	Compliant	-
Ice Wharf façade south (2)	Compliant	-
Ice Wharf façade south (3)	Compliant	-
Ice Wharf façade south (4)	Compliant	-
All Saints Street facade	Compliant	-
Post Curfew – cleaning/security		
Treaty Street façade	Compliant	-
Ice Wharf façade north (1)	Compliant	-
Ice Wharf façade south (2)	Compliant	-
Ice Wharf façade south (3)	Compliant	-
Ice Wharf façade south (4)	Compliant	-
All Saints Street facade	Compliant	-

The results of the calculations, set out in detail in section 4.00 of this report, are tabulated below. The results for the proposed development are presented in the following manner:



- The estimated illuminance from the previous buildings
- The pre and post curfew calculation scenarios.
- Each of the façades (calculation surfaces) set out in planning conditions 30 and 31.
- The maximum illumination at a given point.
- The percentage reduction of the proposed development when compared the previous buildings.

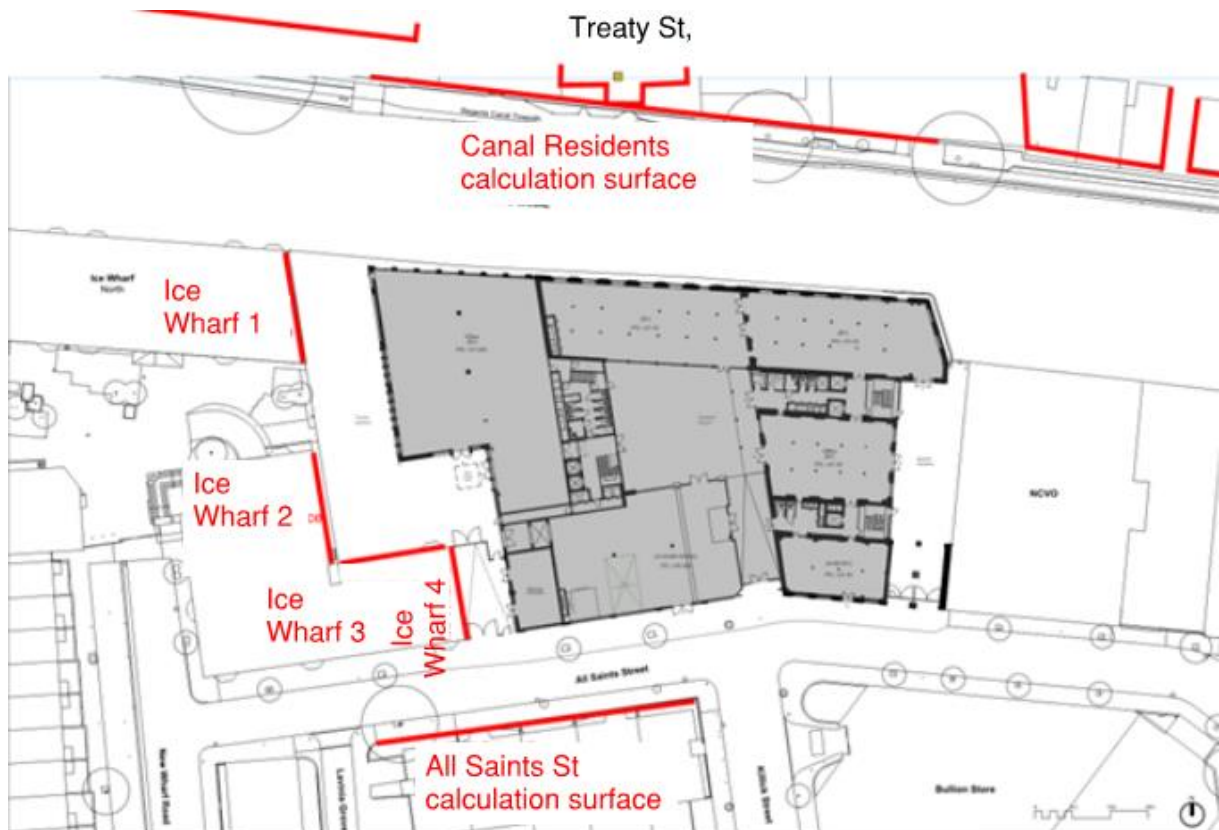
Pre- Curfew	Target illuminance (lux)	Existing building illumination (lux)	Development illumination (lux)	Percentage Reduction (%)
Canal tow path	10 (E3)	38.0	13.7	64%
Treaty Street façade	25 (E4)	38.0	13.7	64%
Ice Wharf façade north (1)	25 (E4)	13.5	6.3	53%
Ice Wharf façade south (2)	25 (E4)	17.9	7.1	61%
Ice Wharf façade south (3)	25 (E4)	10.7	5.8	46%
Ice Wharf façade south (4)	25 (E4)	52.2	9.1	83%
All Saints Street facade	25 (E4)	43.2	22.0	49%
Post- Curfew	Target illuminance (lux)	Existing building illumination (lux)	Development illumination (lux)	Percentage Reduction (%)
Canal tow path	2 (E3)	0	0	0
Treaty Street façade	5 (E4)	0	0	0
Ice Wharf façade north (1)	5 (E4)	0	0	0
Ice Wharf façade south (2)	5 (E4)	0	0	0
Ice Wharf façade south (3)	5 (E4)	0	0	0
Ice Wharf façade south (4)	5 (E4)	0	0	0
All Saints Street facade	5 (E4)	0	0	0
Post- Curfew - cleaning /security	Target illuminance (lux)	Existing building illumination (lux)	Development illumination (lux)	Percentage Reduction (%)
Canal tow path	2 (E3)	38.0	1.4	96%
Treaty Street façade	5 (E4)	38.0	1.4	96%
Ice Wharf façade north (1)	5 (E4)	13.5	0.7	95%
Ice Wharf façade south (2)	5 (E4)	17.9	0.6	97%
Ice Wharf façade south (3)	5 (E4)	10.7	0.4	97%
Ice Wharf façade south (4)	5 (E4)	52.2	0.0	100%
All Saints Street facade	5 (E4)	43.2	2.1	95%



3.0 Calculations

3.1 Treaty Street Residential Area & the Canal Tow Path

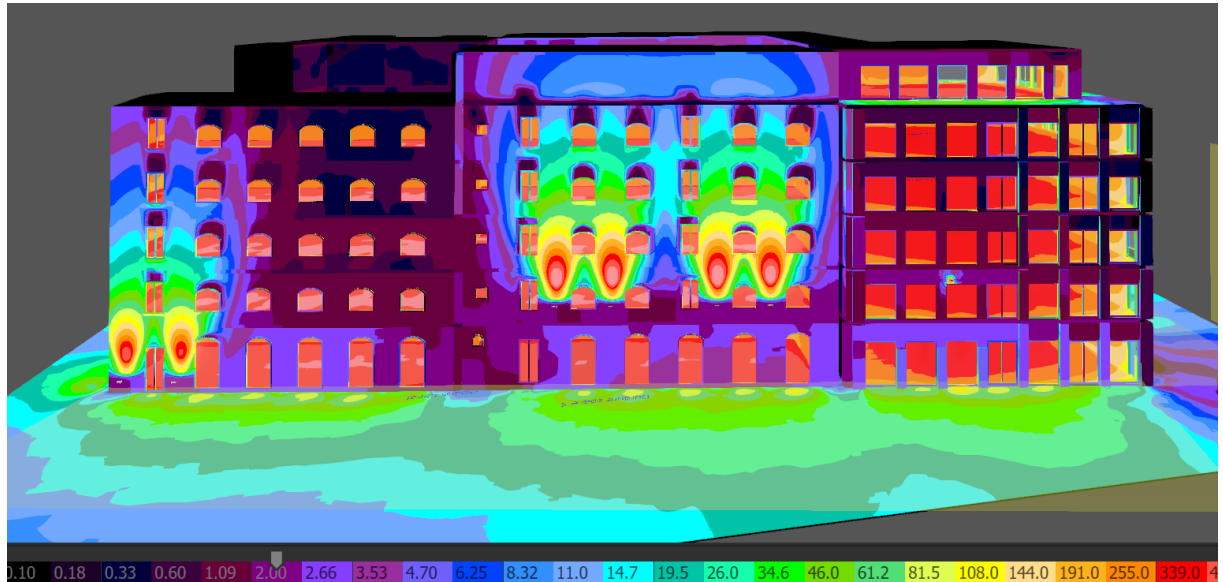
The illuminance on the perpendicular surface of the Treaty Street residential buildings directly opposite the site, has been calculated to illustrate the existing and the proposed lighting levels. For ease of calculation a single wall has been measured for the calculations. As can be seen from the plan below, the reality is that all windows are set further back.





3.1.1 Treaty Street Residential Area & the Canal Tow Path – Existing Building

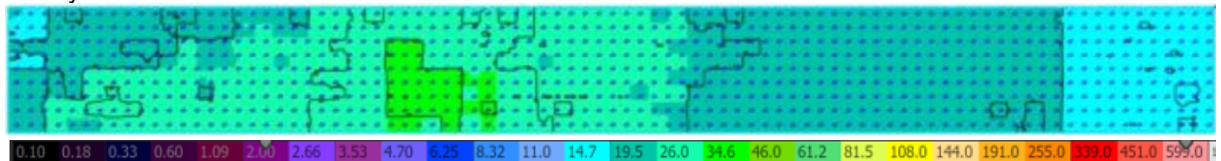
The lighting for the north façade of the previous buildings has been modelled as described for the illuminance of the canal surface as noted previously in this report.



The Treaty Street facade lux levels are illustrated below.



Treaty Street elevation



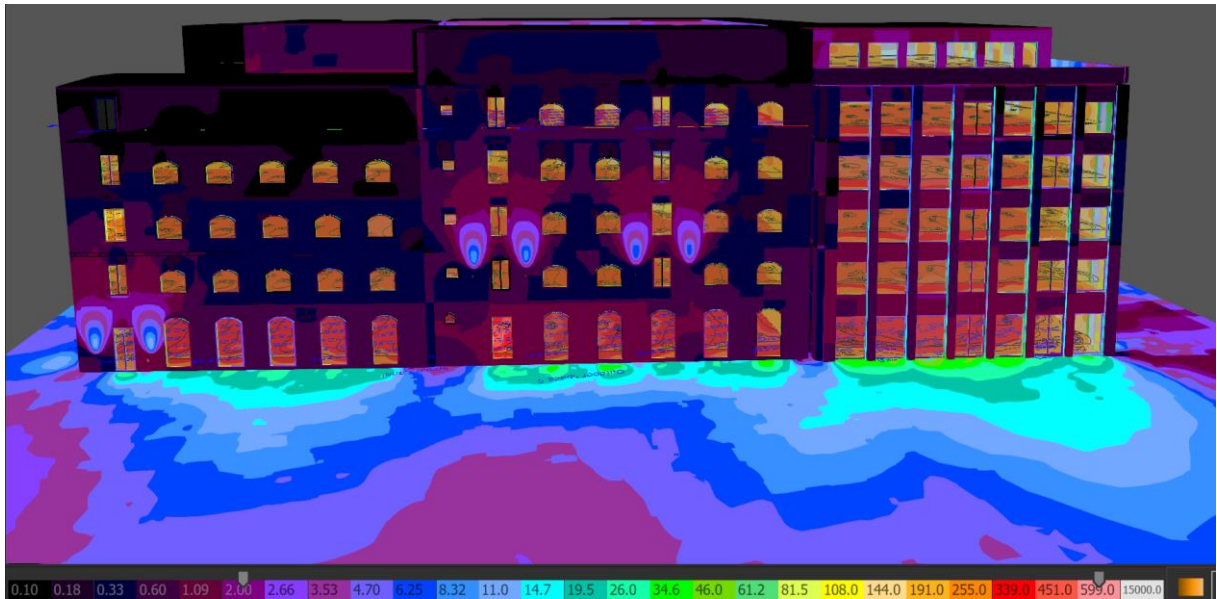
The previous buildings gave an illuminance on the Treaty Street residential façade are in excess of the E3 & E4 environmental zone limits.

3.1.2 Treaty Street Residential Area & the Canal Tow Path – Proposed Building

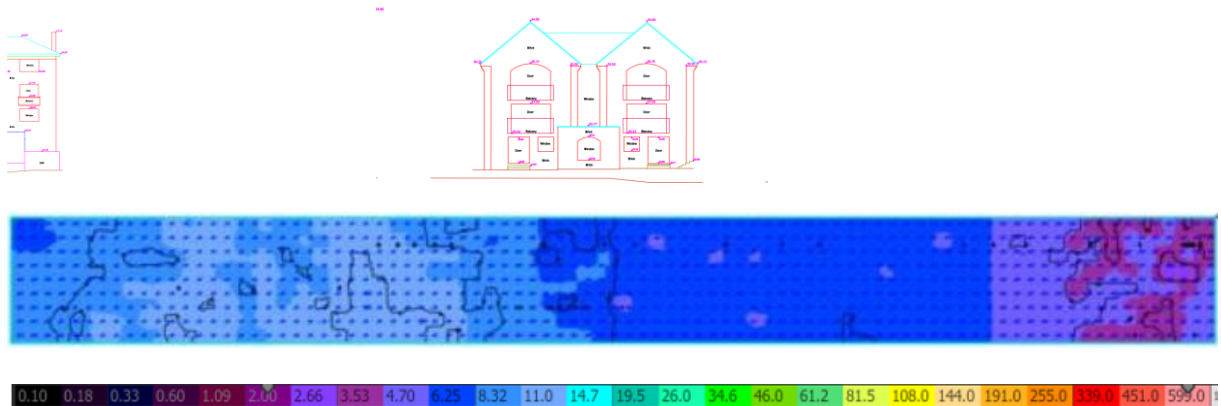
The proposed building has been modelled for the pre and post curfew scenarios using the glazing, luminaires and lighting control parameters set out in section 2.00, Basis of the Calculation. The results are shown pictorially below.



Pre Curfew



Pre curfew office lighting 100%



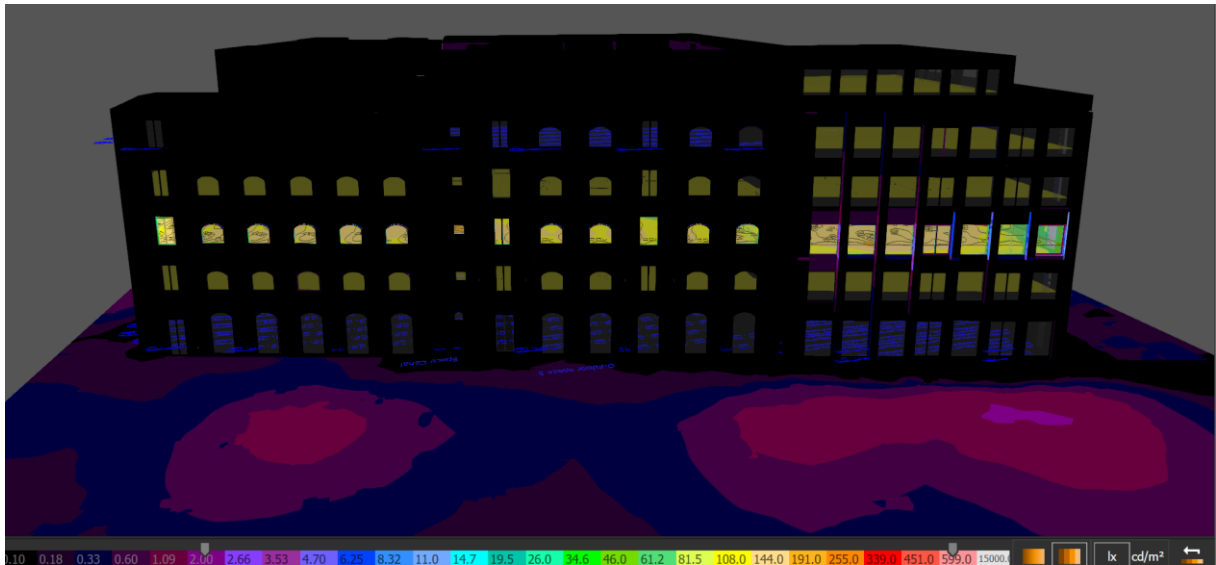
Pre curfew office lighting 100% - Treaty Street facade surface lux levels

Post Curfew

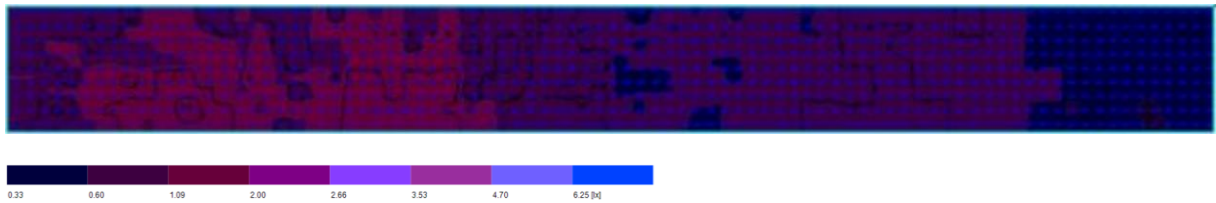
Illustrations for post curfew are not provided as all of the lights are off and hence the light spill from the development is zero.



Post Curfew – Cleaning / Security



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off



Treaty Street Residential Area Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off - Treaty Street façade surface lux levels

The calculations for the illuminance on the canal tow path from the proposed building give the following results:

Pre Curfew			
Target E3 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
10	38.0	13.7	64%
Post Curfew			
Target E3 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
2	0.0	0.0	0.0
Post Curfew – cleaning / security			
Target E3 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
2	38.0	1.4	96%

The compliance with the E3 zone illuminance limits are summarised below.



Pre Curfew	
E3 Compliance	Comments
Non-Compliant	The predicted illuminance is maximum 13.7 Lux which is a 64% improvement over the existing building and is of a similar level to those measured on the tow path at the access to Treaty Street and Copenhagen School, see the WSP report in the appendix for the existing measurements. However, as the proposed lighting level is 64% less than the estimated existing building lighting levels, we believe that the intent of Condition 30 to prevent the development having any adverse impact on the biodiversity of the Regent's Canal by way of light pollution has been shown.
Post Curfew	
E3 Compliance	Comments
Compliant	-
Post Curfew – cleaning / security	
E3 Compliance	Comments
Compliant	-

The calculations for the illuminance on the Treaty Street facade from the proposed building give the following results:

Pre Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
25	38.0	13.7	64%
Post Curfew			
Target E3 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	0.0	0.0	0.0
Post Curfew – cleaning / security			
Target E3 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	38.0	1.4	96%

The compliance with the E4 zone illuminance limits are summarised below.

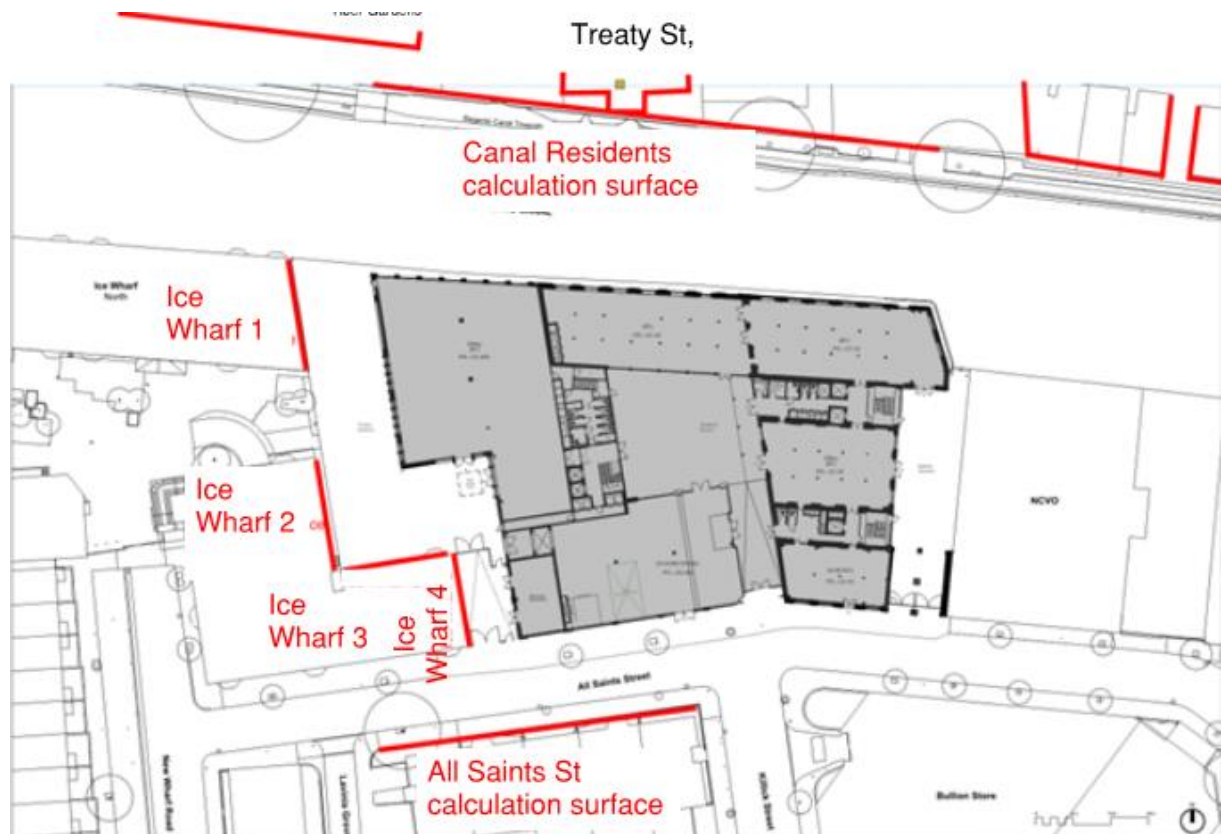
Pre Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew – cleaning / security	
E4 Compliance	Comments
Compliant	-



3.2 Ice Wharf Residential Area - Proposed Building

The illuminance on the perpendicular surfaces of the Ice Wharf residential buildings directly opposite the site, has been calculated to illustrate the existing and the proposed lighting levels.

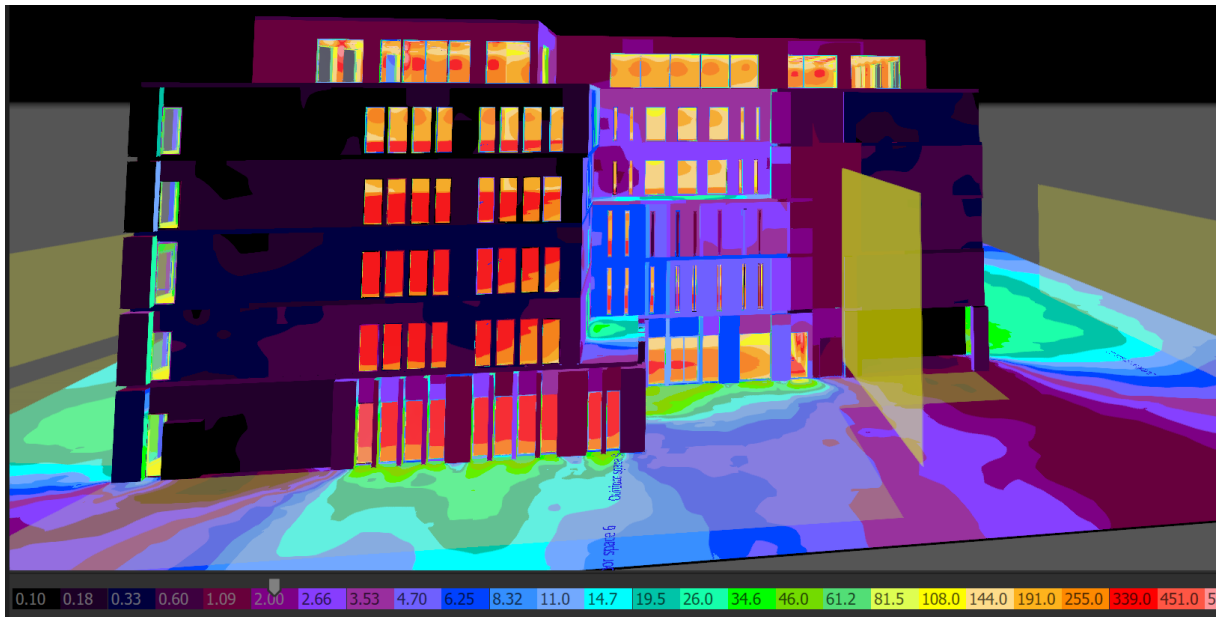
The residential areas have been spilt into four vertical façade calculation planes that as accurately as possible represent the residential building facades. See the diagram below.



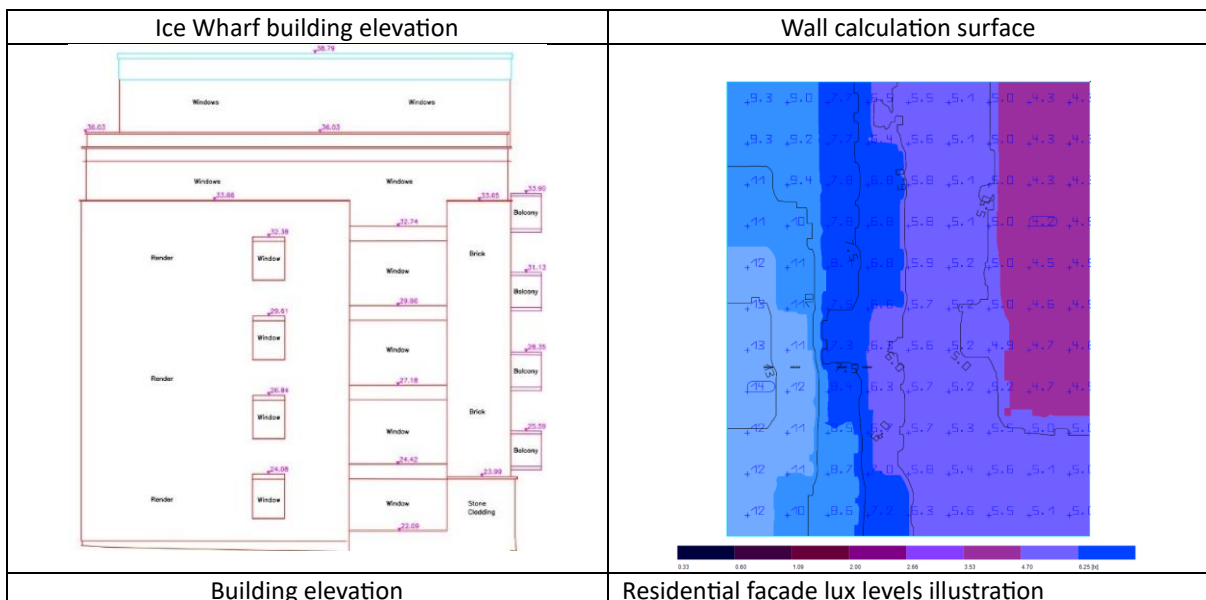


3.2.1 Ice Wharf 1 (North) - Existing Building

The existing building windows were standard single pane clear glazing and therefore have a high light transmission value which will let the majority of light from the building radiate out to the surrounding area. The existing luminaires have been modelled as fluorescent luminaire with a UGR of 19



The Ice Wharf 1 (north) facade lux levels are illustrated below



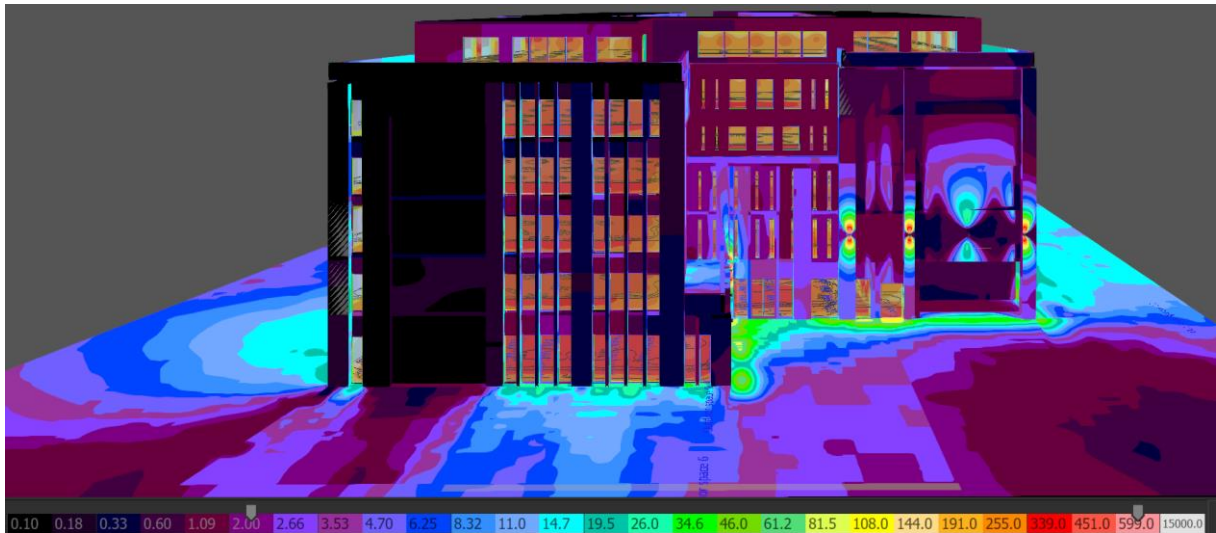
The previous buildings gave an illuminance on the Ice Wharf 1 (north) façade are in excess of the E4 environmental zone limits.



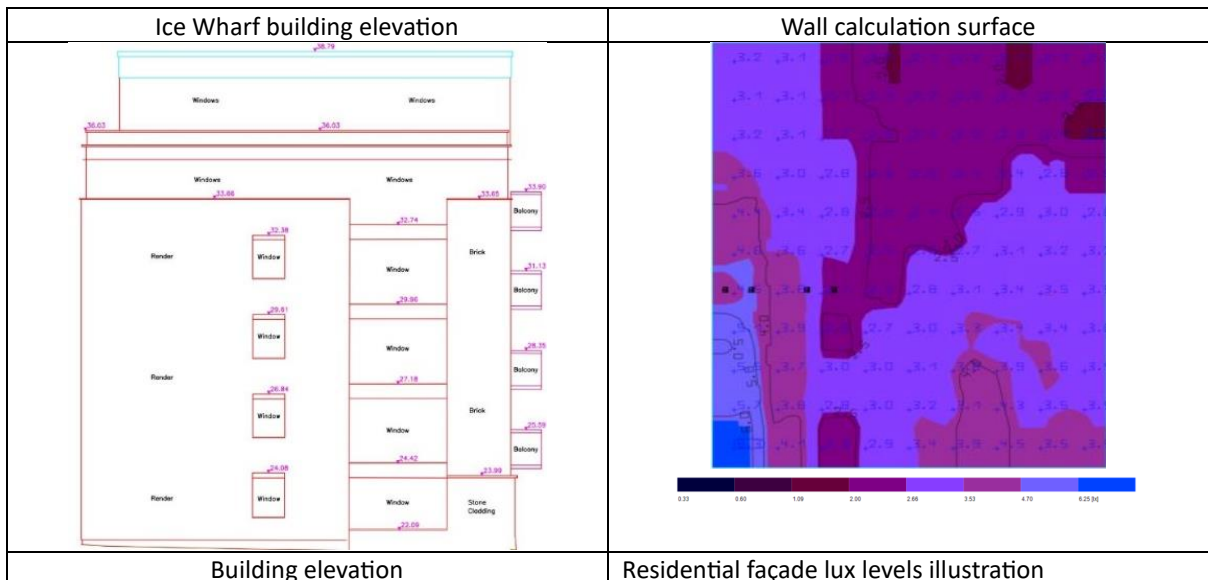
3.2.2 Ice Wharf 1 (North) - Proposed Building

The proposed building has been modelled for the pre and post curfew scenarios using the glazing, luminaires and lighting control parameters set out in section 2.00, Basis of the Calculation. The results are shown pictorially below.

Pre Curfew



Pre curfew office lighting 100%



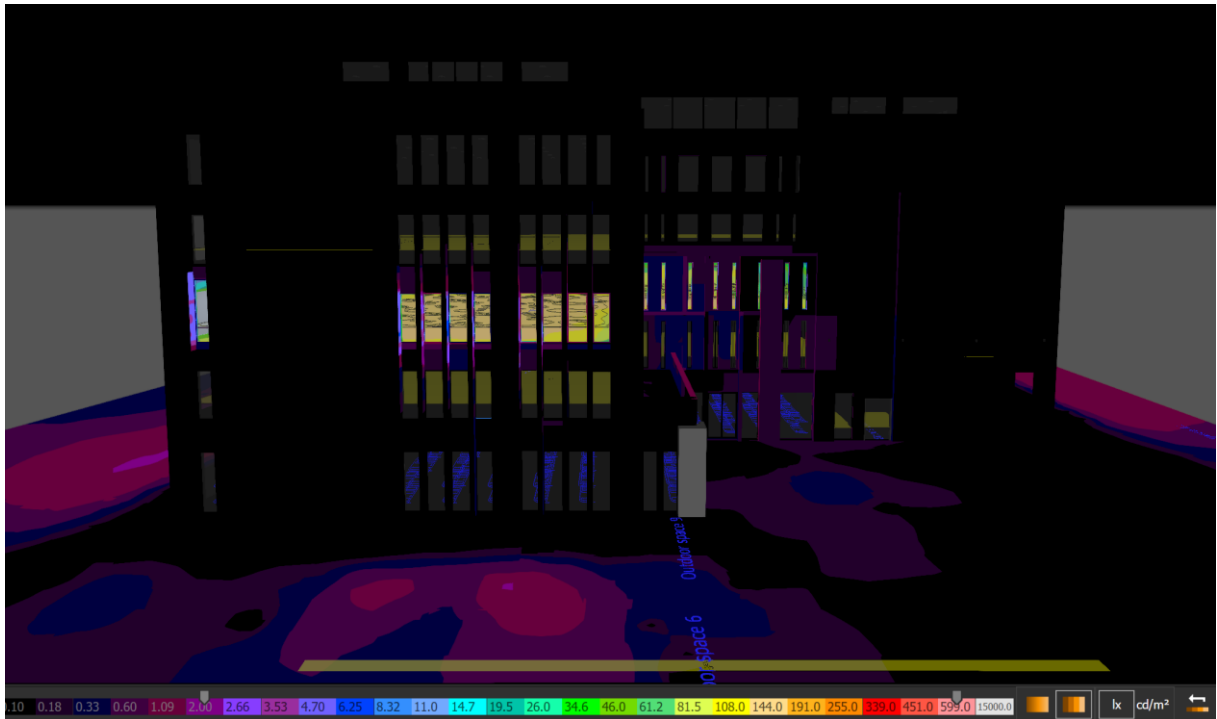
Pre curfew office lighting 100% - Ice Wharf 1 (north) façade surface lux levels

Post Curfew

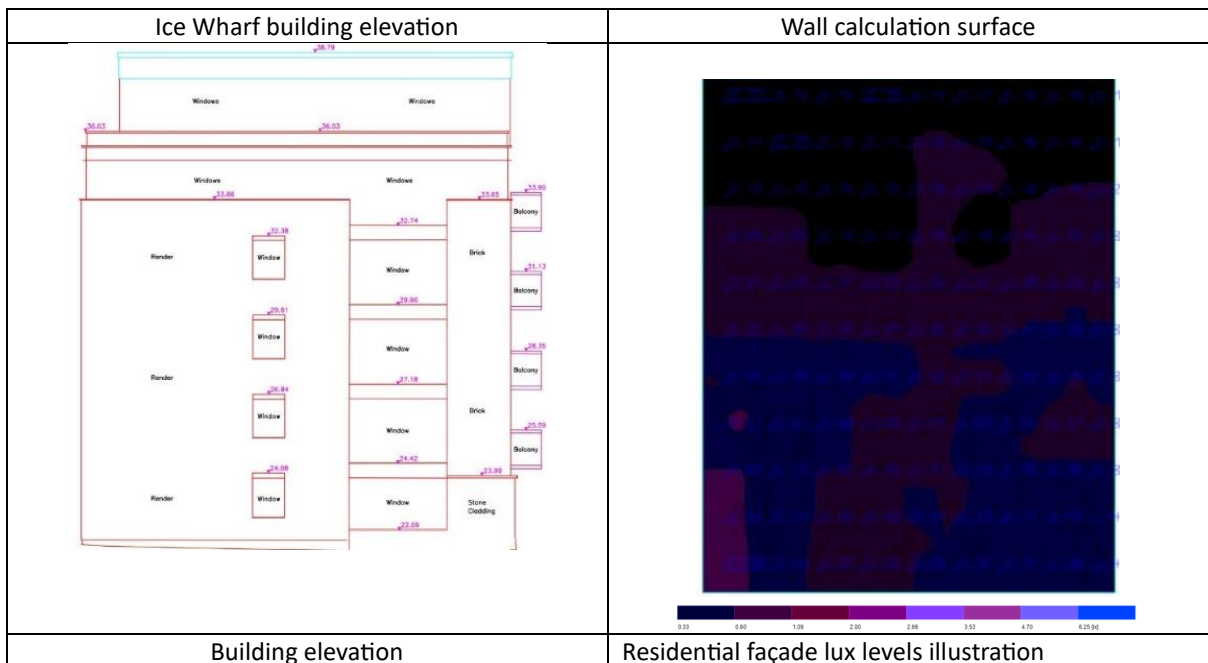
Illustrations for post curfew are not provided as all of the lights are off and hence the light spill from the development is zero.



Post Curfew - Cleaning / Security



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off



Post curfew Ice Wharf (1) north cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off – Ice Wharf 1 (north) surface lux levels



The calculations for the illuminance on vertical surface from the proposed building give the following results:

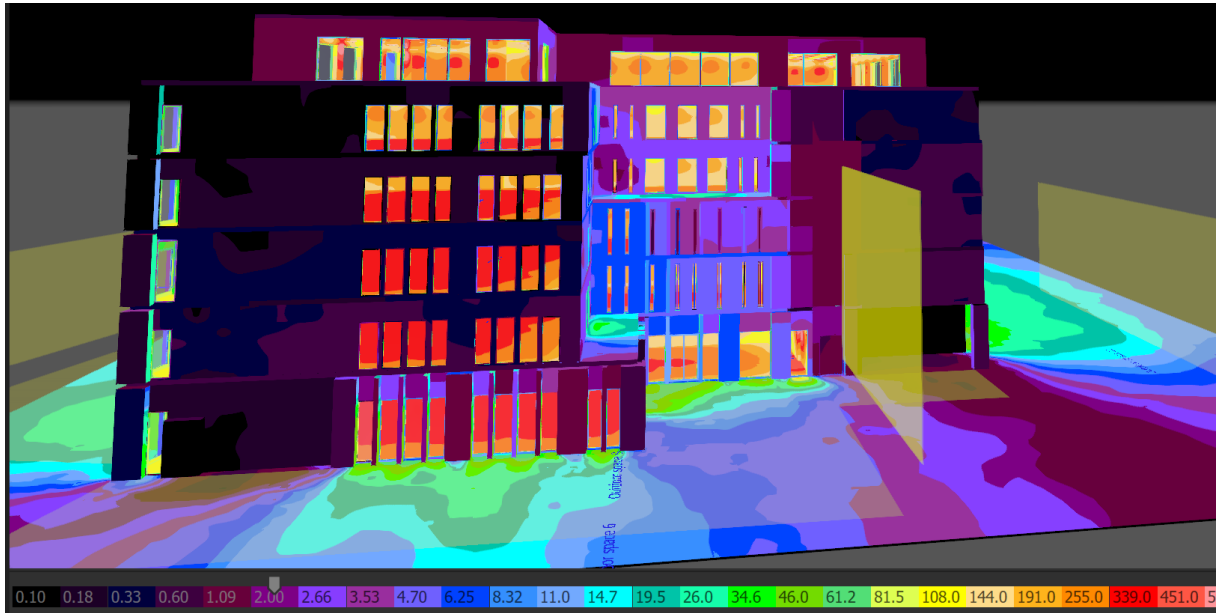
Pre Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
25	13.5	6.3	53%
Post Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	0.0	0.0	0.0
Post Curfew – cleaning / security			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	13.5	0.7	95%

The compliance with the E4 zone illuminance limits are summarised below.

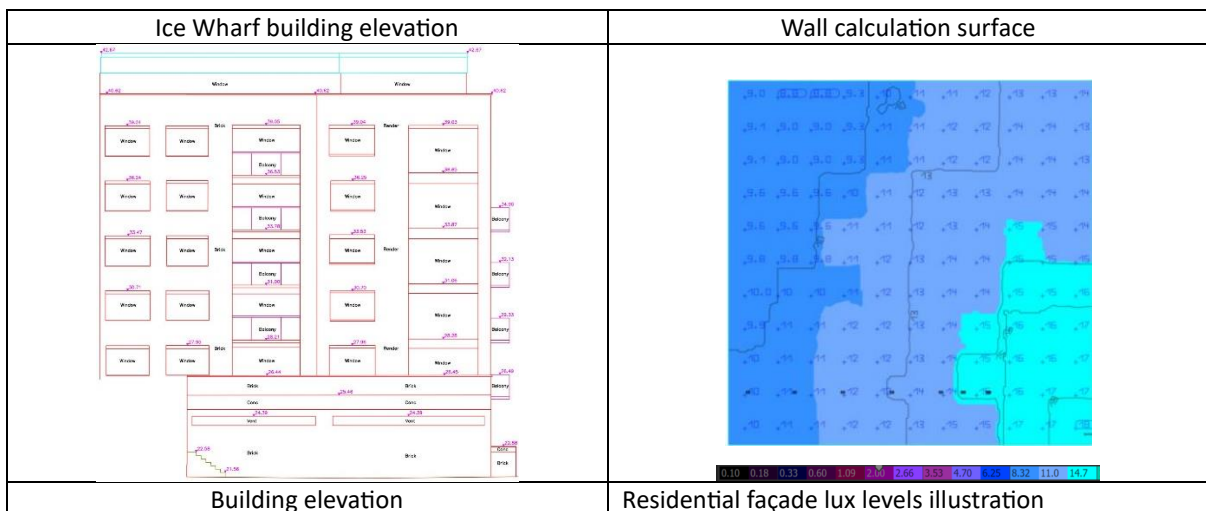
Pre Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew – cleaning / security	
E4 Compliance	Comments
Compliant	-

3.2.4 Ice Wharf 2 (South) - Existing Building

The lighting for the façade of the previous buildings has been modelled as described for the illuminance of the Ice Wharf 1 (north) façade as noted previously in this report.



The Ice Wharf 2 (south) façade lux levels are illustrated below



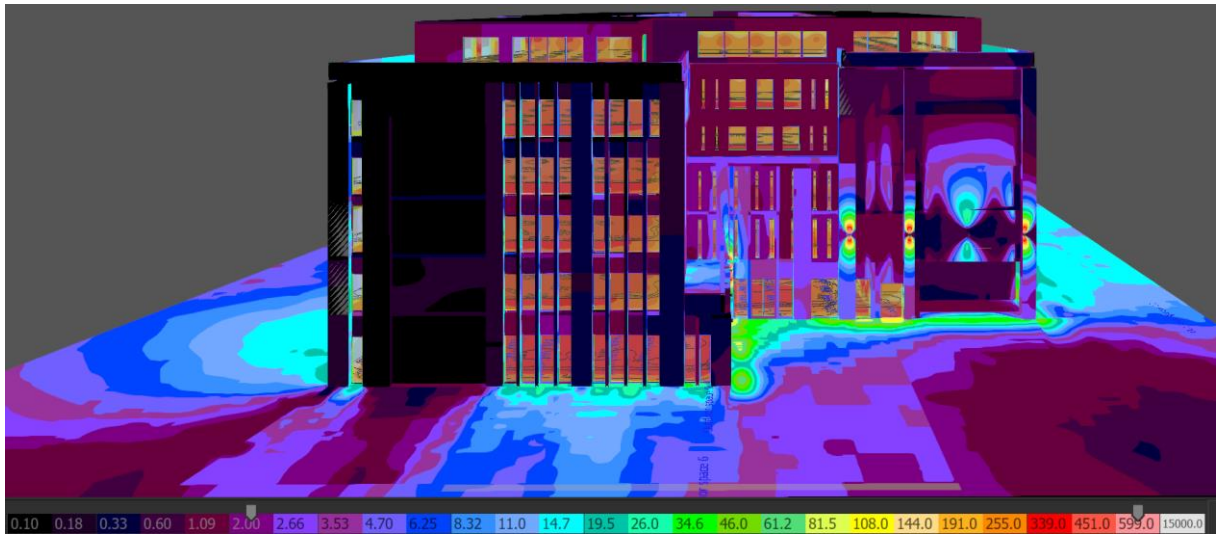
The previous buildings gave an illuminance on the Ice Wharf (2) south residential façade are in excess of the E4 environmental zone limits.

3.2.4 Ice Wharf 2 (South) - Existing Building

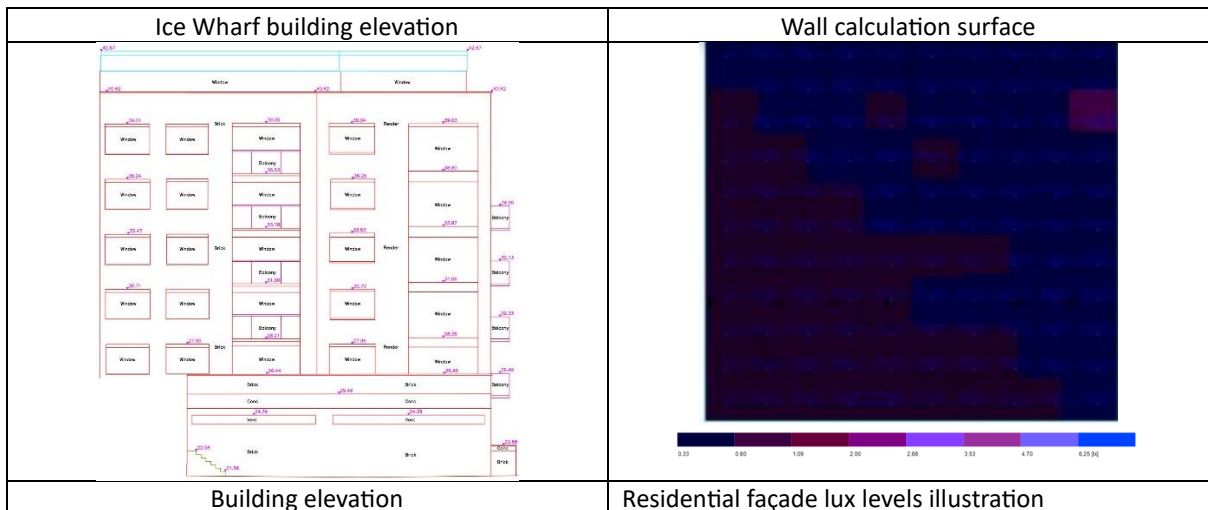
The proposed building has been modelled for the pre and post curfew scenarios using the glazing, luminaires and lighting control parameters set out in section 2.00, Basis of the Calculation. The results are shown pictorially below.



Pre Curfew



Pre curfew office lighting 100%



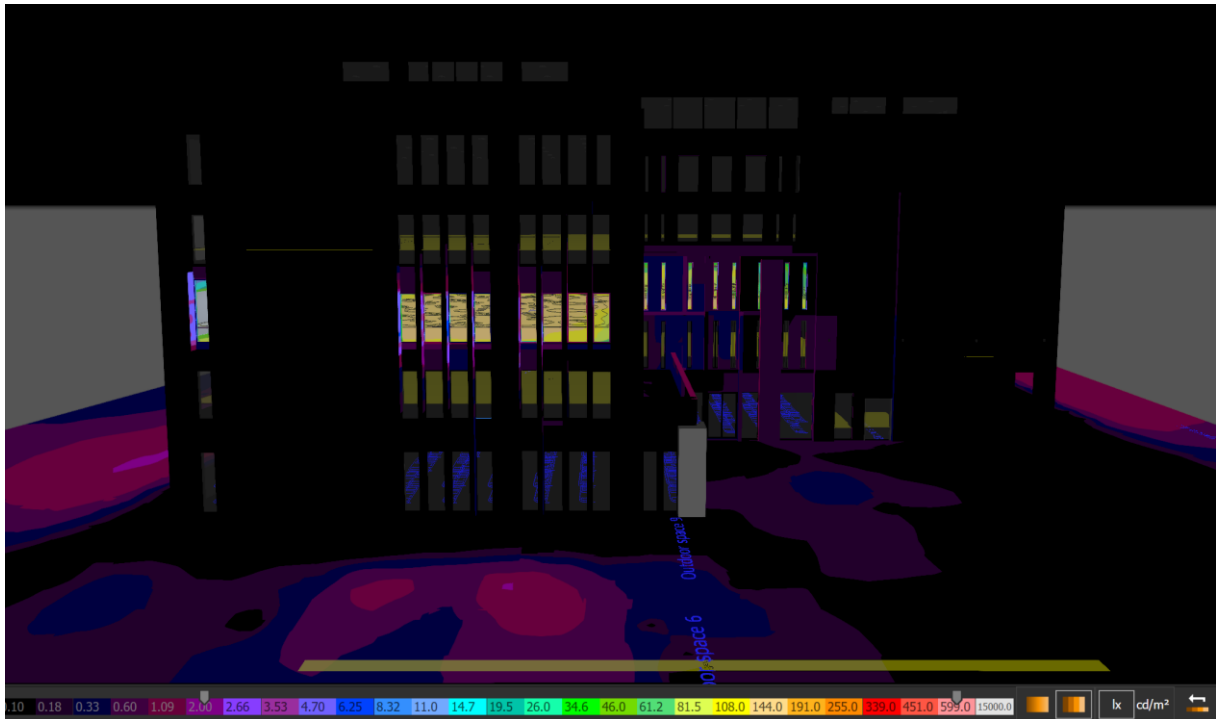
Pre curfew office lighting 100% - Ice Wharf 2 (south) façade surface lux levels

Post Curfew

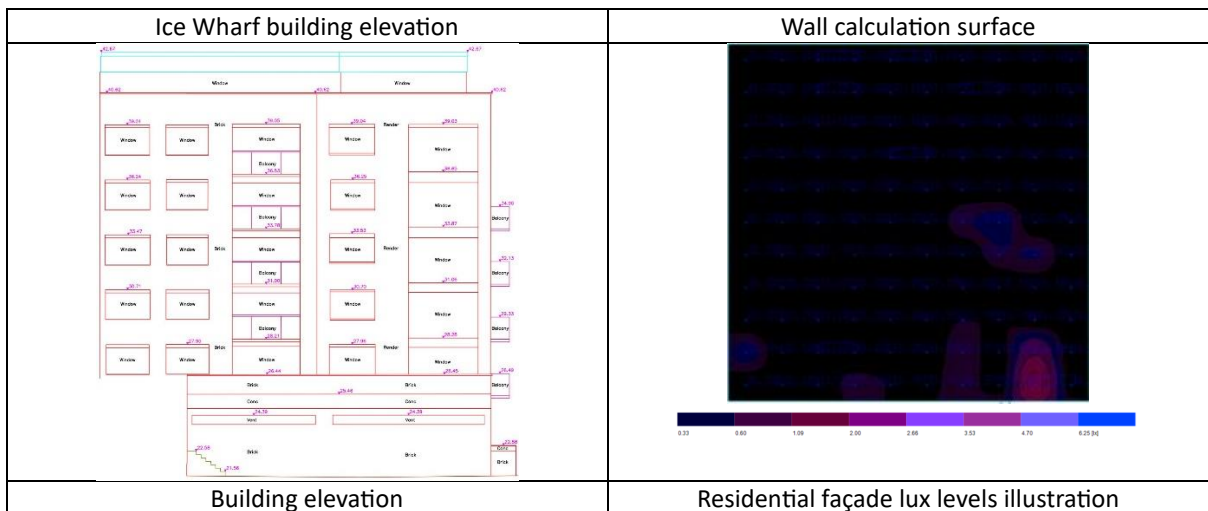
Illustrations for post curfew are not provided as all of the lights are off and hence the light spill from the development is zero.



Post Curfew – Cleaning / Security



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off - Ice Wharf 2 (south) façade surface lux levels

The calculations for the illuminance on the Ice Wharf perpendicular façade from the proposed building give the following results:



Pre Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
25	17.9	7.1	61%
Post Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	0.0	0.0	0.0
Post Curfew – cleaning / security			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	17.9	0.6	97%

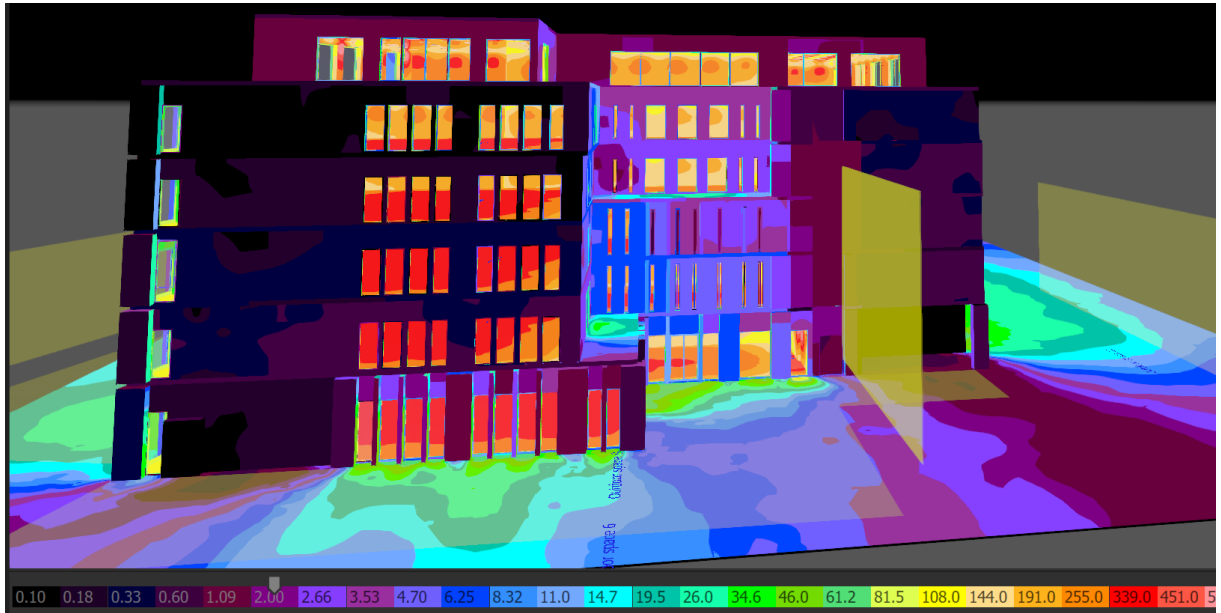
The compliance with the E4 zone illuminance limits are summarised below.

Pre Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew – cleaning / security	
E4 Compliance	Comments
Compliant	-

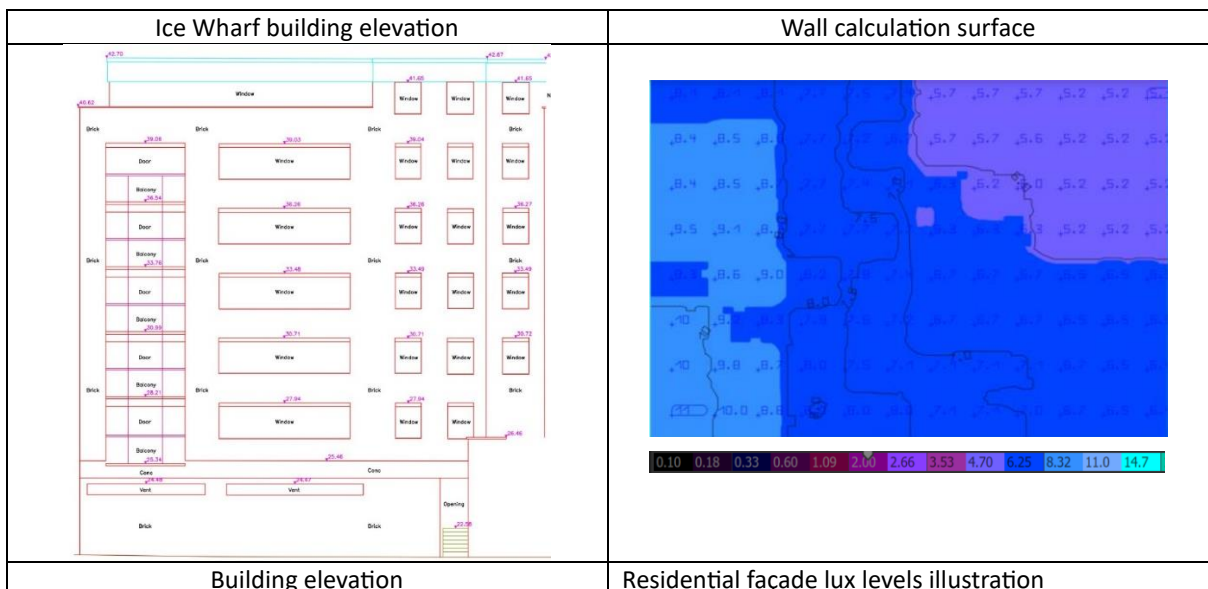


3.2.5 Ice Wharf 3 (South) – Existing Building

The lighting for the façade of the previous buildings has been modelled as described for the illuminance of the Ice Wharf 1 (north) façade as noted previously in this report.



The Ice Wharf 3 (south) façade lux levels are illustrated below.



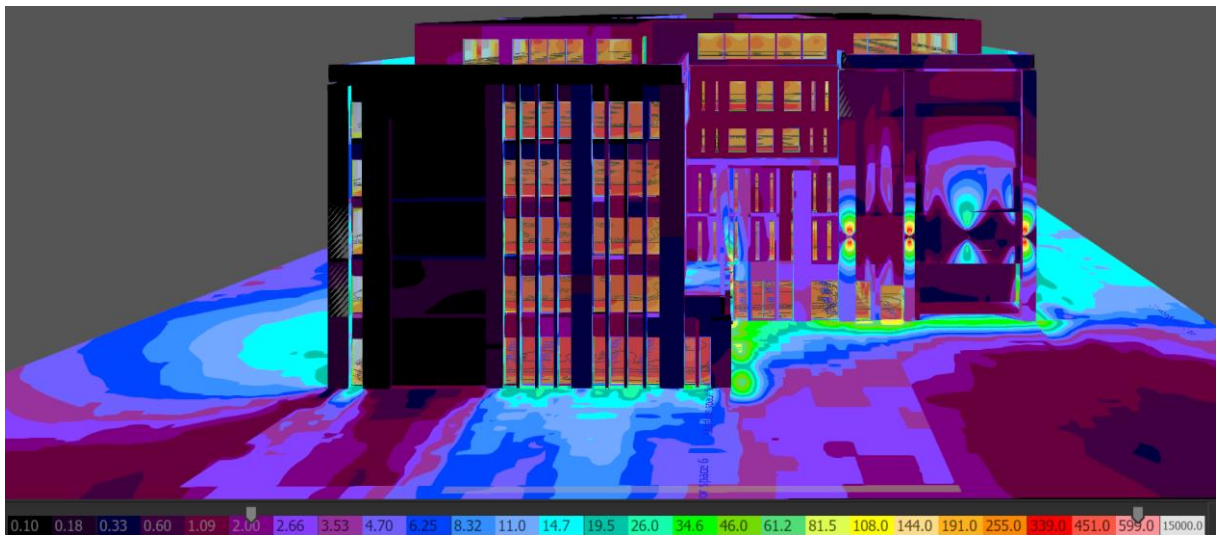
The previous buildings gave an illuminance on the Ice Wharf (3) south residential façade are in excess of the E4 environmental zone limits.



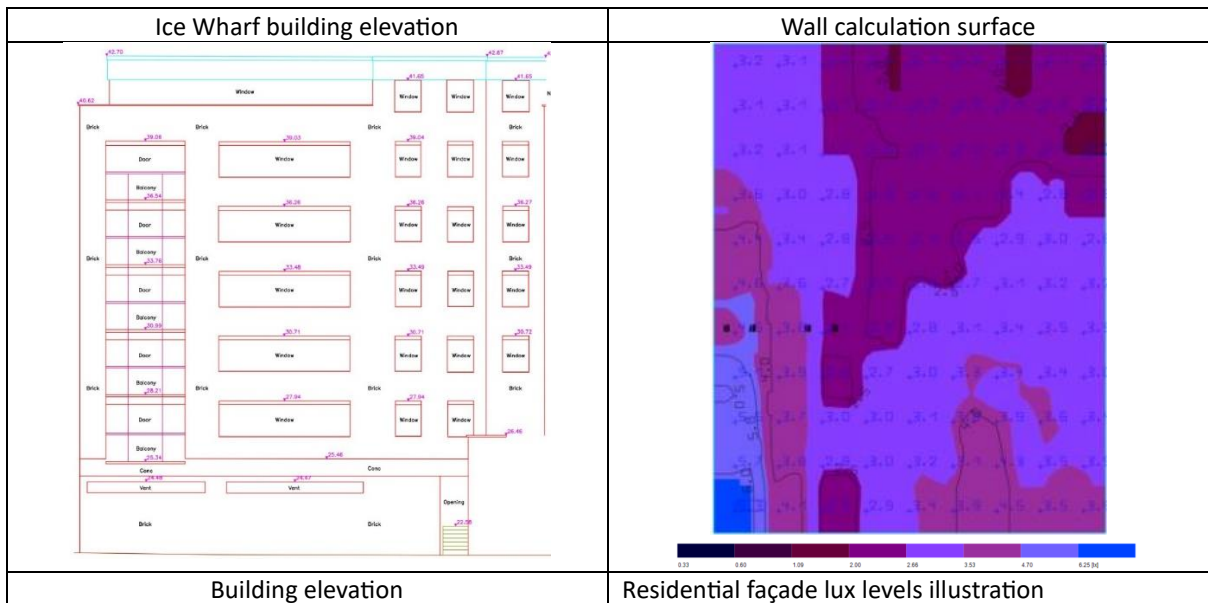
3.2.6 Ice Wharf 3 (South) – Proposed Building

The proposed building has been modelled for the pre and post curfew scenarios using the glazing, luminaires and lighting control parameters set out in section 2.00, Basis of the Calculation. The results are shown pictorially below.

Pre Curfew



Pre curfew office lighting 100%



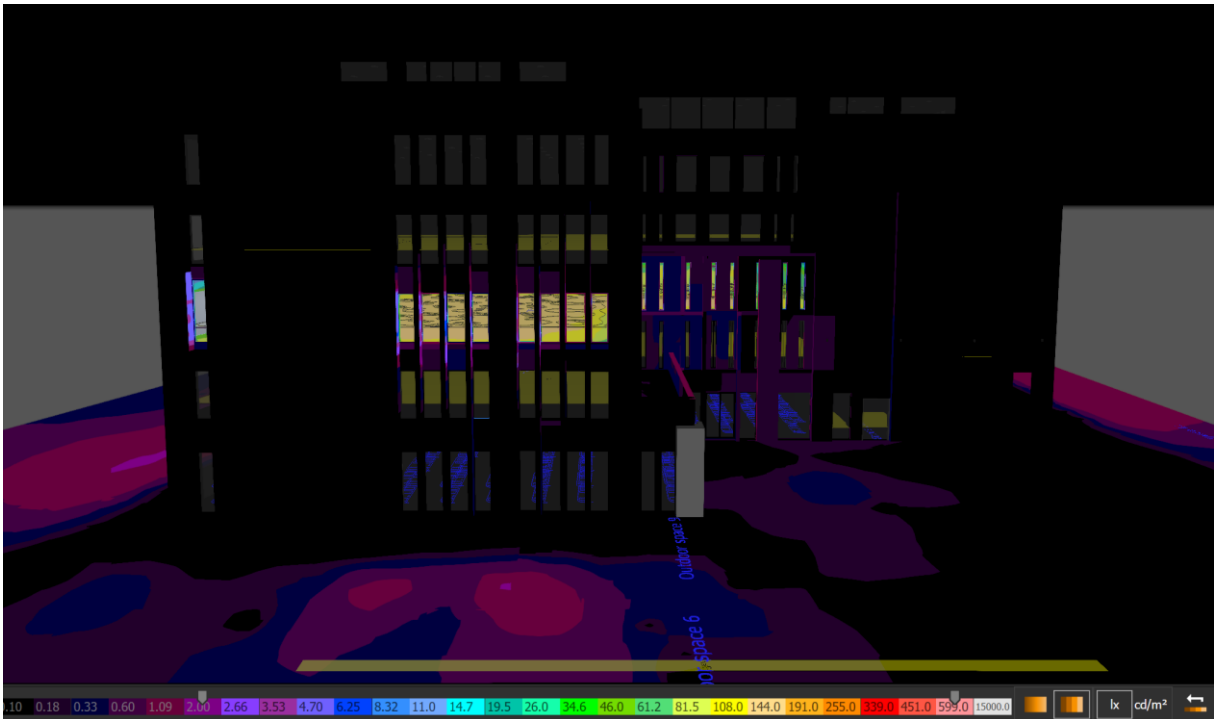
Pre curfew office lighting 100% - Ice Wharf 3 (south) facade surface lux levels

Post Curfew

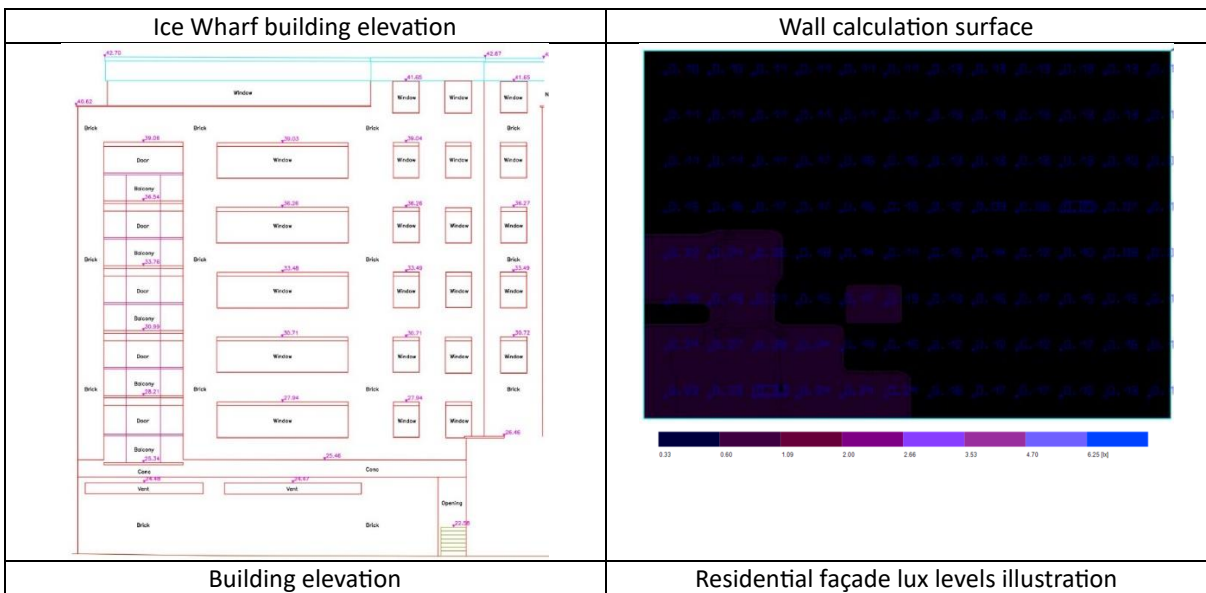
Illustrations for post curfew are not provided as all of the lights are off and hence the light spill from the development is zero.



Post Curfew – Cleaning / Security



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off - Ice Wharf 3 (south) façade surface lux levels



The calculations for the illuminance on the perpendicular surface from the proposed building give the following results:

Pre Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
25	10.7	5.8	46%
Post Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	0.0	0.0	0.0
Post Curfew – cleaning / security			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	10.7	0.4	97%

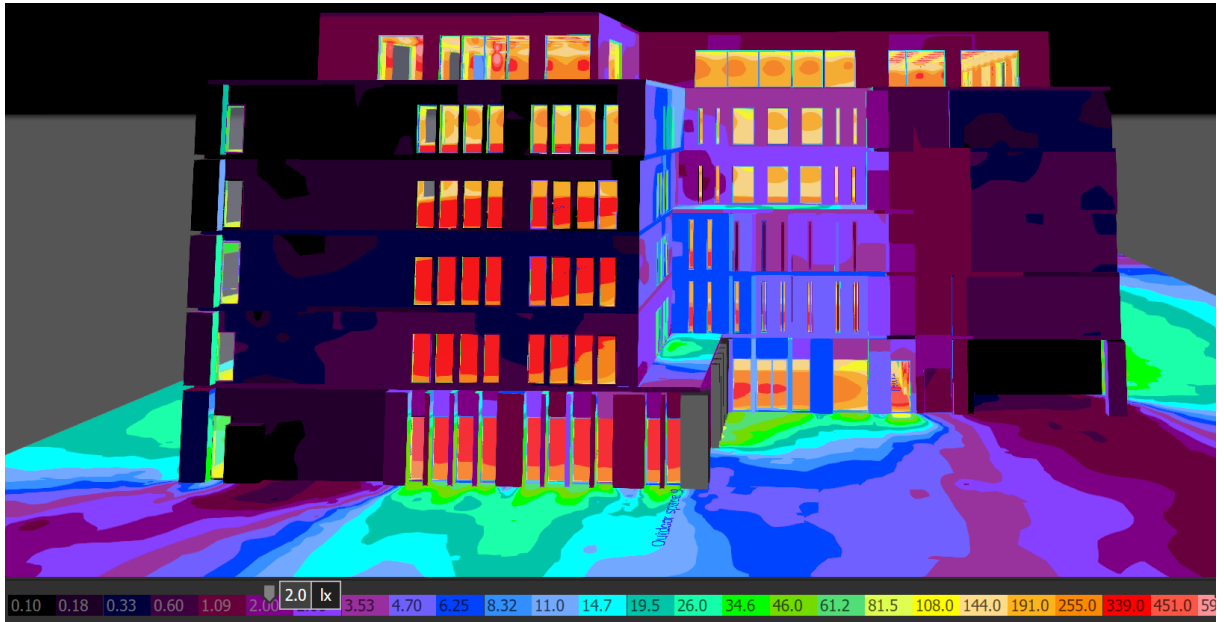
The compliance with the E4 zone illuminance limits are summarised below.

Pre Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew – cleaning / security	
E4 Compliance	Comments
Compliant	-

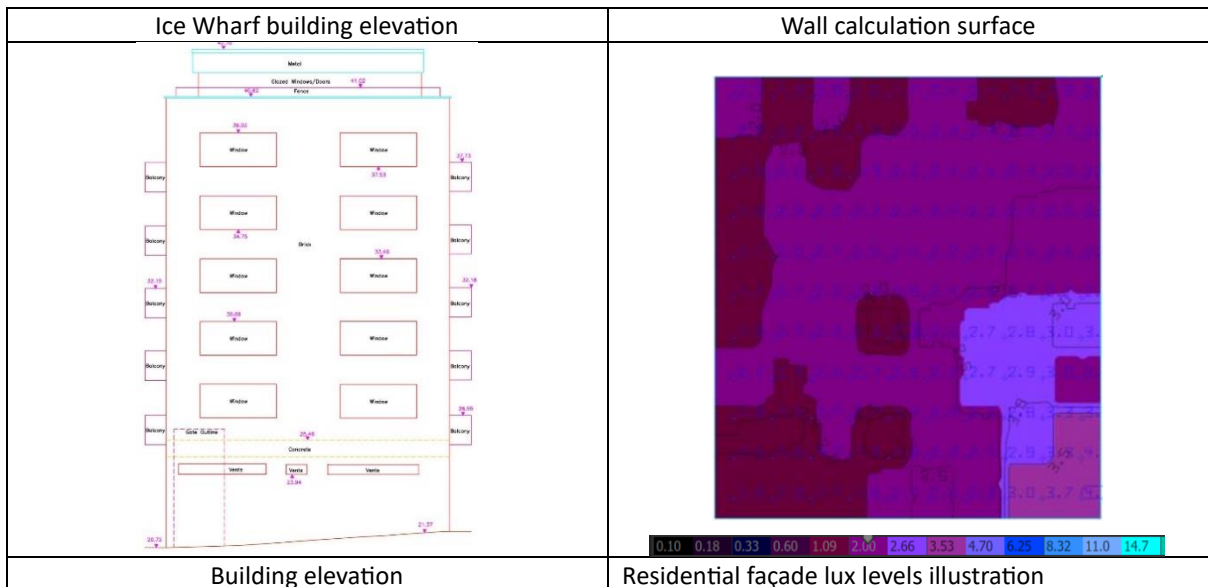


3.2.7 Ice Wharf 4 (South) – Existing Building

The lighting for the façade of the previous buildings has been modelled as described for the illuminance of the Ice Wharf 1 (north) facade as noted previously in this report.



The Ice Wharf 4 (south) facade lux levels are illustrated below.



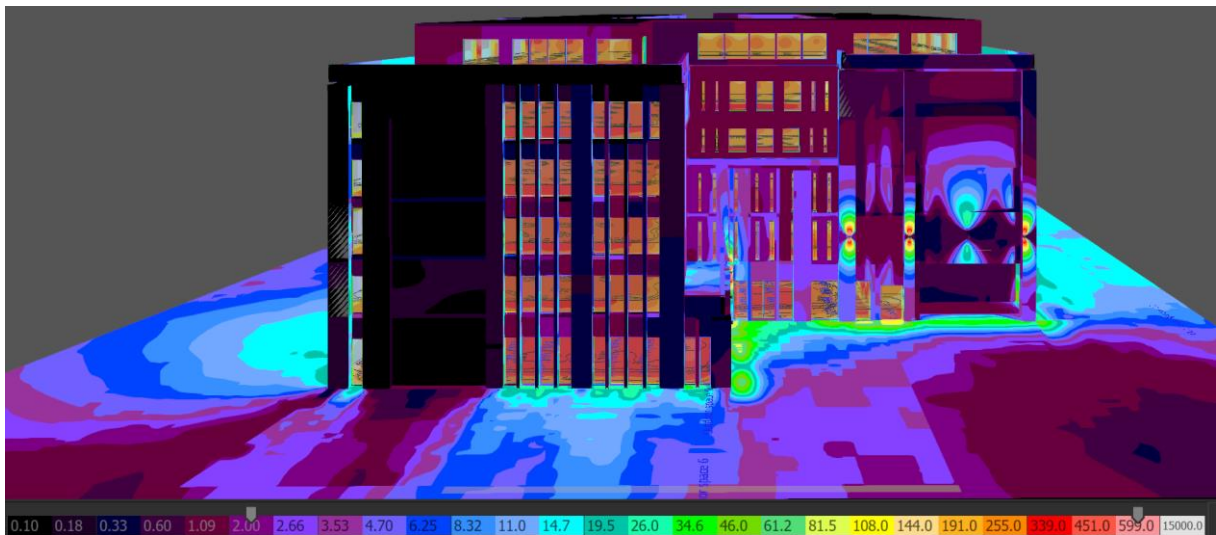
The previous buildings gave an illuminance on the Ice Wharf (4) south residential façade are in excess of the E4 environmental zone limits.



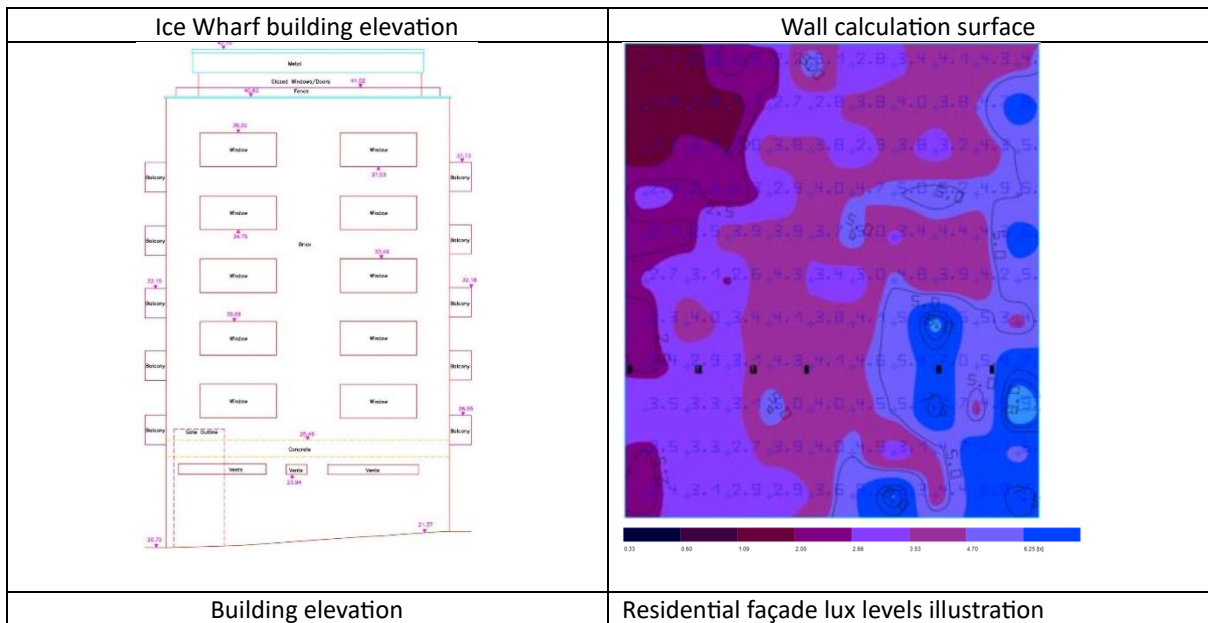
3.2.8 Ice Wharf 4 (South) – Proposed Building

The proposed building has been modelled for the pre and post curfew scenarios using the glazing, luminaires and lighting control parameters set out in section 2.00, Basis of the Calculation. The results are shown pictorially below.

Pre Curfew



Pre curfew office lighting 100%



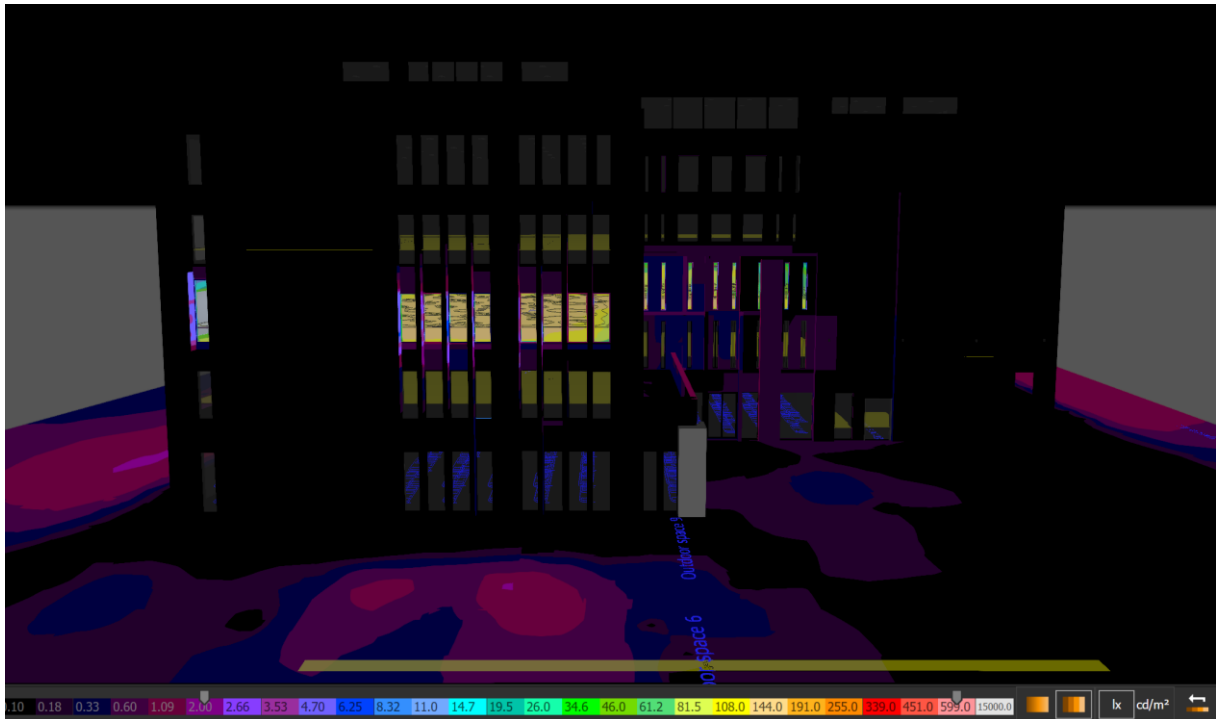
Pre curfew office lighting 100% - Ice Wharf 4 (south) façade surface lux levels

Post Curfew

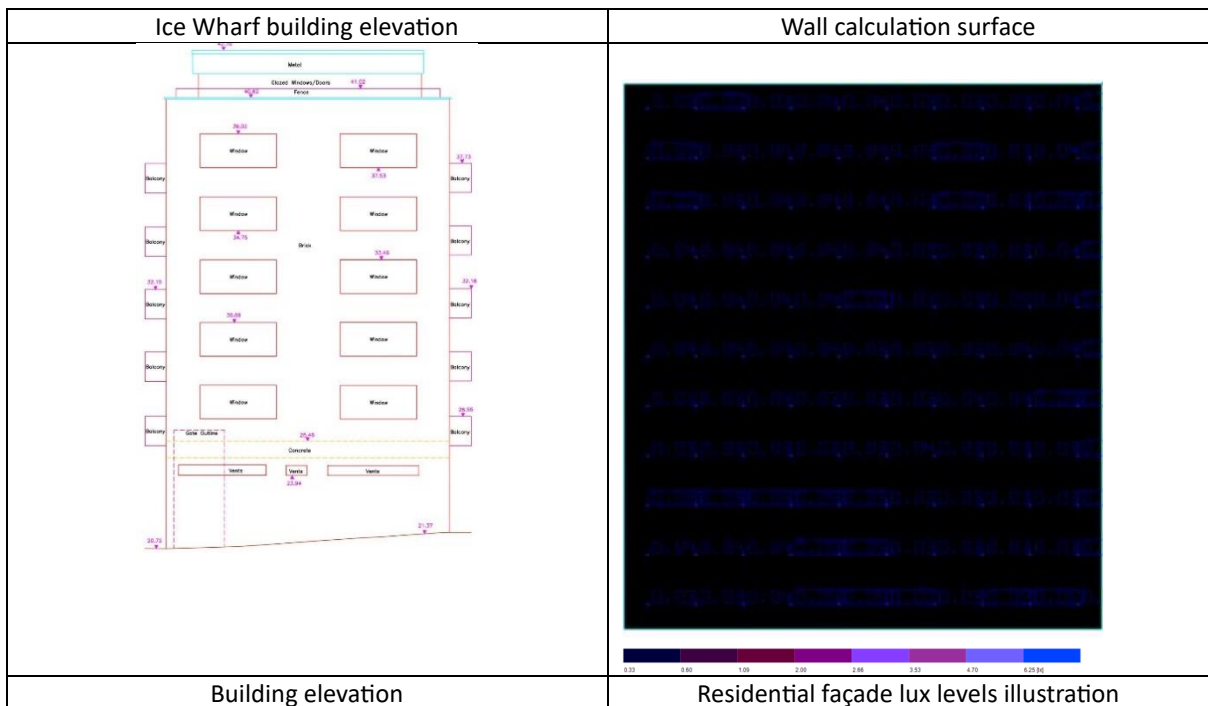
Illustrations for post curfew are not provided as all of the lights are off and hence the light spill from the development is zero.



Post Curfew – Cleaning / Security



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off



Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off - Ice Wharf 4 (south) façade surface lux levels



The calculations for the illuminance on the Ice Wharf perpendicular façade from the proposed building give the following results:

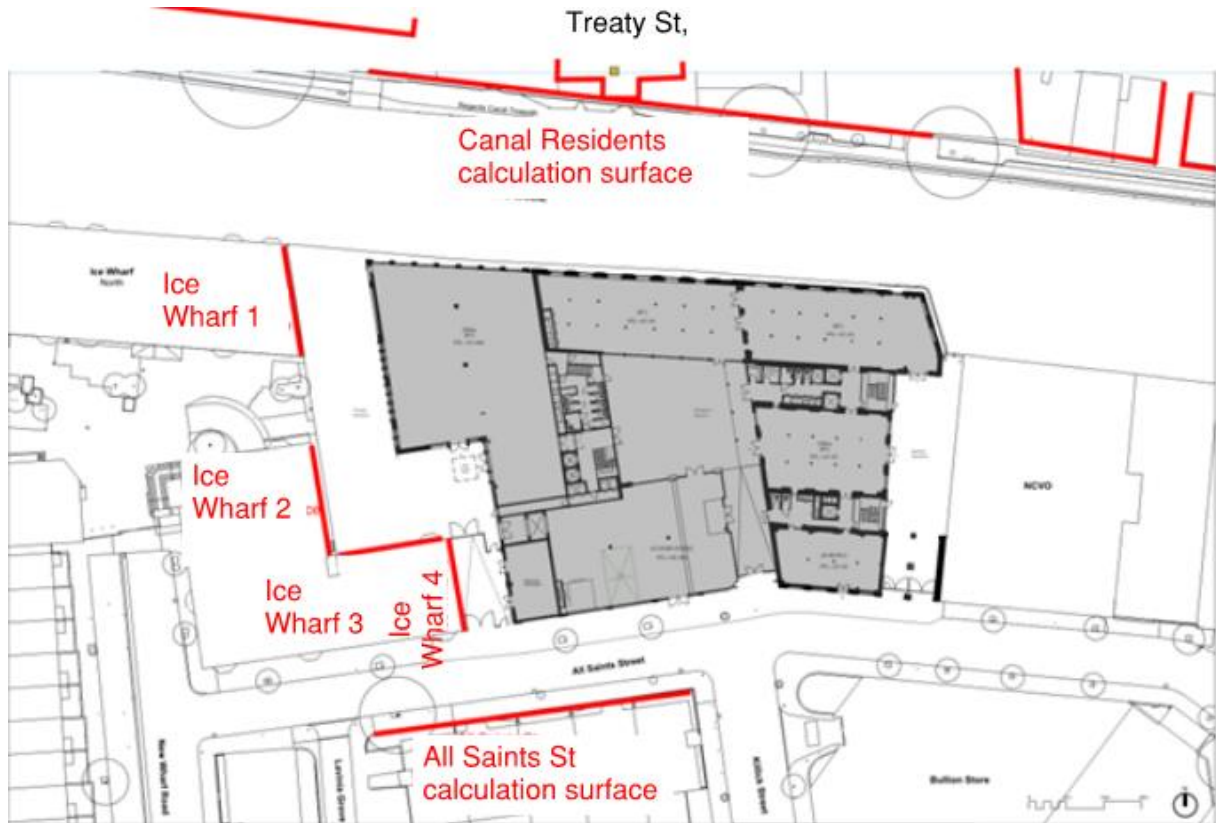
Pre Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
25	55.2	9.1	83%
Post Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	0.0	0.0	0.0
Post Curfew – cleaning / security			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	55.2	0.0	100%

The compliance with the E4 zone illuminance limits are summarised below.

Pre Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew – cleaning / security	
E4 Compliance	Comments
Compliant	-

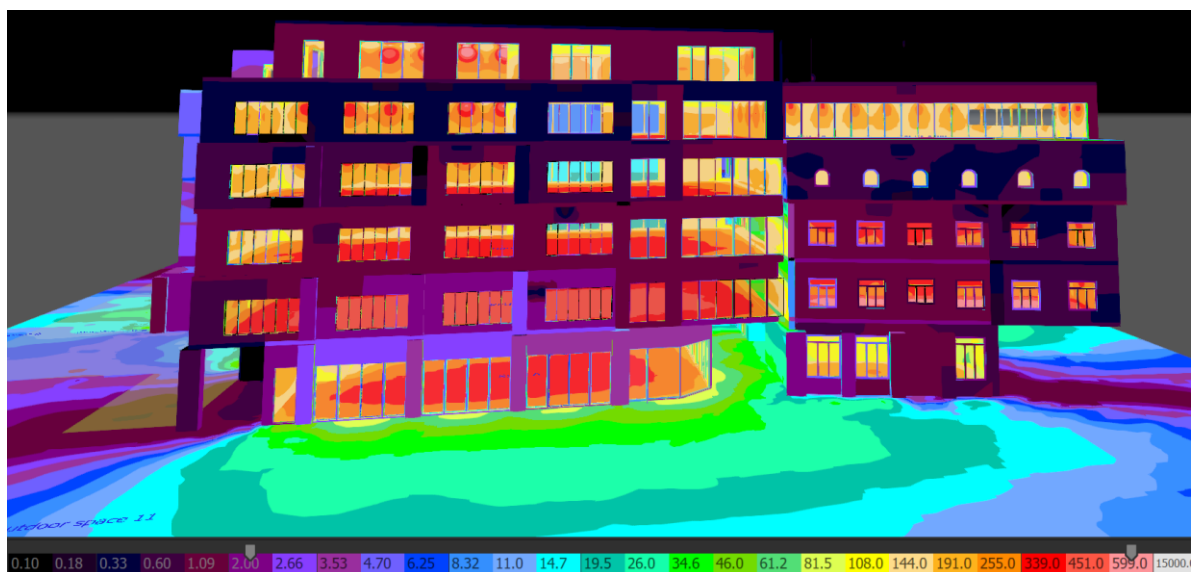


3.3 All Saints Street Residential Area



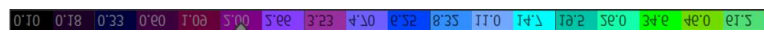
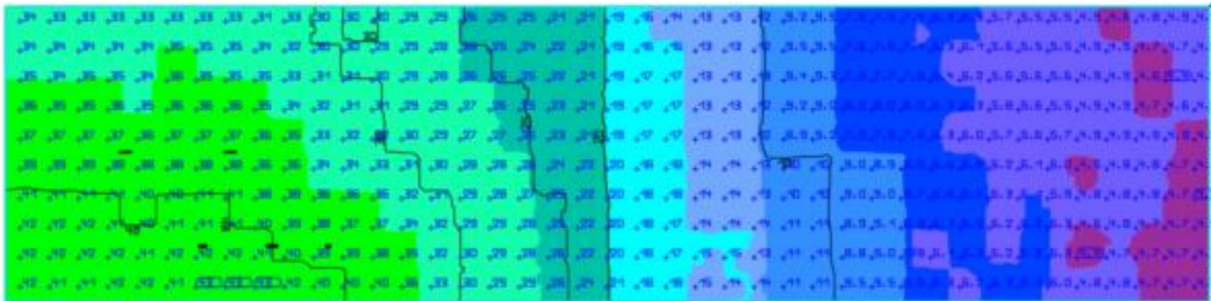
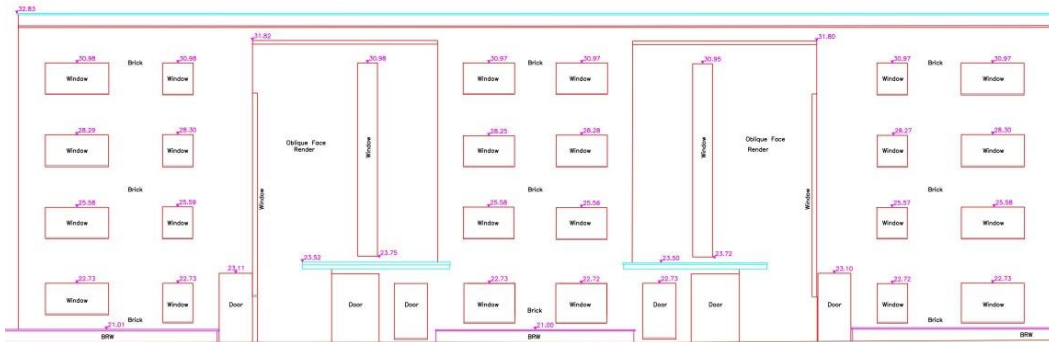
3.3.1 All Saints Street Residential Area – Existing Building

The existing building windows were standard single pane clear glazing and therefore have a high light transmission value which will let the majority of light from the building radiate out to the surrounding area. The existing luminaires have been modelled as fluorescent luminaire with a UGR of 19





The All Saints Street facade lux levels are illustrated below.

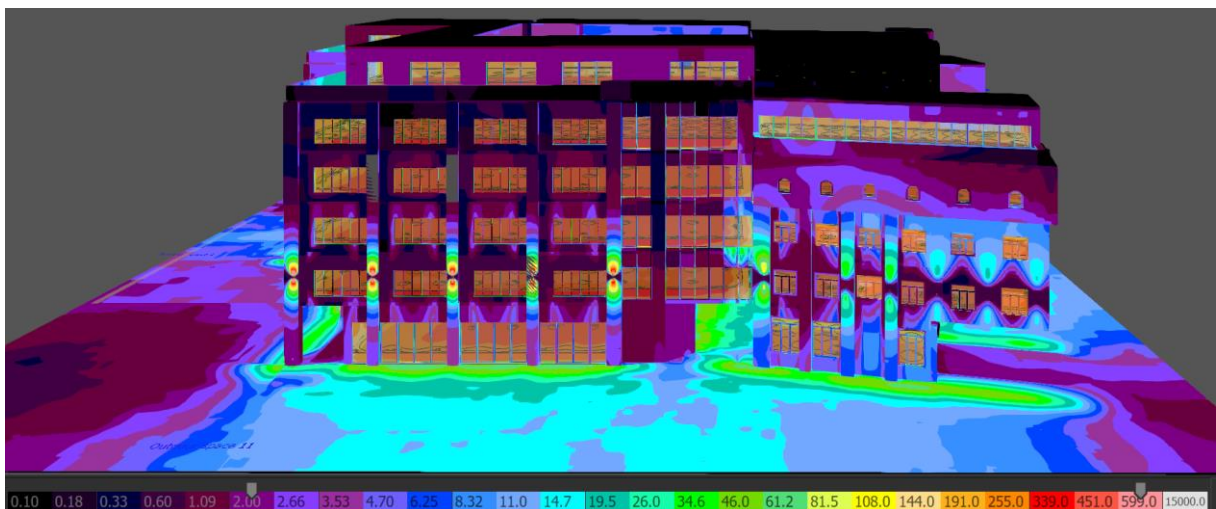


The previous buildings gave an illuminance on the All Saints Street façade are in excess of the E4 environmental zone limits.

3.4.2 All Saints Street Residential Area – Proposed Building

The proposed building has been modelled for the pre and post curfew scenarios using the glazing, luminaires and lighting control parameters set out in section 2.00, Basis of the Calculation. The results are shown pictorially below.

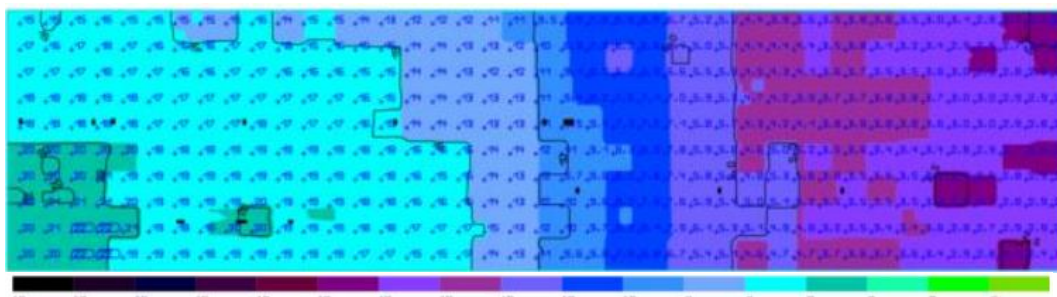
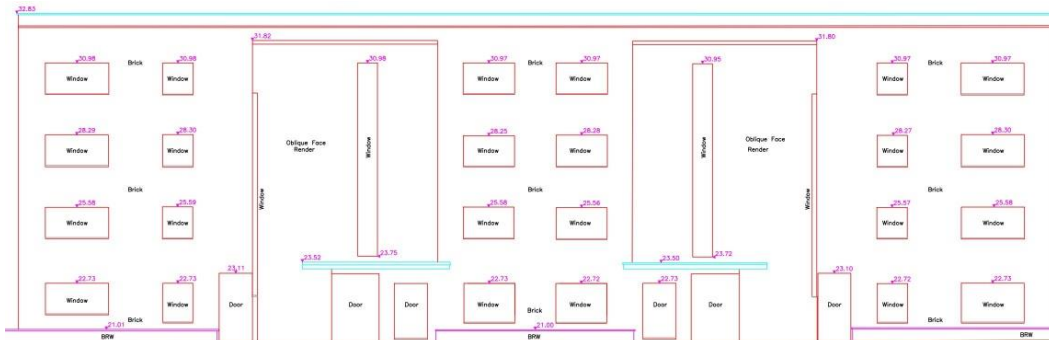
Pre Curfew



Pre curfew office lighting 100%



All Saints Street building elevation

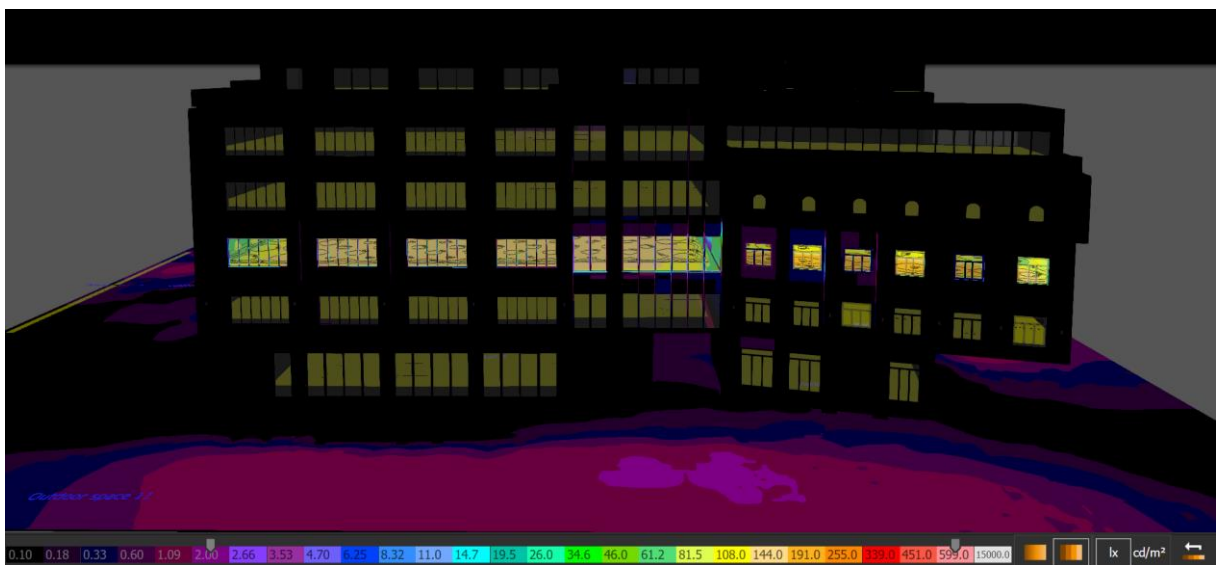


Pre curfew office lighting 100% - All Saints Street façade surface lux levels

Post Curfew

Illustrations for post curfew are not provided as all of the lights are off and hence the light spill from the development is zero.

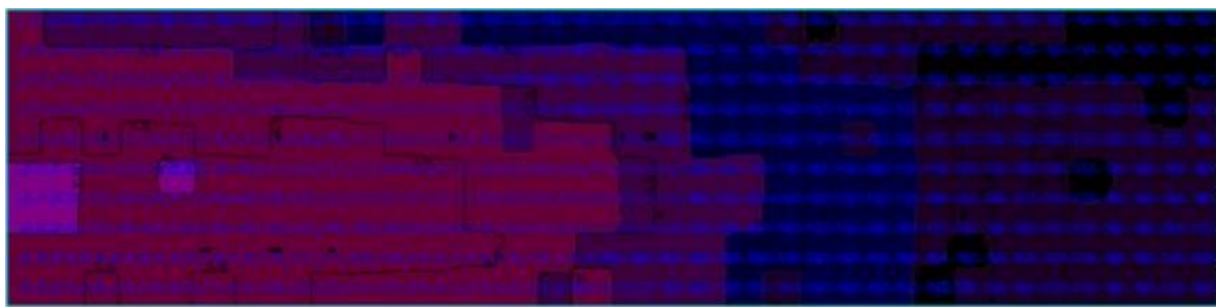
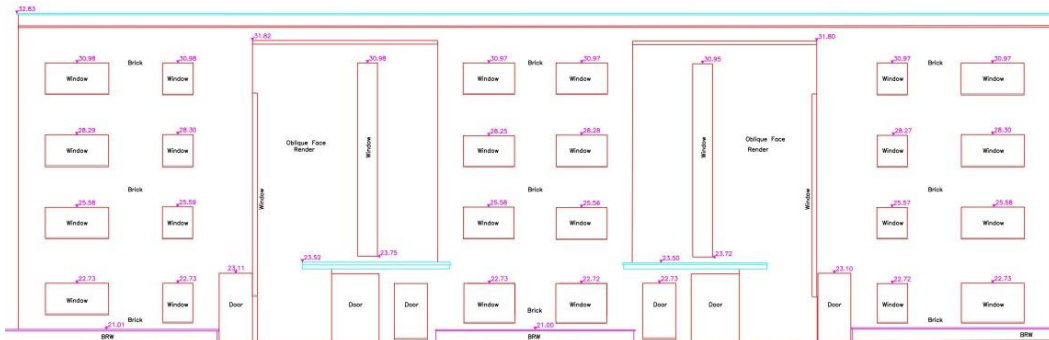
Post Curfew – Cleaning / Security



Post Curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off



All Saints Street building elevation



0.10 0.18 0.33 0.60 1.09 2.16 2.66 3.53 4.70 6.25 8.32 11.0 14.7

Post curfew cleaning or security mode, 2nd floor only all lighting office lighting at 40%, external lighting off - All Saints Street façade surface lux levels

The calculations for the illuminance on the perpendicular surface from the proposed building give the following results:

Pre Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
25	43.2	22.0	49%
Post Curfew			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	0.0	0.0	0.0
Post Curfew – cleaning / security			
Target E4 illuminance	Existing building (lux)	Development (lux)	Percentage reduction (%)
5	43.2	2.1	95%

The compliance with the E4 zone illuminance limits are summarised below.



Pre Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew	
E4 Compliance	Comments
Compliant	-
Post Curfew – cleaning / security	
E4 Compliance	Comments
Compliant	-



5.00 Conclusions

The scheme complies with the agreed environmental zone limits, zone E3, for the canal tow path. The relevant calculations that show compliance are:

- Post Curfew All internal and external lights off

The scheme slightly fails to comply with the E3 environmental zone limit for the canal tow path under the pre curfew scenario. The maximum illuminance is 13.7 lux whereas the E3 limit is 10 lux. However, the predicted illuminance is maximum 13.7 Lux which is a 64% improvement over the existing building and is of a similar level to those measured on the tow path at the access to Treaty Street and Copenhagen School, see the WSP report in the appendix for the existing measurements. However, as the proposed lighting level is 64% less than the estimated existing building lighting levels, we believe that the intent of Condition 30 to prevent the development having any adverse impact on the biodiversity of the Regent's Canal by way of light pollution has been shown.

The scheme complies with the agreed environmental zone limits, zone E4, for the residential facades set out below.

- Treaty Street
- Ice Wharf
- All Saints Street

The relevant calculations that show compliance are:

- Pre Curfew All internal and external lights on at 100%
- Post Curfew All internal and external lights off

In addition to the above an alternate post curfew calculation scenario was run to show how the lighting control system is to be set up to meet the post curfew illuminance limits on the residential facades and the canal tow path. The additional post curfew scenario is:

- Post Curfew – Cleaning / Security A single floor in operation to simulate a cleaning mode or a security patrol walk round.

The above scenario meets the E3 and E4 post curfew limits on the respective facades with the following parameters included in the lighting control system post 22.30 hours.

Post Curfew – Cleaning / Security

North Façade (Treaty Street)	Single floor in operation all luminaires	Dimmed to 40%
South Façade (All Saints Street)	Single floor in operation all luminaires	Dimmed to 40%
West Façade (Ice Wharf)	Single floor in operation all luminaires	Dimmed to 40%

In accordance with Condition 31 it is confirmed that the following measures have been incorporated into the scheme:

- Lighting strategies that reduce the output of luminaires closer to the façades (see above for details).
- Low glare luminaires.
- Motion sensors to switch lights off when spaces are unoccupied (operational 24/7)



- External fins on the western elevation of Thorley Works
- Glazing with a 50% light transmission.
- Reduced illuminance external lighting to the north façade to consist of dimmable 6W LED luminaires that incorporate narrow beam optics to up light on to the building.
- The default setting of the internal and external lighting is off after the post curfew time.
- The curfew is proposed to be at an earlier time of 2230 hours rather than 2300 hours.
- The lighting control measures included are as follows:
 - All lighting has motion sensor control. Small groups of luminaires have PIR control. With the absence of occupants being detected the default operation of that control group of luminaires is off.
 - The ability to dim all luminaires individually.
 - The lighting control system can change the illumination levels gradually to reduce the impact of the lighting levels changing with the PIR control.
 - Restrict the light output of the luminaires for post curfew activities such as cleaning and security patrols.

When compared to the estimated exceeding building lighting all of the tested scenarios greatly reduce the light spillage from the proposed building.



Appendix 1

WSP Report: Environmental Light Zones



Regents Wharf Property Unit Trust

c/o Merrik Baggallay
Bentall Green Oak

by e-mail

Unit 9, The Chase,
John Tate Road,
Foxholes Business Park,
Hertford
SG13 7NN

Tel: +44(0)7827 306483

14 November 2022

Ref: 70087770-P01

FAO, Merrik Baggallay

Dear Mr Baggallay,

Regents Canal & All Saints Street, London, N1 - Environmental Light Zones

Thank you for your commission to establish the lighting environmental zone classifications with respect to the Regent Canal tow path between the A5200 York Way and Caledonian Road, and also for All Saints Street. The assessment has been carried out by myself and a summary of my professional competencies with respect to the assessment of artificial light are appended to this letter.

The site survey was undertaken after dusk on the evening of 9 November 2022 between 18.00 and 19.00 and the weather conditions were fair and dry. For the purpose of the survey a calibrated Konica Minolta T-10A serial number 20017281 and sensor head serial number 30011113 was used. This instrument is considered one of the most suitable for the task. The survey results are appended to this letter and the assessment approach following good practice in determining the base line lighting conditions to establish the lighting environmental zone. This consists of taking illuminance (lux) measurements at various points within the survey area, five measurements are required at each location, one horizontal measurement at ground level and then four vertical measurements at a height of between 1.0 and 1.5m above ground level each facing north, east, south and west. The surveyed results together with professional judgement are then compared to tables 2 and 3 (pre-curfew limits) as advised within the Institution of Lighting Professionals (ILP) Guidance Note GN01 'Guidance notes for the reduction of obtrusive light' together with professional judgement of the area, tables as follows:

Table 2 Environmental zone descriptions

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity



Table 3 Maximum values of vertical illuminance on premises

Light technical parameter	Application conditions	Environmental zone				
		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

The canal path and All saints Street lie to the north of Kings Cross station, London and are clearly within an urban environment and taking each in turn:

All Saints Street

All Saints Street has street lighting along its length as do the adjoining roads, with the exception of the building under development there is an amount of spill light from internal lighting of the buildings along the street. More significantly at various locations along the street there is considerable spill light from security and building entrance lighting installations, in addition Lavina Grove is highly lit along its length. Whilst activity in the street may be low it does have a high district brightness.

We are not aware of any curfew for the various lighting installations along the street. The very high (>25 lux) illuminance readings were due to spill light from security lighting on the south side and the street lighting within Lavina Grove.

Based upon the survey and professional judgement the street and adjacent areas are considered as being an environmental zone E4.

Once the new development is complete it would be expected that any exterior lighting on or interior lighting from within the building would influence the values measured at locations 9 and 10 (see attached data). Provided this lighting is well designed and in accordance with good practice it will be suitable for the environmental and the street would still be assessed as E4.

Regent Canal tow path between the A5200 York Way and Caledonian Road

The canal path is unlit with the exception of canal boat charge points which each have a localised location light within them to permit safe use. At points along the path the paths that lead off the canal into the residential estate are lit and this light aids the identification of the adjoining path. With the exception of the building under development there is some low-level spill light from the office buildings along the south side of the canal. In addition at locations along the northern side there is spill light from security / porch lighting associated with the residential buildings. There is an area to the south side of the canal between the A5200 and the wharf area with festoon lighting associated with some catering venues.

The tow path is within an urban environment, it has good use by both pedestrians and cyclists.

It should be noted that the assessment locations opposite the development are not representative of what might be expected once the development is completed in addition the adjoining path leading to Treaty Street is highly lit. This one location would lead us to an E4 environmental zone; however, this would be misleading for the section of canal path as a whole and based upon the survey and professional judgement the canal path is considered as being an environmental zone E3.

Once the new development is complete it would be expected that any exterior lighting on or interior lighting from within the building would influence the values measured at location 4 (see attached data). Provided this lighting is well designed and in accordance with good practice such as is seen with the adjacent properties it will be suitable for the environmental and the canal path would still be assessed as E3.



I trust that this is satisfactory and thank you for considering WSP for this project if you have any questions regarding any of the above then please call me on 07827 306483.

Yours faithfully

Howard, Allan
(UKAPH003)

Digitally signed by Howard, Allan
(UKAPH003)
DN: cn=Howard, Allan
(UKAPH003), ou=Active,
email=Allan.Howard@wsp.com
Date: 2022.11.18 15:32:40

Allan Howard *BEng(Hons) CEng FILP FSL*
Technical Director Lighting & Energy Solutions

cc: Summary Professional qualifications, A Howard – Site Survey summary
Encl.



Allan Howard professional qualification's

Eng(Hons) CEng FILP FSLL, Group Technical Director Lighting

Allan is the Technical Director for our UK Lighting & Energy Solutions Business. With 39 years' worth of experience in lighting he provides a group level role providing clients with technical advice and support to introduce innovation, develop lighting and operational systems & policies looking to produce sustainable lighting installations as well as providing specialist training.

Through his involvement with a number of professional bodies including the Institution of Lighting Professionals (ILP) and the International Commission of Illumination (CIE) Allan leads and contributes to research and investigations aimed at developing International and National light and lighting Standards and good practice.

Allan is well placed to be aware and understand current and forthcoming developments in the lighting and environmental sectors. This enables our clients to be future ready and proactive in the development of their lighting specifications, operations and service delivery to meet these developments and changes.

Allan is a Fellow of the Institution of Lighting Professionals (ILP), a Fellow of the Society of Light & Lighting and a past President of the ILP (2011/12). Allan is an active lighting industry member chairing and contributing to specialist panels producing national guidance reports on lighting issues (obtrusive lighting, good lighting practice, application of standards to name a few), as well as being a representative on the ILP National Technical Committee.

Allan is the Executive Secretary for the National Illumination Committee (CIE-UK) part of the International Commission of Illumination and Secretary to the UK Lighting Liaison Group.

Allan is a regular speaker at lighting conferences and contributes to lighting industry technical articles and the development of national / international good practice guidance such as the visual needs of highway users at night. Lately Allan has joined the CIE Technical Committees TC-58 'Obtrusive Light from Colourful and Dynamic Lighting and its Limitation' and TC4-53 (CIE 88) tunnel lighting.

Areas of expertise

Allan has worked on a wide range of projects where the application of artificial light may be considered a cause of light pollution such as sky glow, light nuisance, light spill and so forth. This work includes on site photometry measurements, environmental lighting impact assessments, design and modelling of installations through to the provision of reports and evidence for planners and environmental teams.

Projects Allan has advised upon include road lighting, sports facilities, retail sites, residential developments, illuminated advertisement signage / displays, dark skies, transportation routes and hubs to city master plans and strategies for managing all aspects of obtrusive light.

Allan's active involvement within the lighting profession, developing UK and international guidance regarding the undertaking of lighting EIA's, lighting as a nuisance and guidance on the assessment and control of artificial light has helped develop local authority and national policies and is key to our appointment.

Examples of research and good light and lighting application include;

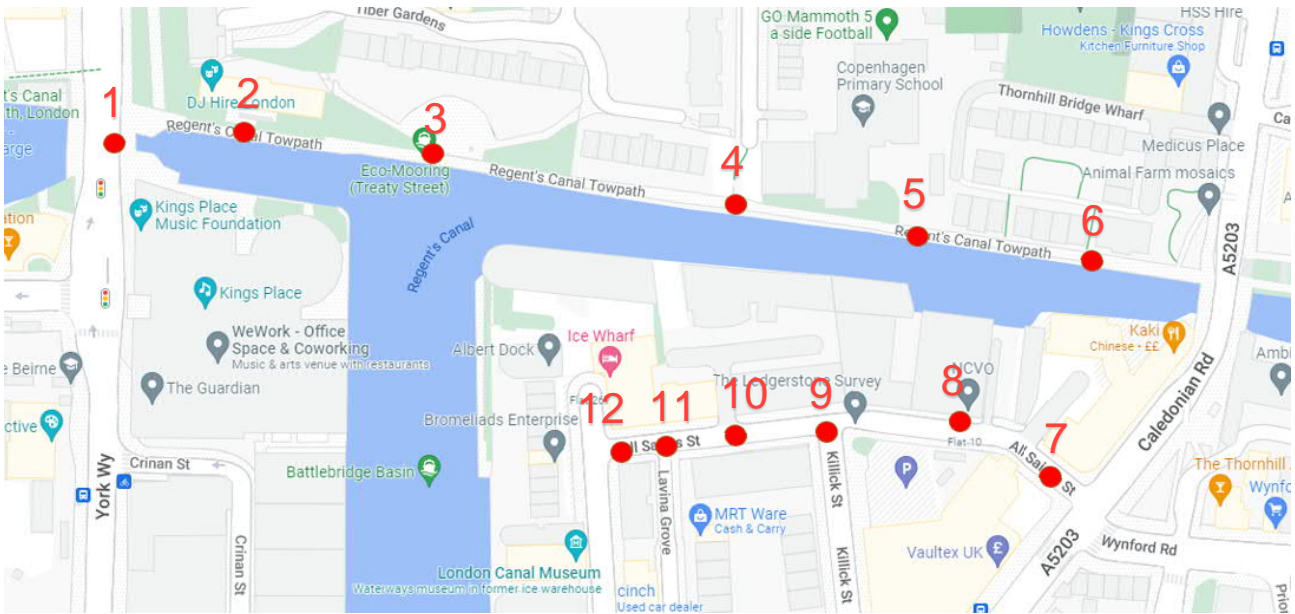
Institution of Lighting Professionals (ILP) Guidance. Allan was lead author for the revised ILP Guidance GN01 *Guidance note for the management and assessment of obtrusive light*, this is a core UK reference document for the consideration of artificial light emitted from a premise and for the ILP guidance note 9, *Domestic exterior lighting, getting it right*. Allan has also contributed to the ILP guide on undertaking artificial lighting impact assessments and guidance concerning bats and artificial light.

Professional Institution Guidance. Allan leads and contributes to the research and development of a wide range of industry professional guidance and Standards including those published by the Institution of Lighting Professionals, the International Commission of Illumination, Institution of Engineering and Technology, Chartered Institution of Building Services Engineers and Society of Light and Lighting.

Lighting Environmental Impact Assessments and Expert witness. Allan has worked with both private and public sector clients looking at all aspects of obtrusive light, light nuisance as well as undertaking lighting environmental impact assessments. Having worked for both applicants and the local authority planning departments Allan is well placed to understand all aspects of what is required when considering the use of artificial light and how this can be successfully employed, and effects mitigated to avoid disruption to human as well as fauna and flora within the areas concerned. Projects have included major retail parks, supermarkets, sports ground (stadia down to private tennis courts), gas processing plants, industrial and rails complexes

Site surveys results

Survey points





REGENTS CANAL PATH

9 November 2022 18.00 to 19.00

Location (No.)	Address	Illuminance (Lux)				Horizontal Illuminance (Lux)	Comments
		Facing North	Facing East	Facing South	Facing West		
Bridge (1)	A 5200, York Way Middle of bridge east footpath	21	2.7	8.9	12.3	15.0	General road lighting plus office lighting
Path (2)	Opposite office block	0.6	1.6	3.4	0.7	3.0	Footpath not lit The odd barge charge point with illumination, standard office lighting, festoon lighting opposite
Opp wharf area (3)	Opp wharf	0.3	0.3	2.6	1.8	1.6	Footpath fairly dark
Adjoining pathway (4)	Access to Treaty Street / Copenhagen School	16.6	15.1	1.9	14	19.5	Well-lit adjoining path leading to school, light spill onto canal path
Path (5)	Opp east end of new development	0.14	0.6	0.76	0.14	0.3	Dark path area, little opposite lighting in part due to development
O/S flats (6)	External lighting for flat entrances, standard office block lighting opposite	5.8	1.7	6.1	2.1	2.7	Bright porch / security lighting to adjacent flats, north side



ALL SAINTS STREET

9 November 2022 18.00 to 19.00

Location (SR)	Address	Illuminance (Lux)				Horizontal Illuminance (Lux)	Comments
		Facing North	Facing East	Facing South	Facing West		
j/w Caledonian Road (7)	20m into All Saints Street	4.7	4.2	8.1	6.6	6.4	High level of porch / security lighting to adjacent building
o/p L/C (8)	8 All Saints Steet	12.1	3.8	1.2	2.9	17.2	General road lighting, little building lighting
All Saints Street (9)	j/w Killick Street	6.9	2.8	8.7	6.5	9.6	Compound security lighting adjacent to junction
All Saints Street (10)	Entrance to flats All Saints	7.7	2.8	35.7	9.7	22.8	Very bright porch / security lighting to entrance of flats
All Saints Street (11)	J/W & Lavina Grove	0.6	9.3	31.1	3.7	15.1	High level facing south due to high lighting level in adjoining street
All Saints Street (12)	Mid-point New Wharf Road & Lavina Grove	1.9	7.9	2.0	2.3	10.1	General road lighting, little building lighting