

**37-41 Brighton Road, Shoreham-by-sea**

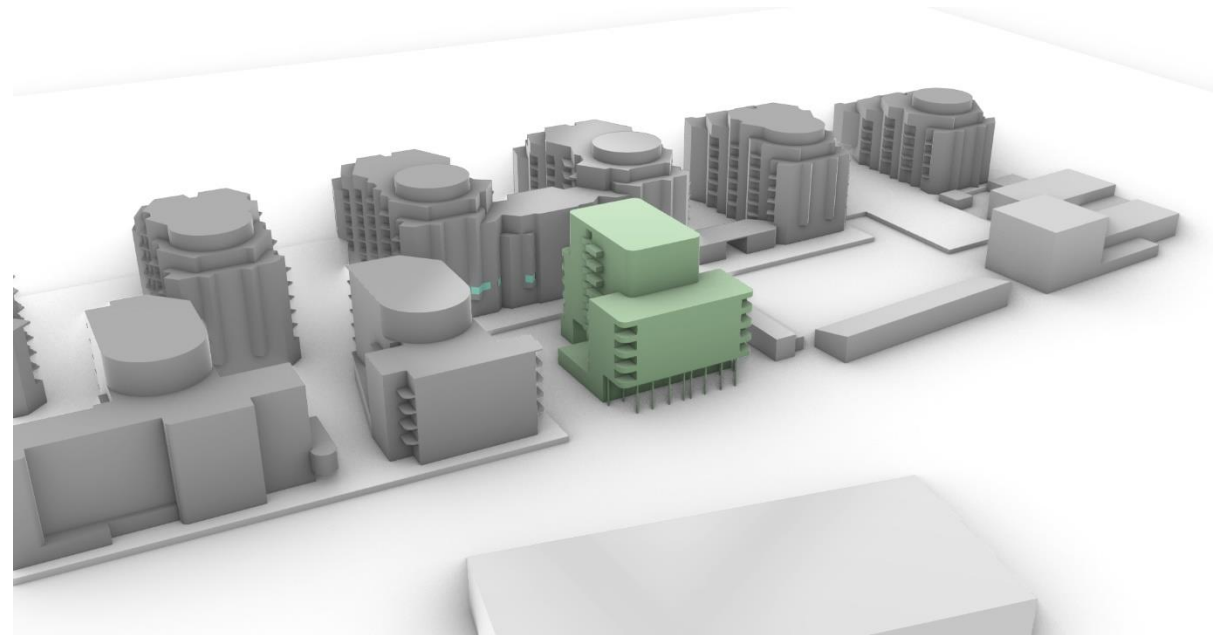
**Daylight Impact Assessment**

**November 2024**



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Remarks				
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- This report presents the results of the daylight impact assessments for the proposed redevelopment of 37-41 Brighton Road, Shoreham on the adjacent surroundings, specifically focusing on the rooms located at the first-floor level of the proposed blocks C, C1, and D of the Free Wharf development. The aim of the report is to provide a clear understanding of the daylight implications posed by the new development on these specific rooms in the adjacent properties.
- The assessment has been carried out in accordance with the Building Research Establishment (BRE) guidelines, which provide detailed methods and metrics to assess the impacts of new developments on neighbouring properties.
- The existing baseline scenario (i.e., without the proposed scheme) has been evaluated, followed by a second scenario that includes the proposed development to determine any potential loss of light to the Free Wharf scheme. The assessment focused on the front-facing rooms of the Free Wharf development, specifically bedrooms, living rooms, and kitchens, as these are considered primary living spaces. Other rooms, such as hallways or bathrooms, were not assessed in line with the BRE guidelines, as they are not considered fully occupied spaces.



## Internal daylight

- The assessment is carried out to verify the level of adherence to the recommended BRE Daylight Criteria. The methodology for assessing daylight within the Free Wharf development was based on Climate-Based Daylight Modelling (CBDM) using realistic sun and sky conditions derived from standardised climate data.
- A three-dimensional model of the building including the proposed internal layout has been developed for the purpose of the Daylight Assessment.

## Metrics

The criteria used for the assessment is the BS EN 17037-2021 guidelines and this includes the following:

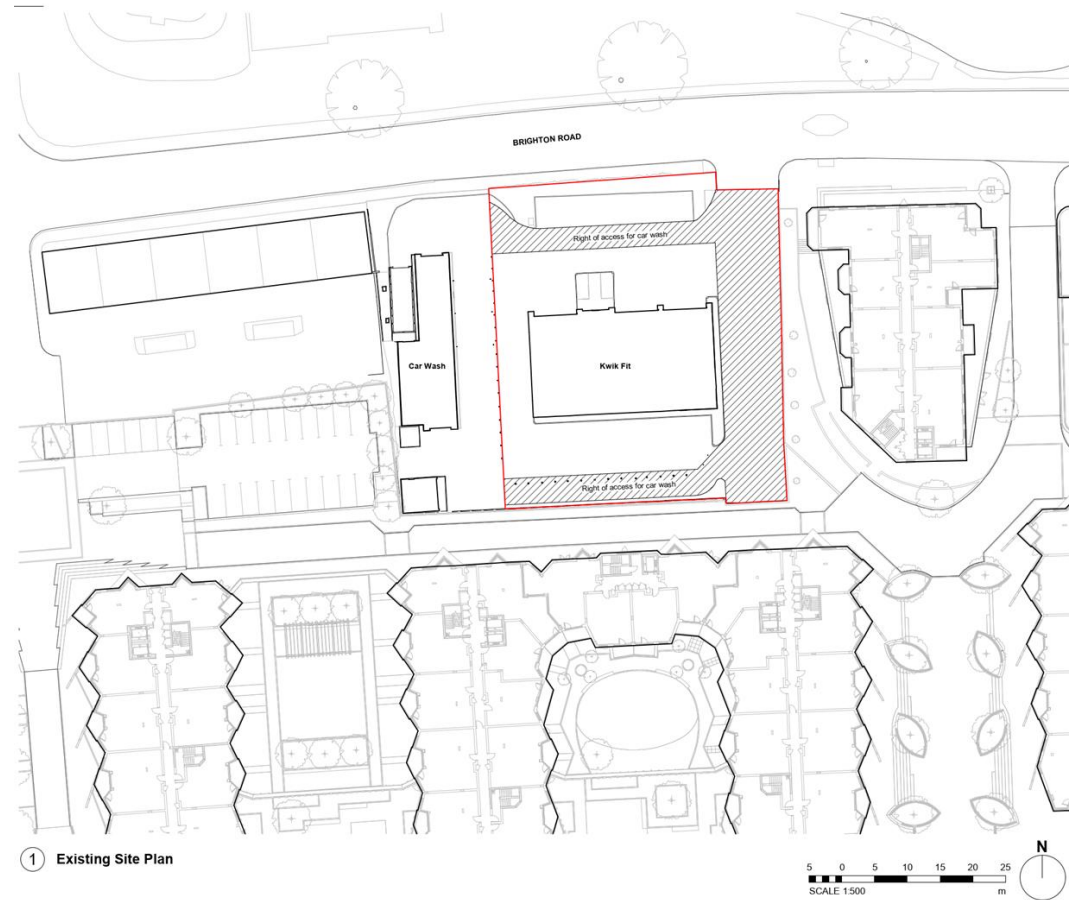
- Using the target illuminance method: The guidelines recommend that the target illuminance values given in the table below are exceeded over at least 50 % of the points on a reference plane 0.85 m above the floor, for at least half of the daylight hours.

Room type	Target illuminance $E_T$ (lx)
Bedroom	100
Living room	150
Kitchen	200

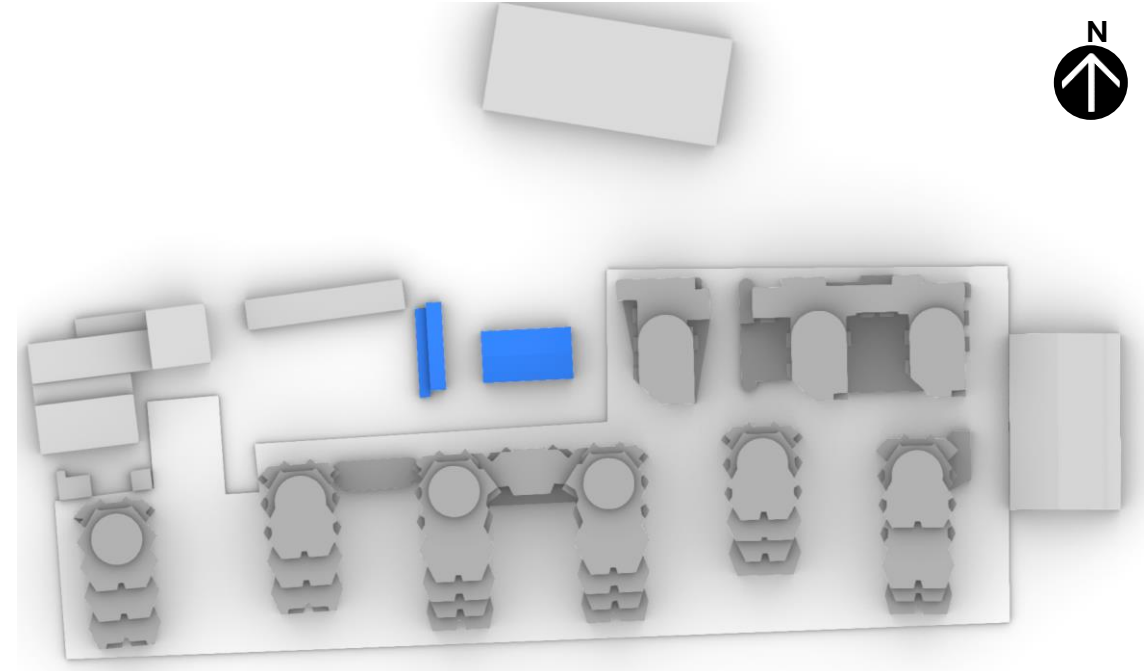
- Where one room in a UK dwelling serves more than a single purpose, the guidelines recommend that the target illuminance is that for the room type with the highest value – for example, in a space that combines a living room and a kitchen the target illuminance is recommended to be 200 lx.



## Site Plan

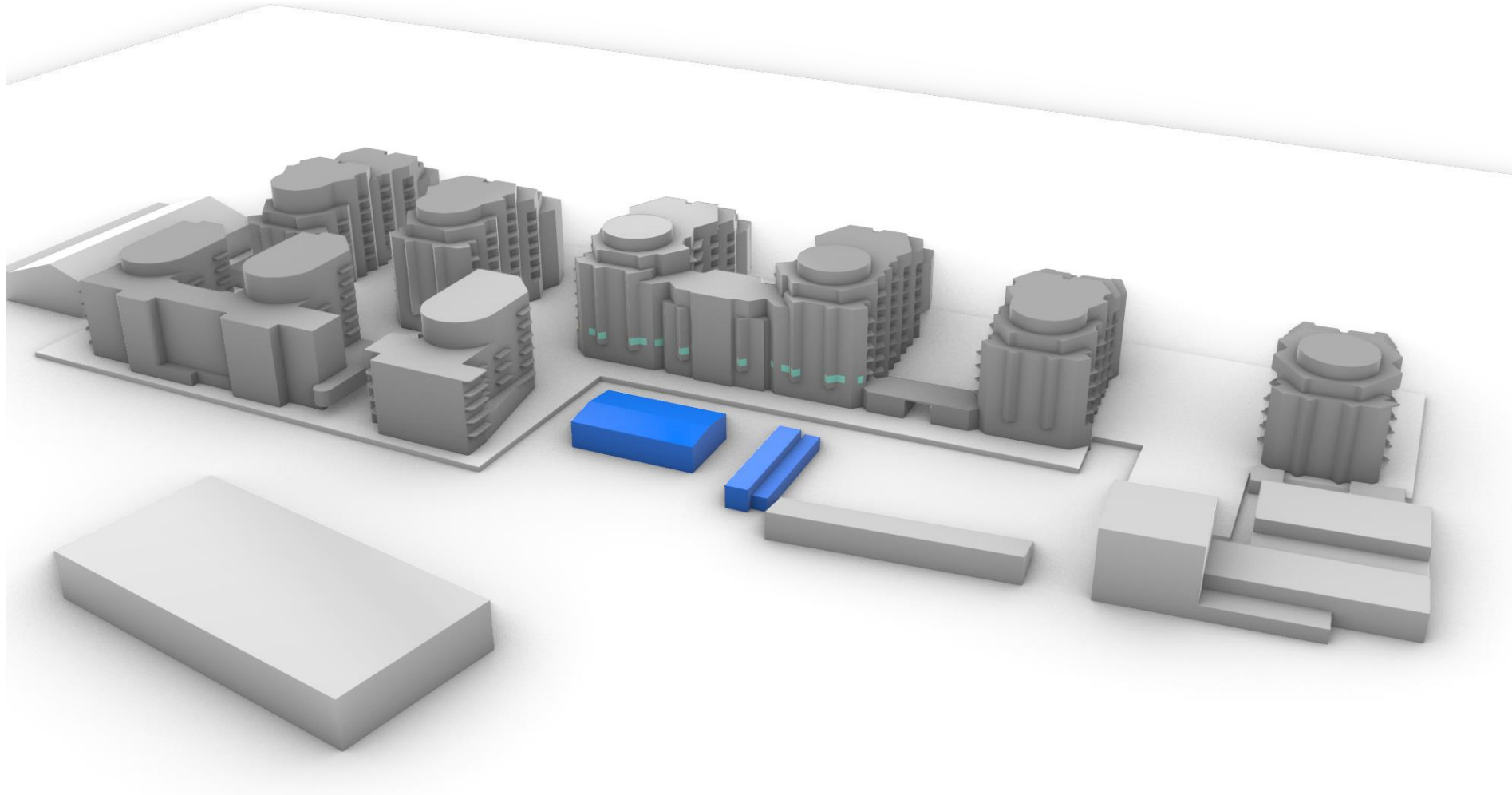


## Model Top View



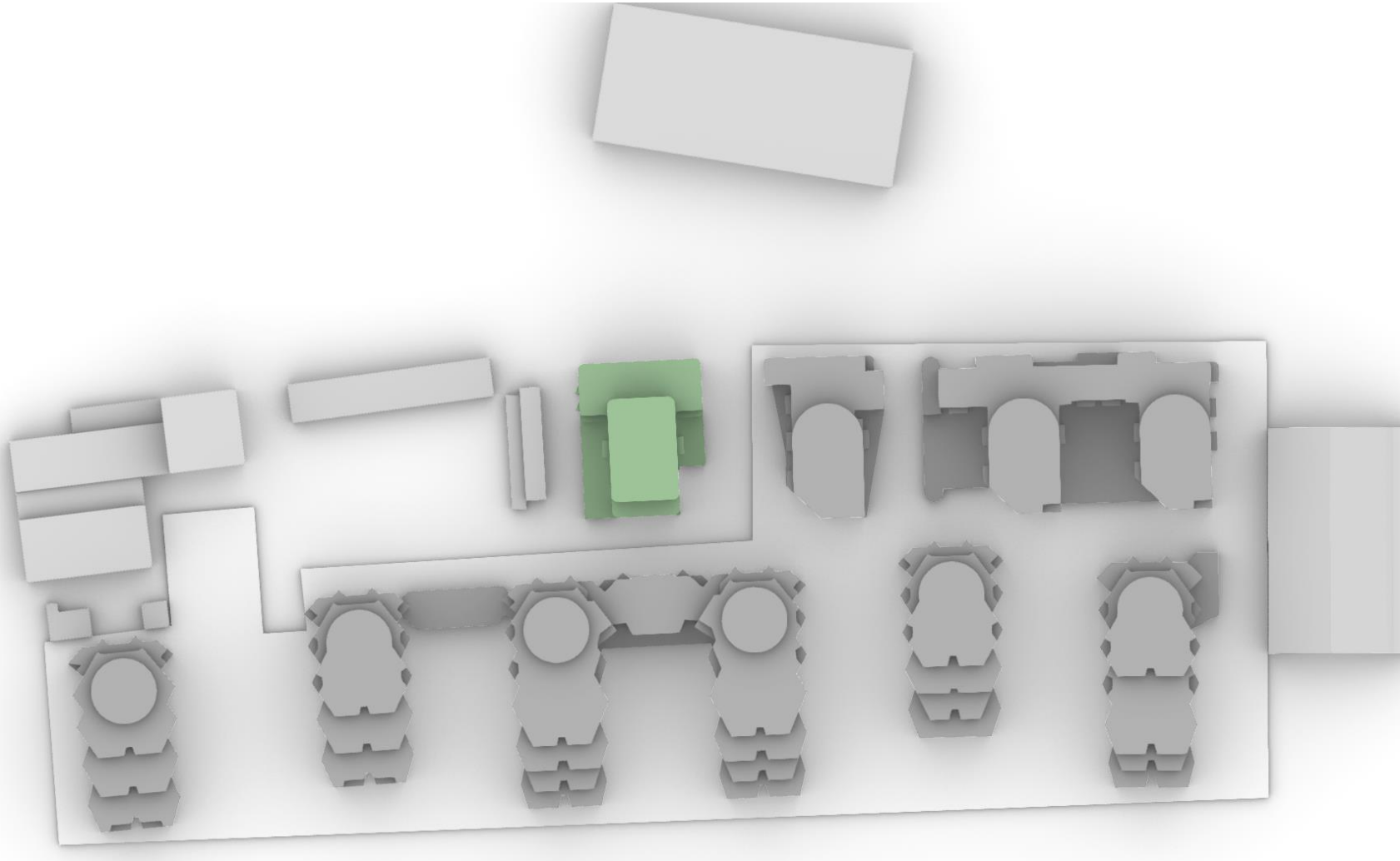
- Existing surroundings
- Free Wharf development
- Existing on site

## Model South-east Perspective



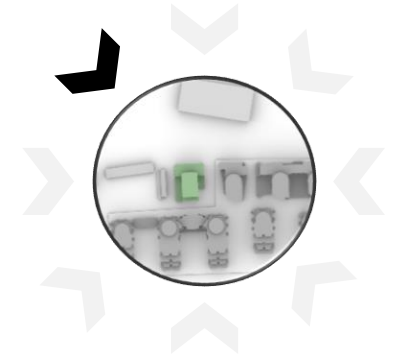
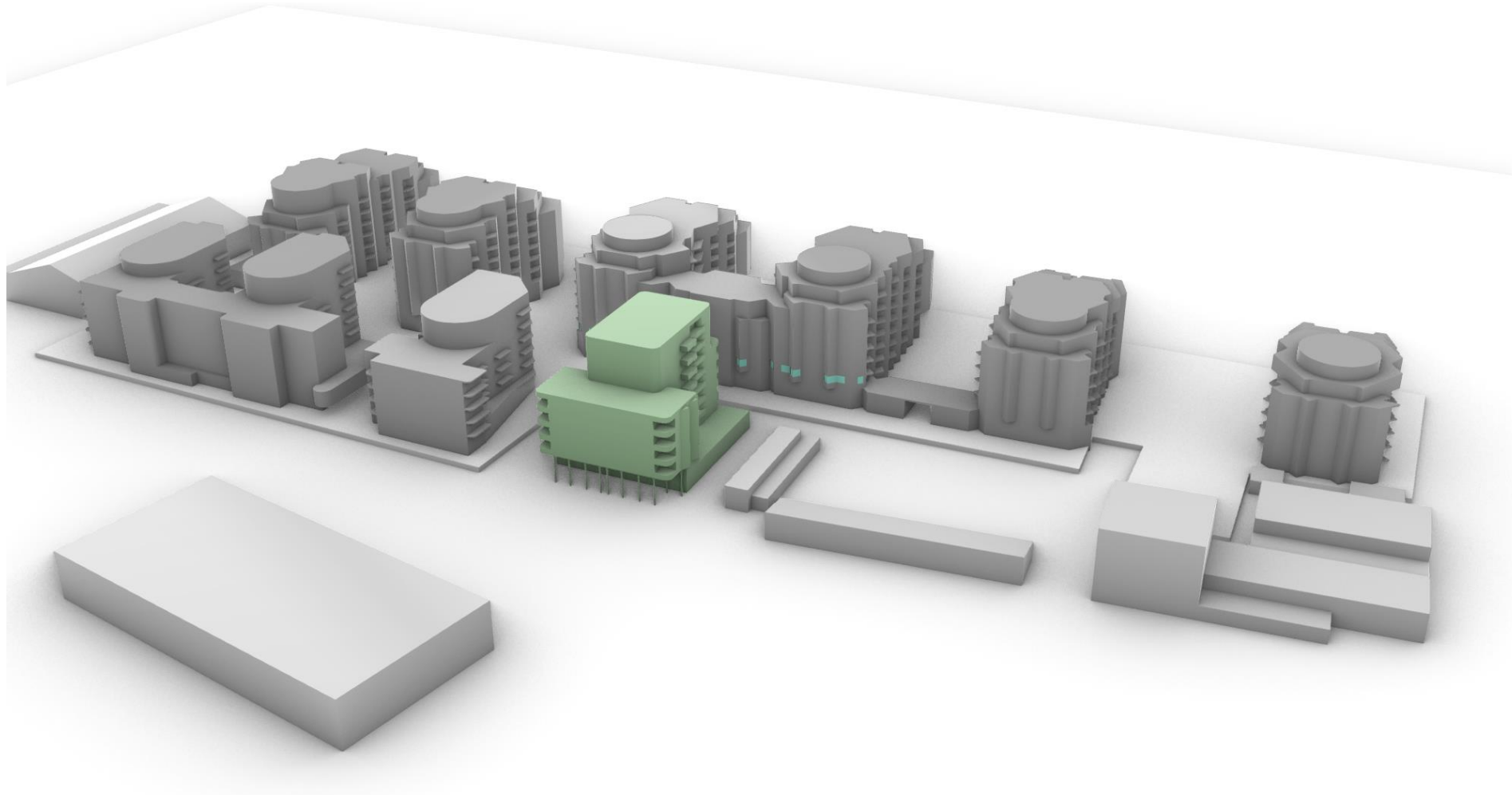
- Existing on site
- Receptor's Windows
- Free Wharf development
- Existing surroundings

## Model Top View



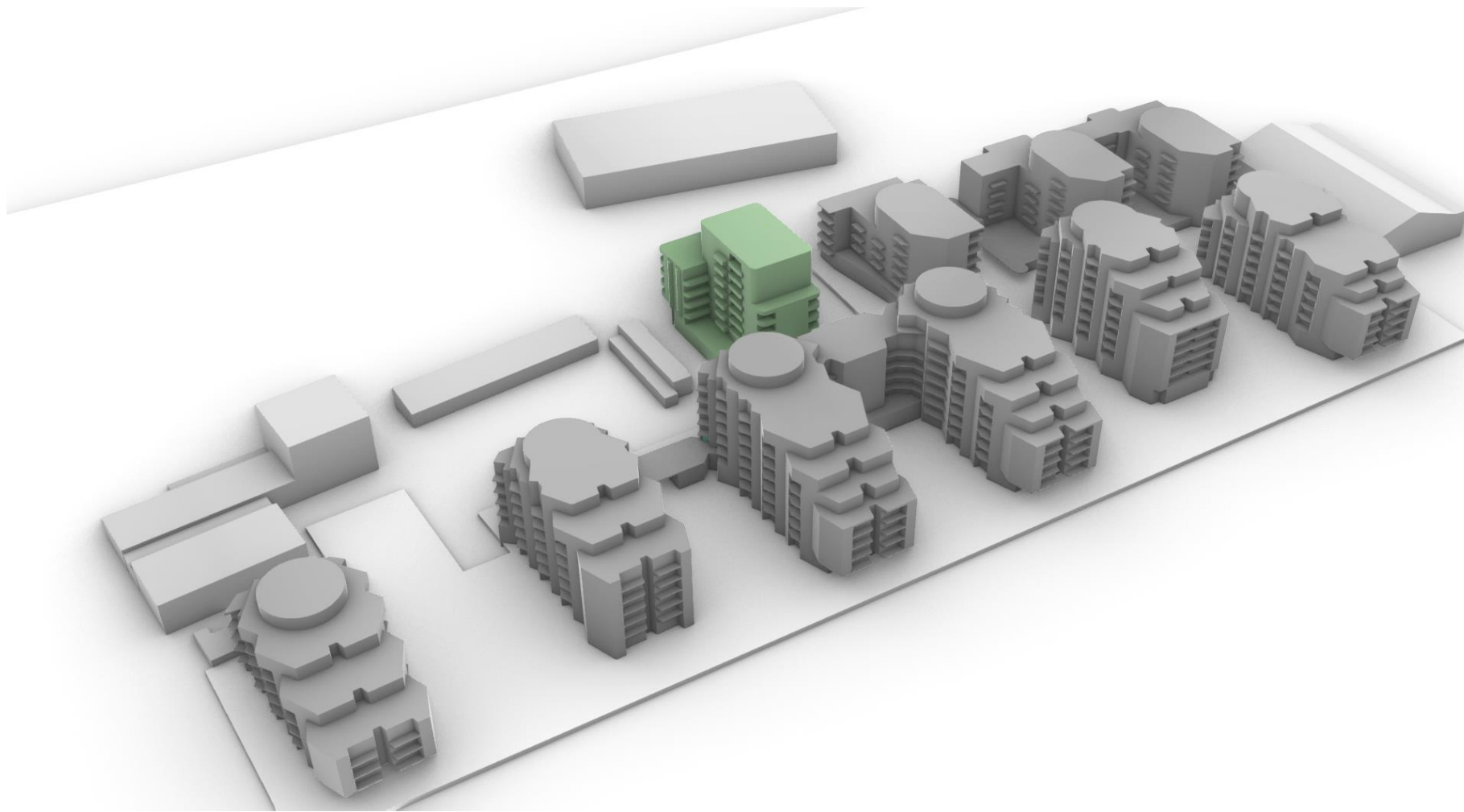
- Proposed Development
- Free Wharf development
- Existing surroundings

## Model North-West Perspective



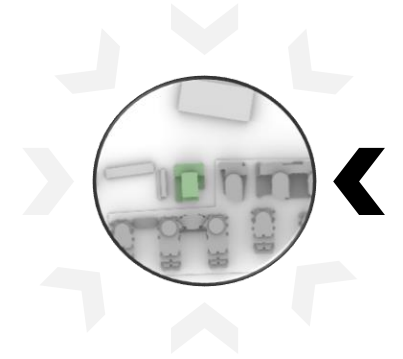
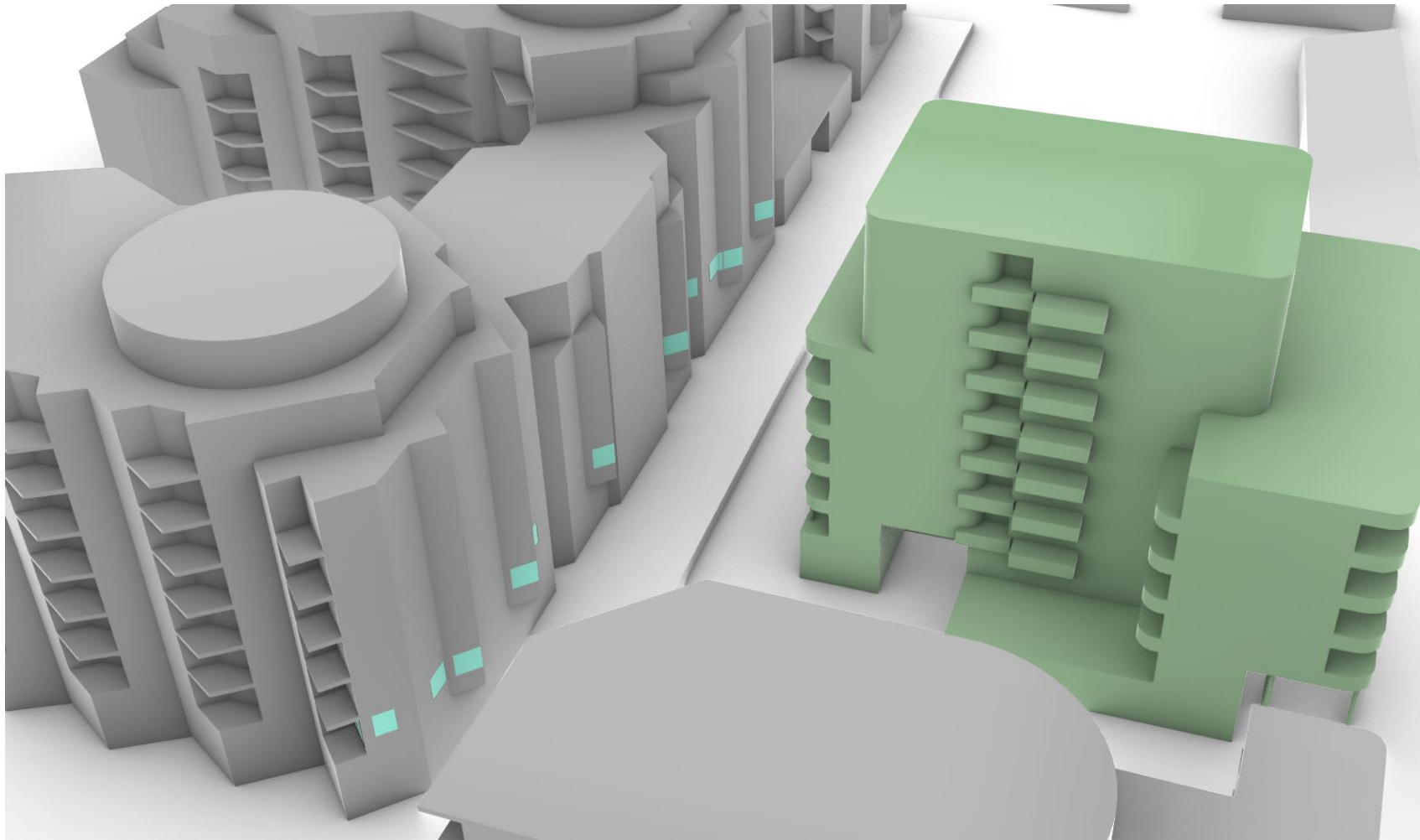
- Proposed Development
- Receptor's Windows
- Free Wharf development
- Existing surroundings

Model South-West Perspective



- Proposed Development
- Receptor's Windows
- Free Wharf development
- Existing surroundings

## Model East close-up



- Proposed Development
- Receptor's Windows
- Free Wharf development
- Existing surroundings



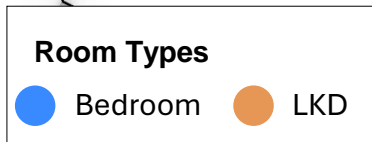
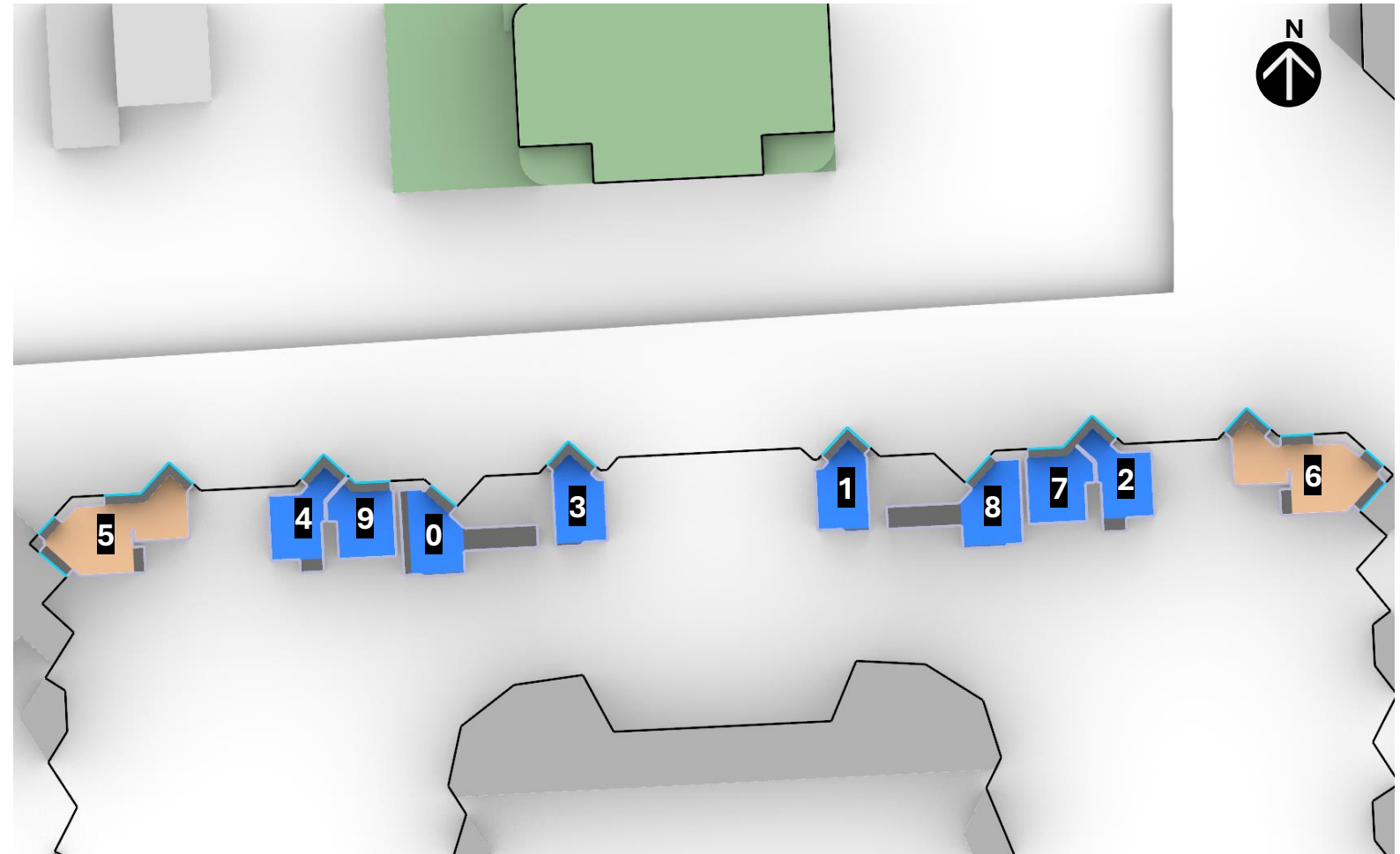
- The Free Wharf development consists of 10 blocks of which 3 of them are considered complete (i.e., G2, G1, and H).
- This assessment focuses on blocks C, C1 and D as sensitive receptors - as highlighted in yellow in the figure opposite.
- The lowest floors are considered of highest sensitivity.
- Level 00 has no dwellings overlooking the proposed development.
- Therefore, Level 01 flats were assessed. (FFL = 10.35 AOD)

## Site Plan – Free Wharf development



- The modelling of the Free Wharf development is mainly based on the latest addendum submitted in 2022, and can be found in the planning portal (Ref: AWDM/1315/22).
- The latest addendum includes amendment to the massing, which is incorporated in this assessment model.
- For internal layouts, the model was supplemented by the drawings from the original design submitted in 2017, and can be found in the planning portal (Ref: AWDM/1497/17).
- The image on the right shows the rooms assessed in this study.
- The rooms in blue indicate a bedroom, which require a target illuminance of 100lux for 50% of the time, as per the BRE and BSI criteria.
- The rooms in orange indicate a Living/Kitchen/Dining rooms, which require 200lux illuminance for 50% of the time or more, in order to meet the criteria.

## Model Top View – First Floor (FFL= 10.35 AOD)



- Based on the BSI standards, the following material reflectance values were used.

## Material Properties

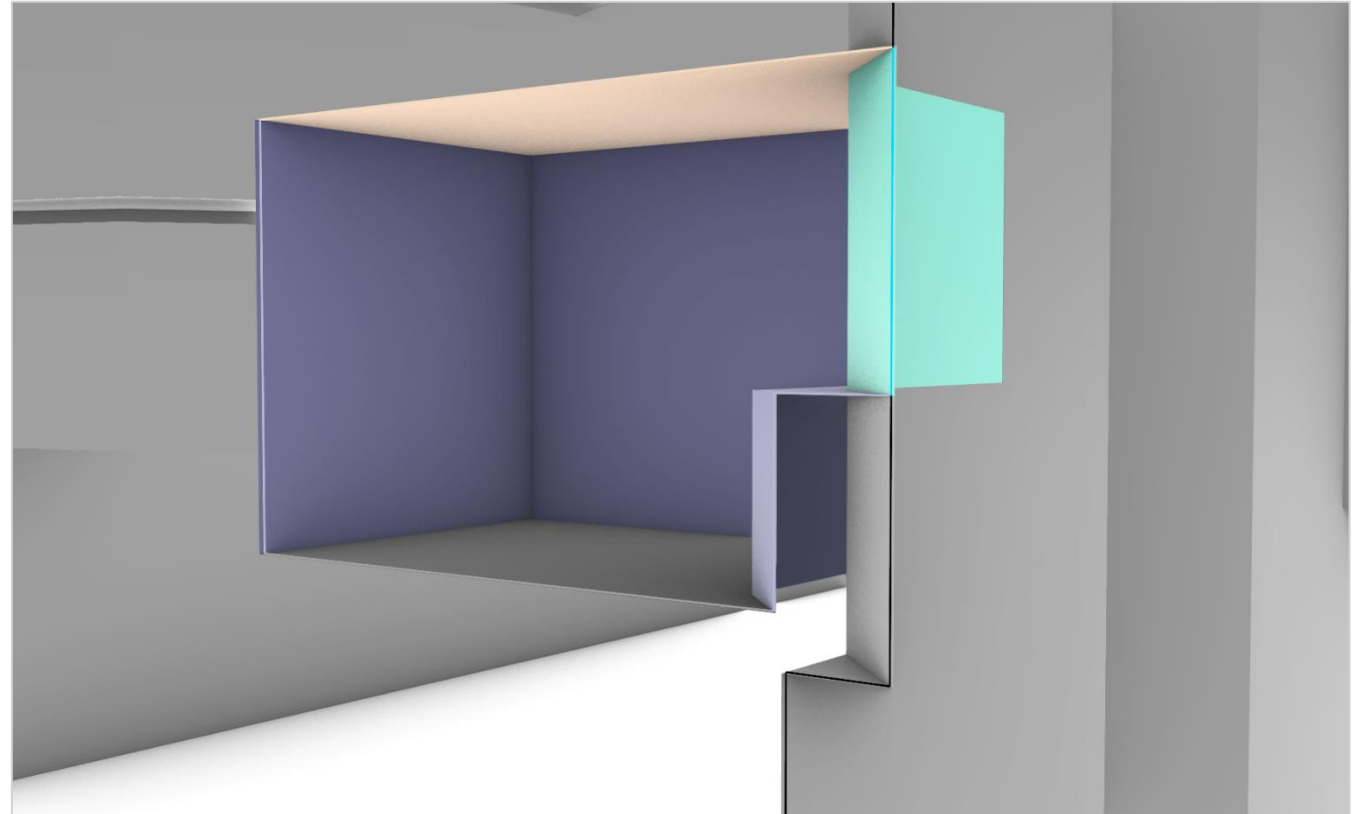
Element	Reflectance used
External walls	0.2
Internal ceilings	0.9
Internal floors	0.4
Internal walls	0.8
Surroundings	0.2

- The Visible Light Transmittance (VLT) in addition to the maintenance factor of the windows are also taken from the BSI as a typical standard glass. Windows frame factor is measured as an average based on the drawings.

## Windows / Glass Properties

Window properties	Value used
Light Transmittance	0.68
Window frame factor	0.72 / 0.64
Maintenance factor	0.92

## Illustrative section within a room





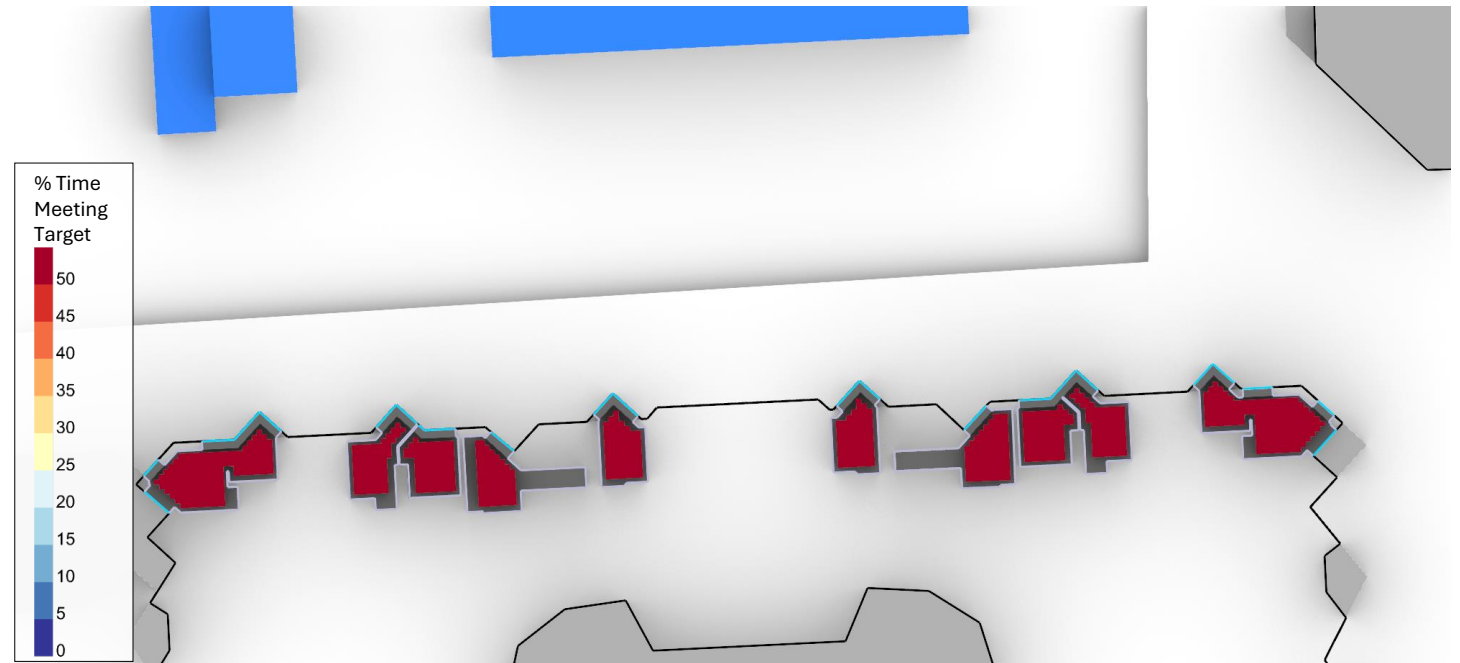
## Baseline Scenario – Results Summary

- In the Baseline Scenario, all the assessed spaces pass the BRE criteria, making the pass rate 100%.

### Baseline Scenario – Daylight Summary for all Assessed Rooms

FLOOR	ROOM	FUNCTION	Target illuminance (lux)	% AREA COMPLIANT	TARGET COMPLIANCE
1	0	Bedroom	100 lux	100	Above
1	1	Bedroom	100 lux	100	Above
1	2	Bedroom	100 lux	100	Above
1	3	Bedroom	100 lux	100	Above
1	4	Bedroom	100 lux	100	Above
1	5	Kitchen / LK	200 lux	100	Above
1	6	Kitchen / LK	200 lux	100	Above
1	7	Bedroom	100 lux	100	Above
1	8	Bedroom	100 lux	100	Above
1	9	Bedroom	100 lux	100	Above

### Model Top View – First Floor



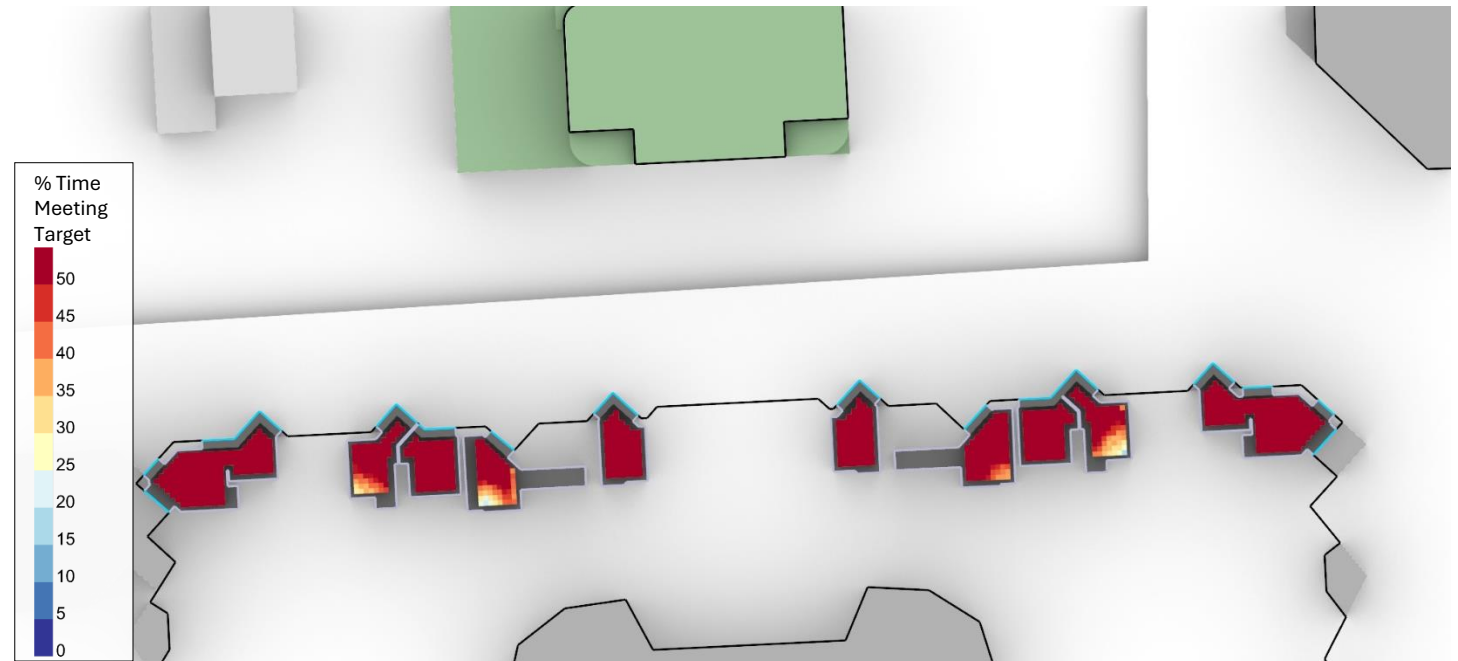
## Proposed Scenario – Results Summary

- With the introduction of the proposed development, the daylight levels in some assessed rooms decrease, however, all the identified spaces remain within the BRE daylight criteria targets, and the pass rate therefore remain 100%.
- The impact on the assessed spaces is considered negligible, and no mitigation is required.

## Proposed Scenario – Daylight Summary for all Assessed Rooms

FLOOR	ROOM	FUNCTION	Target illuminance (lux)	% AREA COMPLIANT	TARGET COMPLIANCE
1	0	Bedroom	100 lux	58	Above
1	1	Bedroom	100 lux	100	Above
1	2	Bedroom	100 lux	55	Above
1	3	Bedroom	100 lux	100	Above
1	4	Bedroom	100 lux	66	Above
1	5	Kitchen / LK	200 lux	100	Above
1	6	Kitchen / LK	200 lux	100	Above
1	7	Bedroom	100 lux	100	Above
1	8	Bedroom	100 lux	84	Above
1	9	Bedroom	100 lux	100	Above

## Model Top View – First Floor



## Summary and Discussion

- The Assessment considered the daylight impact of the proposed redevelopment of the 37-41 Brighton Road site has on the 1<sup>st</sup> floor flats located in Blocks C, C1, and D of the Free Wharf development.
- An internal daylight illuminance study was undertaken for all the bedrooms and Living, Kitchen and Dining Room (LKD) spaces in the identified zone which are located on the 1<sup>st</sup> floor and have a view to the proposed development.
- Internal layouts of the Free Wharf development were modelled, and standard material properties were assumed to the finishes using the BSI and BRE Guide.
- The results showed that all the bedrooms and LKD rooms meet the criteria in the Baseline Scenario (the existing condition).
- The results showed that, despite the reduction in the daylight levels when the proposed development is introduced, the levels would remain within the targets.

## Conclusion

- The results of the study indicated that based on the criteria and assumptions adopted, the proposed development of the 37-41 Brighton Road site has a negligible impact on the assessed spaces located within the Free Wharf development, and therefore, the daylight levels would remain within acceptable levels within the areas assessed.



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