



Overshadowing Assessments

Regent's Wharf

Project No: 9771

15 August 2017



Client	Grafton Advisors
Architect	Hawkins Brown
Project Title	Regent's Wharf
Project Number	9771
Report Title	Overshadowing Assessments
Dated	15 August 2017

Prepared by	MV
Checked by	ML
Type	Issue

Revisions		Date:	Notes:	Signed:
	A	09/08/17	Sun Hours on Ground added	ML
	B	11/08/17	Comments from Grafton Advisors	ML
	C	15/08/17	Comments from Grafton Advisors	ML



1. INTRODUCTION AND OBJECTIVE

The purpose of this report is to comment upon how the Proposed Development at Regent's Wharf may overshadow the Regent's Canal and neighbouring properties.

GIA were specifically instructed to:

- Create a 3D model of the context and existing building from measured survey, photogrammetry, ordnance survey and site photographs;
- Prepare the architect's model of the proposed scheme for overshadowing assessment;
- Undertake a Transient Overshadowing Assessment of both the existing scenario and the Proposed Development;
- Prepare a report setting out the analysis and our conclusions.



2. METHODOLOGY

Transient Overshadowing

In order to ascertain the additional overshadowing impact that the Proposed Development would have on the Regent’s Canal and neighbouring properties, the hourly shadows were mapped for the following three key dates in the year:

- 21st March (Spring Equinox);
- 21st June (Summer Solstice); and
- 21st December (Winter Solstice).

The above dates were selected so as to present the best, worst and mid-case scenarios. On 21st March, the sun is in the same position as on 21st September and therefore the results presented within this report are valid for both equinoxes. On 21st June, the sun is at its highest and the shadows cast are shortest, therefore this date represents a best-case scenario in terms of overshadowing. On 21st December, the sun is at its lowest point causing long shadows to be cast and represents the worst-case scenario in terms of overshadowing.

For each of these dates, specialist simulation software is used to produce images showing the shadows cast at hourly intervals throughout the day from sunrise to sunset.

Two images are produced for each time and presented one above the other. The top image shows the existing condition in green and the bottom the proposed in blue. Shadows from neighbouring buildings are coloured grey but should shadow be cast only by the proposed or existing buildings, these are coloured in green or blue to ease identification.

In order to produce the above images, it was necessary to create an accurate 3D model of the existing building, proposed scheme and surrounding buildings. The surrounding and existing buildings were modelled from photogrammetry, ordinance survey, measured survey and site photographs, allowing for a precise model which in turn ensures that the analysis accurately represents the overshadowing conditions within the assessed area. The proposed building was supplied by the architect.

The analyses presented in this report have focussed on the Regent’s Canal and neighbouring properties. Whilst the context model created for the purpose of the assessment covers the immediate surrounding area only, an OS map has been plotted on the terrain in order to ease the identification of surrounding buildings and external amenity areas. The shadows extending beyond the boundaries of the 3D model are cast on a flat terrain and do not take into account the built environment.

Sun Hours on Ground

The 3D model used for the Transient Overshadowing assessment has also been utilised to undertake Sun Hours on Ground assessments for the gardens at 67-77 Treaty Street. These are aimed to calculate the percentage of each area which receives at

least two hours of direct sunlight on 21st March, to ascertain whether this is in line with BRE’s minimum recommendation of 50%. Should this threshold not be met, the loss between the existing and proposed scenarios is also quantified.

The results are presented in false-coloured diagrams where the area receiving two or more hours of sunlight is shown in yellow and the area receiving less sunlight is shown in blue.

In order to provide a better understanding of the amount of sunlight available throughout the year, Sun Exposure assessments have also been carried out for the equinoxes and summer solstice. The results are presented in a falsecolour scale where yellow corresponds to at least 50% of the sunlight hours available on the day.

3. DISCUSSION OF ANALYSIS

Transient Overshadowing

21st March (Equinox)

The shadows cast by the Proposed Development onto the canal are unchanged from the existing scenario as the footprint of the existing and proposed buildings are very similar.

Due to the marginal increased height of the proposed massing compared to the existing building on site, the shadows on the northern shore extend slightly further.

Marginal additional shadows are cast by the Proposed Development onto Ice Wharf gardens only before 9 am. At this time, the gardens are unlikely to be utilised and the majority of their area is overshadowed by the existing urban grain. Owing to the limited amount of time and small area over which the additional overshadowing occurs, this is not deemed material. Therefore, the enjoyment of sunlight within Ice Wharf gardens is not considered to be affected by the Proposed Development.

Slightly longer shadows are cast on the amenity area to the south of Copenhagen Primary School from 1 pm to 4 pm, however these will affect just the southern portion of the area. Whilst trees are not typically included within Transient Overshadowing assessments, even in the existing scenario this portion of the amenity space is likely to be overshadowed by the trees to the south. Therefore, the additional shadow cast by the Proposed Development would in fact be less than what is illustrated within this report. Furthermore, in order to achieve compliance with BRE’s recommendation for overshadowing, at least half of the playground should receive two or more hours of direct sunlight on 21st March with the Proposed Development in place. In this instance, undertaking detailed Sun Hours on Ground assessments has not been deemed necessary to ascertain compliance with this criterion, as the results can be extrapolated from the Transient Overshadowing assessments. As can be seen in the images for 21st March, all the playground area will receive more than two hours of sunlight, with the southern portion of the playground receiving sunlight from 8 am to 11 am and the northern portion at different times between 9 am and 3 pm.

The shadows cast by the Proposed Development on 21st March do not reach Battlebridge Basin and therefore this space will not be impacted by the proposal on this date.

The southern façade and gardens of 67-77 Treaty Street will be overshadowed by the massing of the Proposed Development from 10 am to 12 pm whilst in the later hours they are overshadowed in the existing scenario.

21st June (Summer solstice)

The Proposed Development will start casting shadows on the canal at 10 am, however due to the height of the sun in the sky the shadows will be short and the difference between the existing and proposed scenarios will be hardly noticeable.

Before 8 am, the Proposed Development will cast marginal additional shadows onto Battlebridge Basin. Owing to the small size of such shadows and their occurrence only in the very early morning, the overshadowing impact onto the basin is not considered material.

Ice Wharf gardens are in shadow before 8 am both in the existing and in the proposed scenarios. Between 8 am and 10 am, the Proposed Development will cast a slightly increased shadow, however by 11 am this will have moved away from the gardens. As explained for 21st March, with the additional overshadowing covering a very small area and occurring only in the early morning, when the gardens are unlikely to be utilised, the enjoyment of sunlight within the gardens is not considered to be materially affected by the Proposed Development.

With the Proposed Development in place, the shadows will never reach the northern shore. Therefore, 67-77 Treaty Street will not be affected by the proposed massing on the summer solstice.

21st December (Winter solstice)

The shadows cast by the Proposed Development on 21st December do not reach Battlebridge Basin nor Ice Wharf Gardens and therefore the proposal would not cause any overshadowing impact on these spaces.

Owing to the low sun producing long shadows, the area to the north of the site is in permanent shadow in the existing scenario and therefore no additional shadow will be cast by the Proposed Development.

Sun Hours on Ground

Sun Hours on Ground assessments are not considered to be required for Copenhagen Primary School, Ice Wharf Gardens and Battlebridge Basin as the results can be extrapolated from the Transient Overshadowing assessments discussed in the previous section of this report.

In order to quantify the additional overshadowing caused by the Proposed Development onto the two private gardens of 67-77 Treaty Street, Sun Hours on Ground and



Sun Exposure Assessments have been undertaken.

The results show that 95.1% of the garden to the west (labelled as no. 1 in this report) receives at least two hours of direct sunlight in the existing condition. This percentage is reduced to 60.9% with the Proposed Development in place and the assessment of sun exposure on the equinox shows that the number of hours when sunlight will reach the majority of the garden will be reduced from more than six to around three. Even with the Proposed Development in place however, BRE's recommendation of 50% of the area receiving two or more hours of direct sunlight is still exceeded and therefore this garden is considered to offer adequate sunlight levels.

The totality of the garden to the east (labelled as no. 2 in this report) receives two or more hours of direct sunlight on 21st March. The impact of the Proposed Development on the sunlight availability to this garden is minimal, with a percentage of 94.9% in the proposed scenario.

The assessments of sun exposure on 21st June demonstrate that in the summer, when the sun is higher in the sky, the Proposed Development will not affect the sunlight availability to the gardens.

4. CONCLUSIONS

As the Proposed Development sits within the same footprint as the existing building on site but is slightly taller, any additional shadows cast in the proposed scenario will be most noticeable in mid-season.

In winter, when the shadows are longest, most of the surrounding area (including all of the canal) is in permanent shadow in the current situation.

During the summer, when the sun is highest in the sky, the shadows are short and will only reach the southern half of the canal. The area in shadow with the Proposed Development in place is only marginally greater than in the existing situation.

On the equinoxes, most of the canal is overshadowed in the existing scenario. The shadows cast by the Proposed Development will extend marginally further north than in the existing scenario, covering an increased area of the gardens and southern façade of 67-77 Treaty Street. Both gardens, however, will still exceed BRE's recommendation for overshadowing and are therefore considered to offer adequate sunlight availability with the Proposed Development in place.

Overall therefore, when compared to the existing building on site, the Proposed Development will cast additional shadows for a limited amount of time throughout the year and occupants will still be able to enjoy sunlight levels in excess of recommendation.



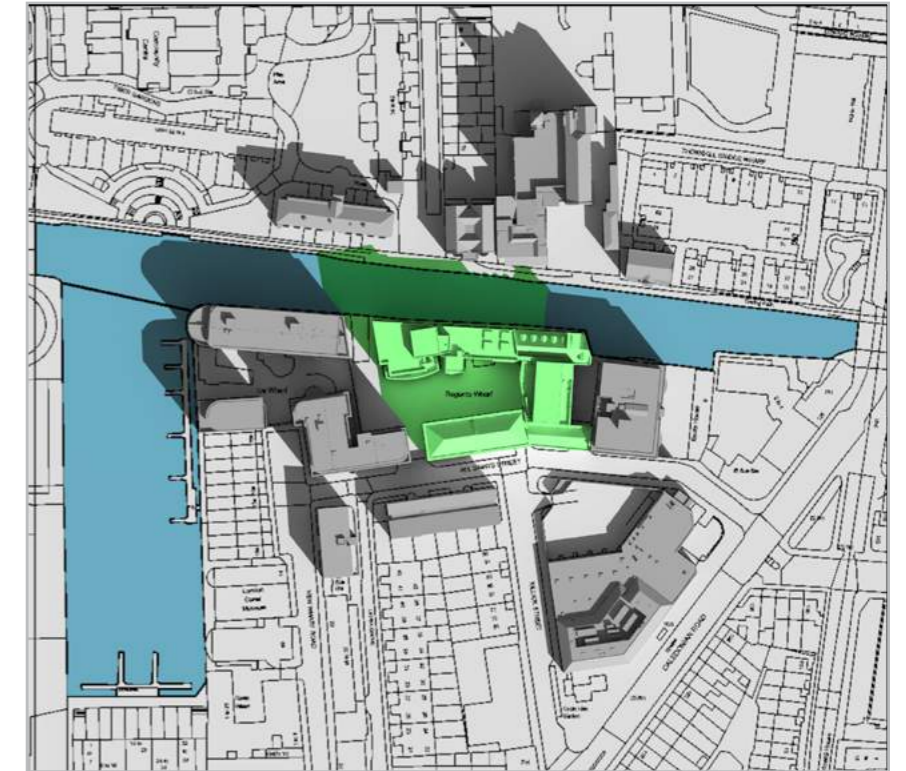
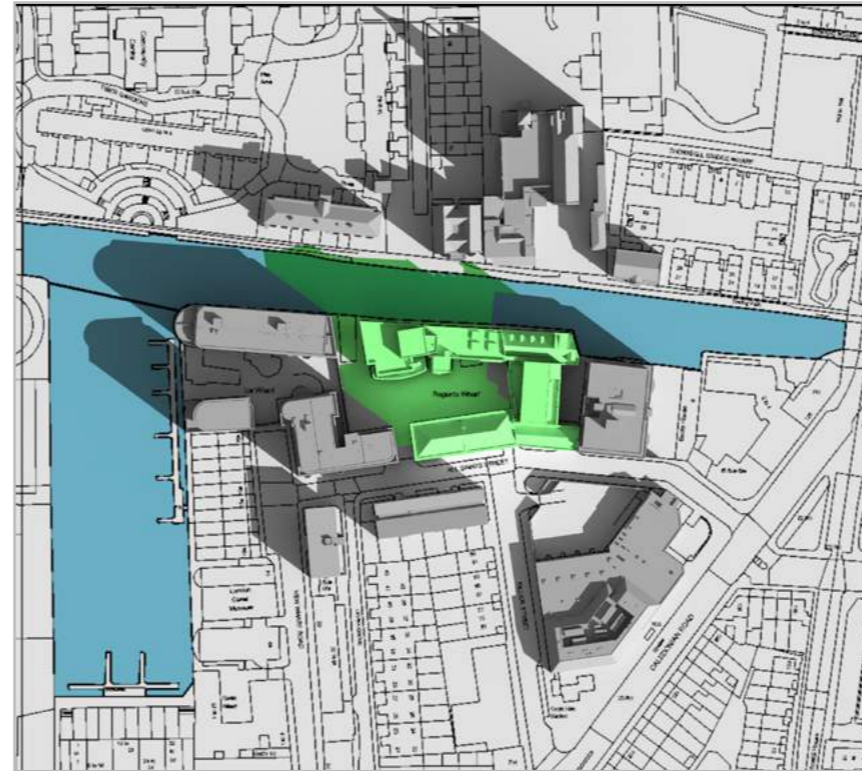
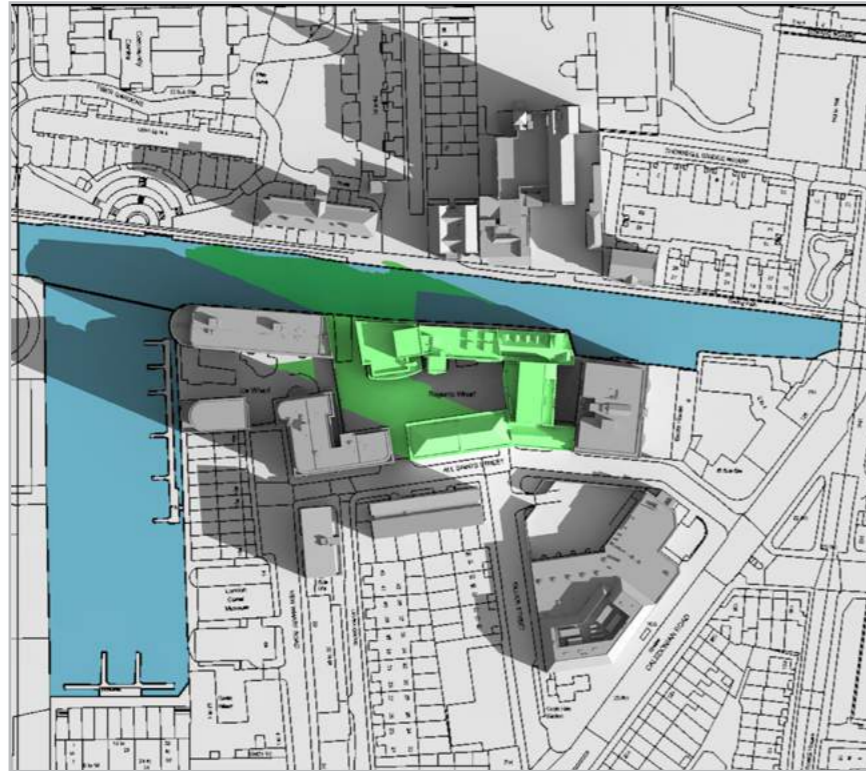
Transient Overshadowing

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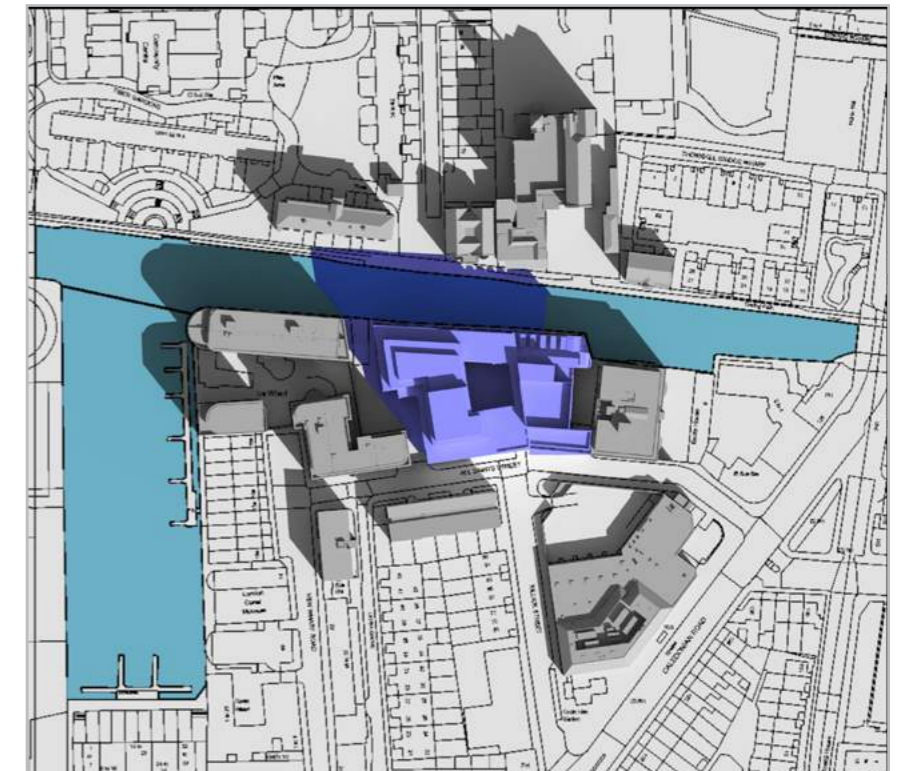
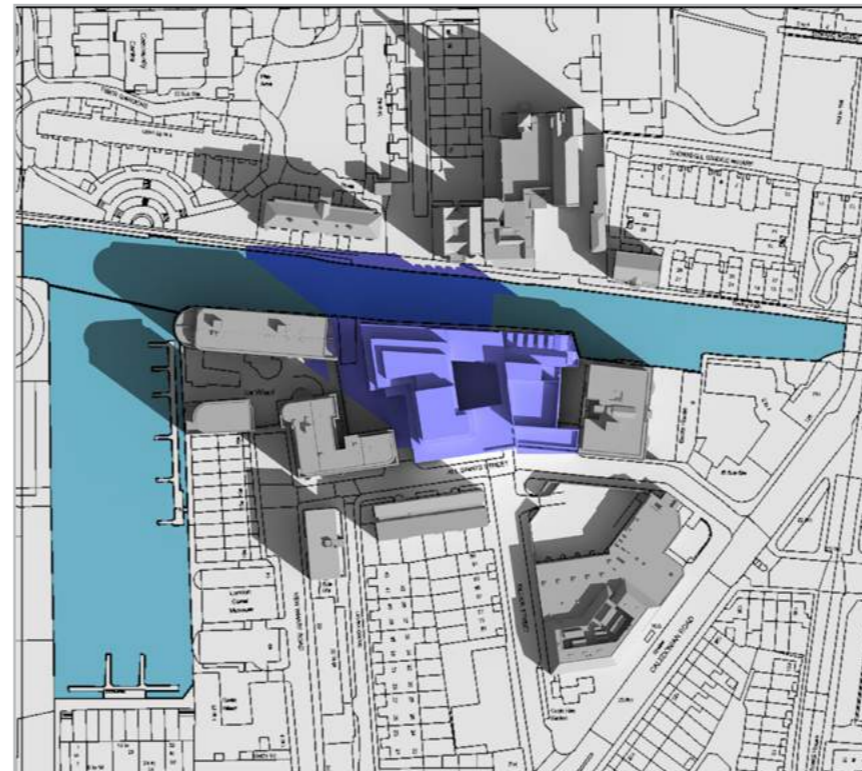
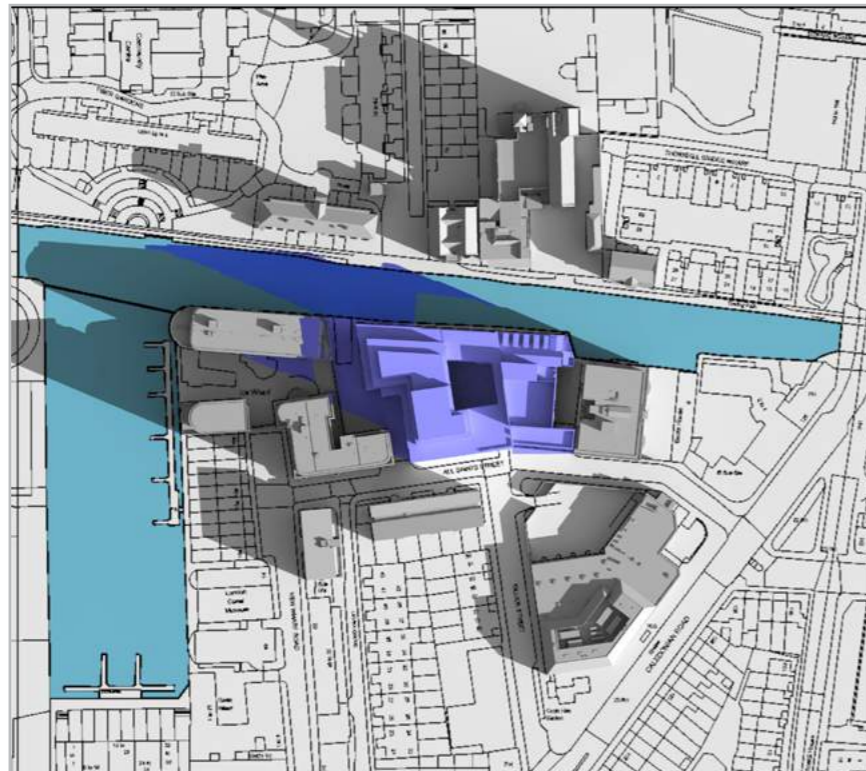
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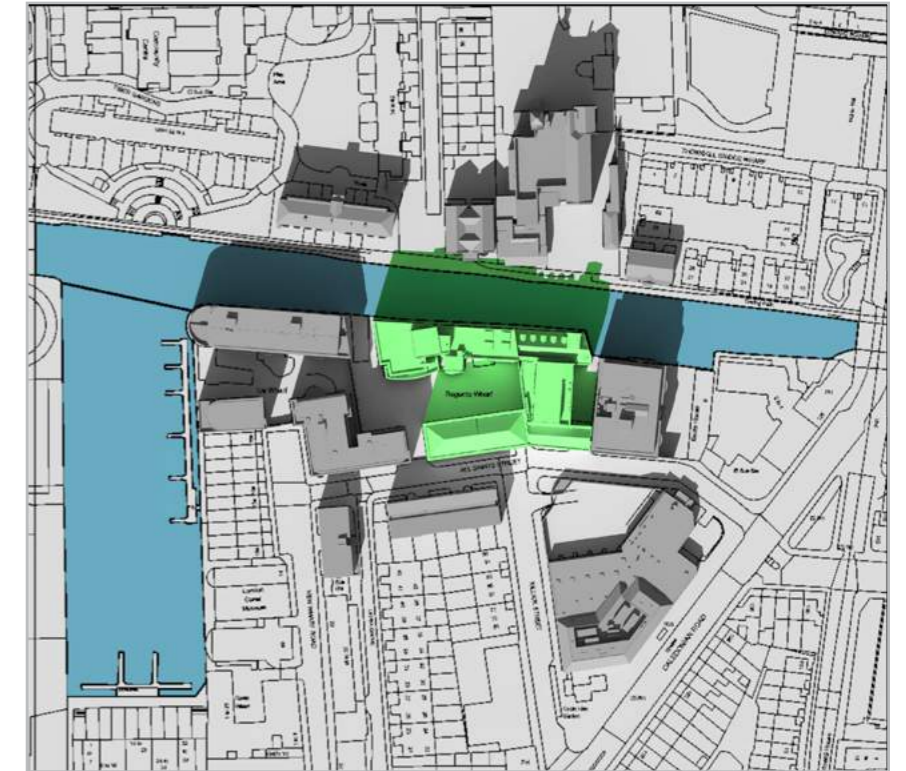


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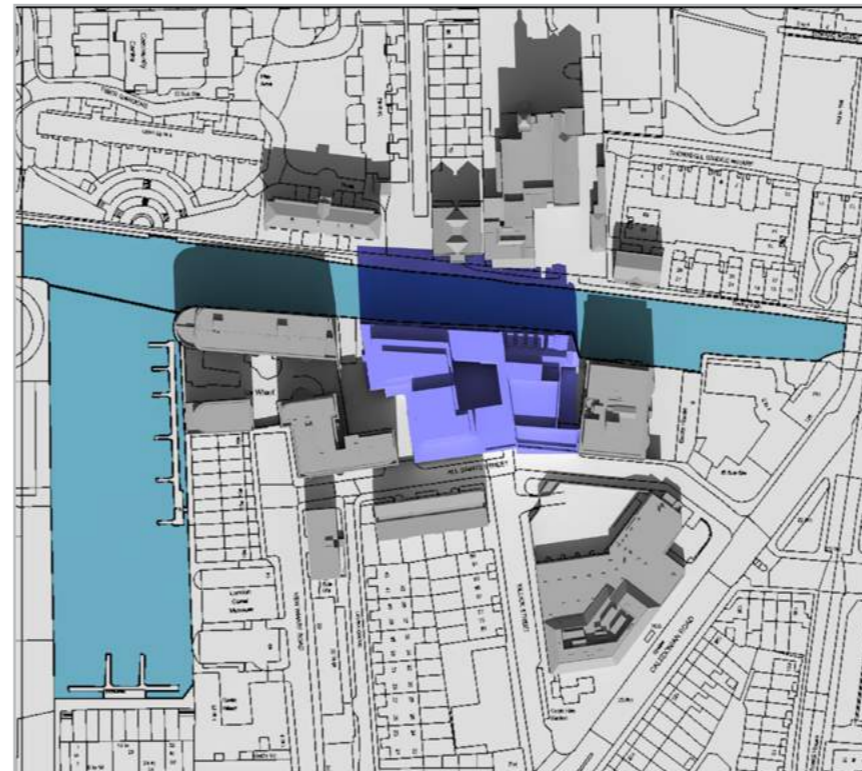
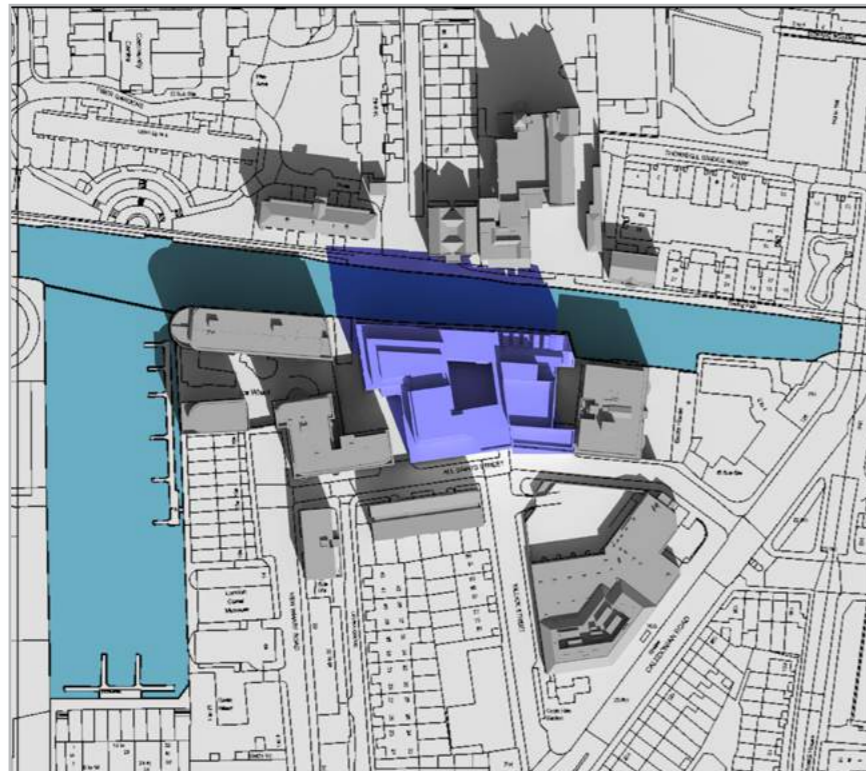
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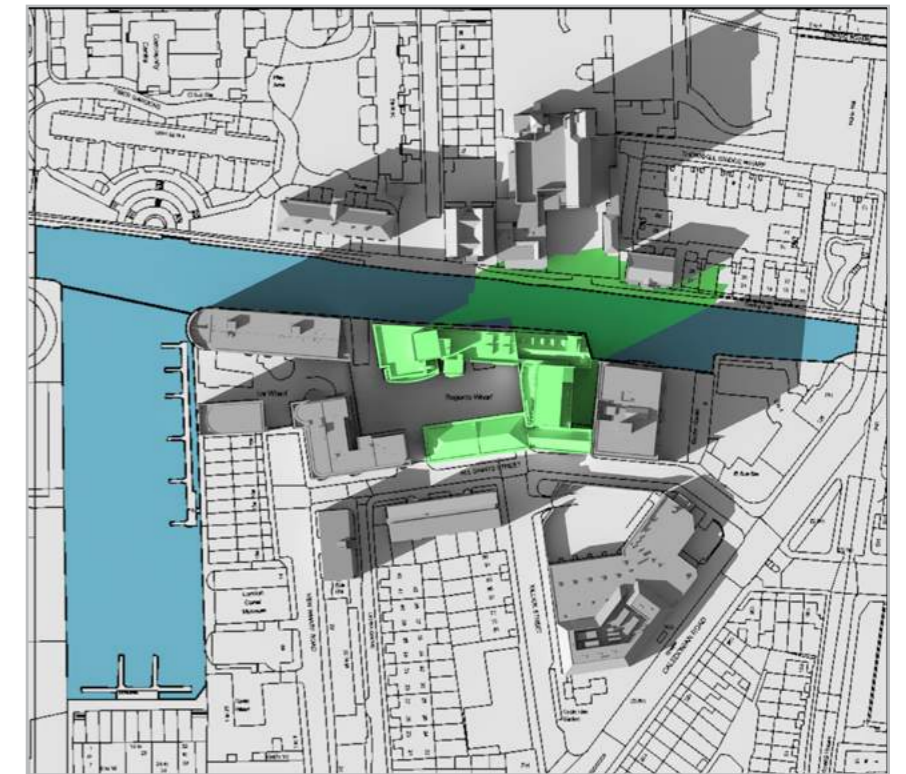
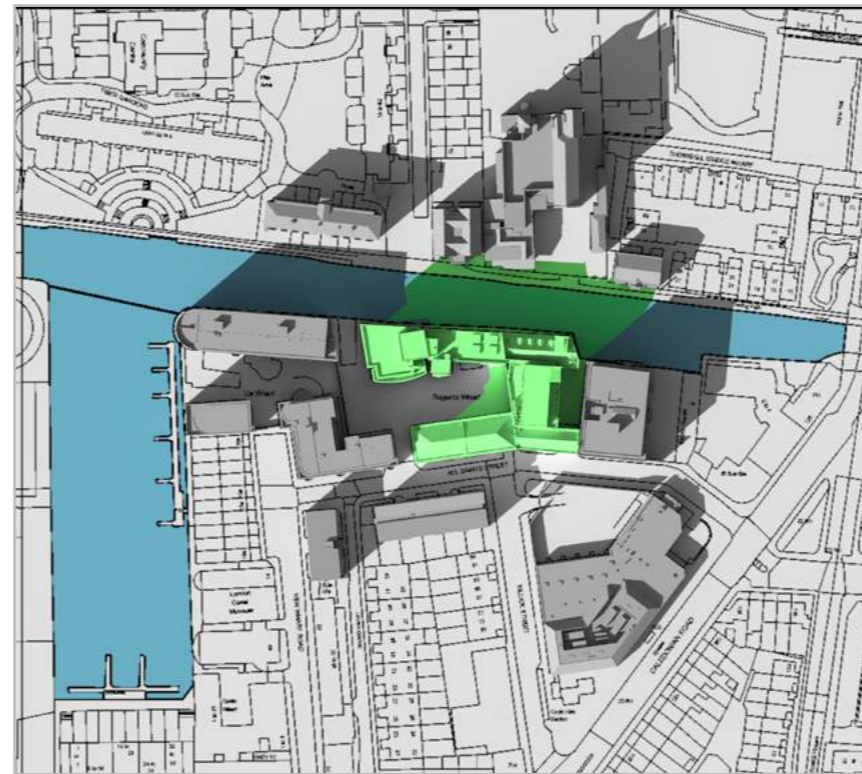


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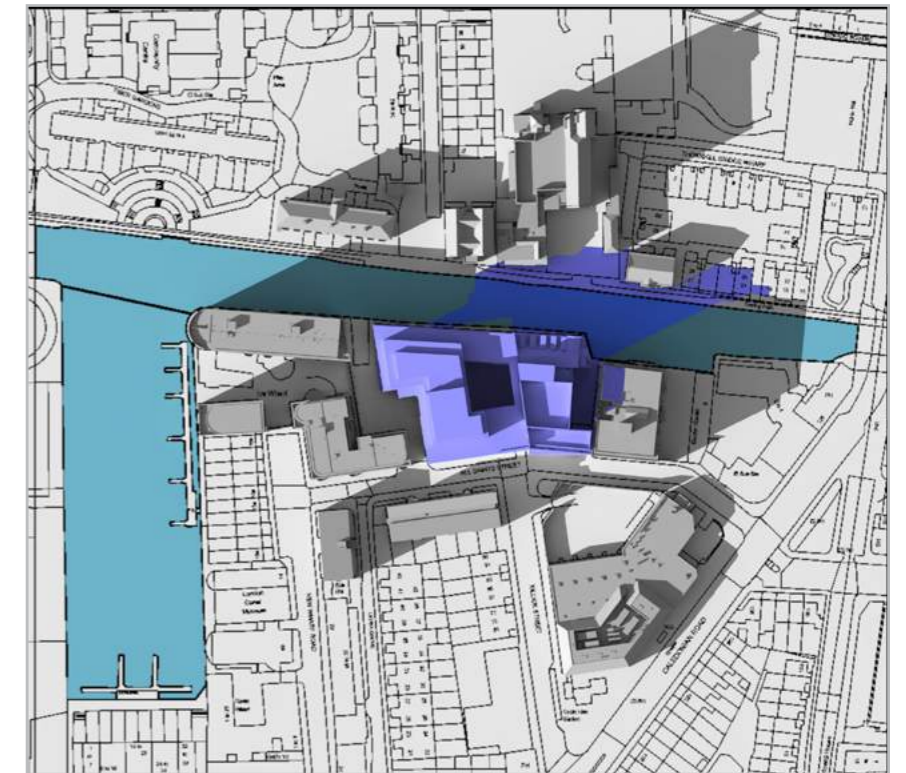
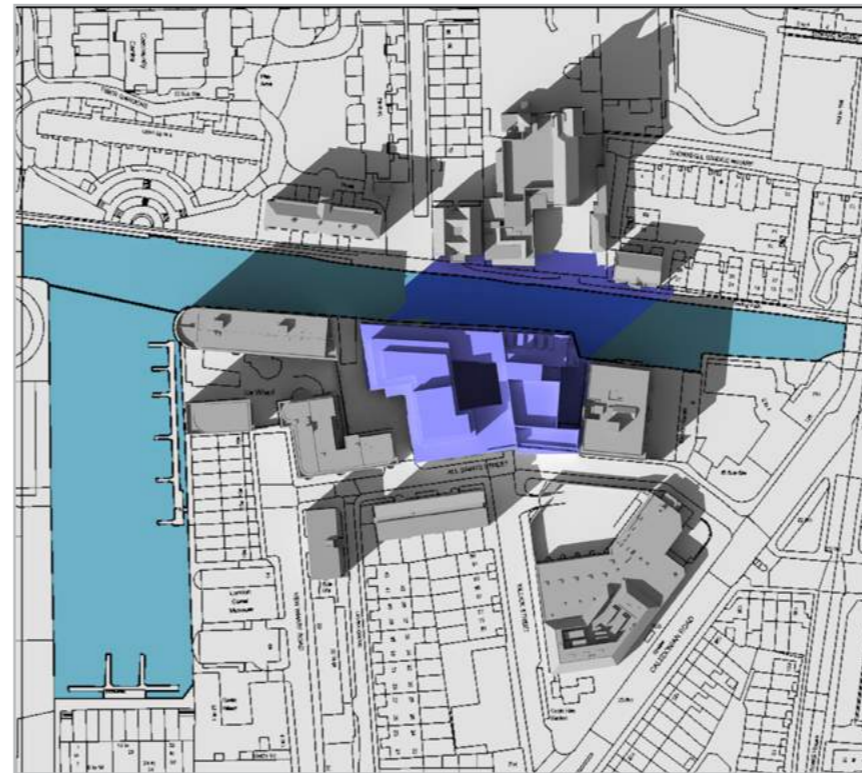
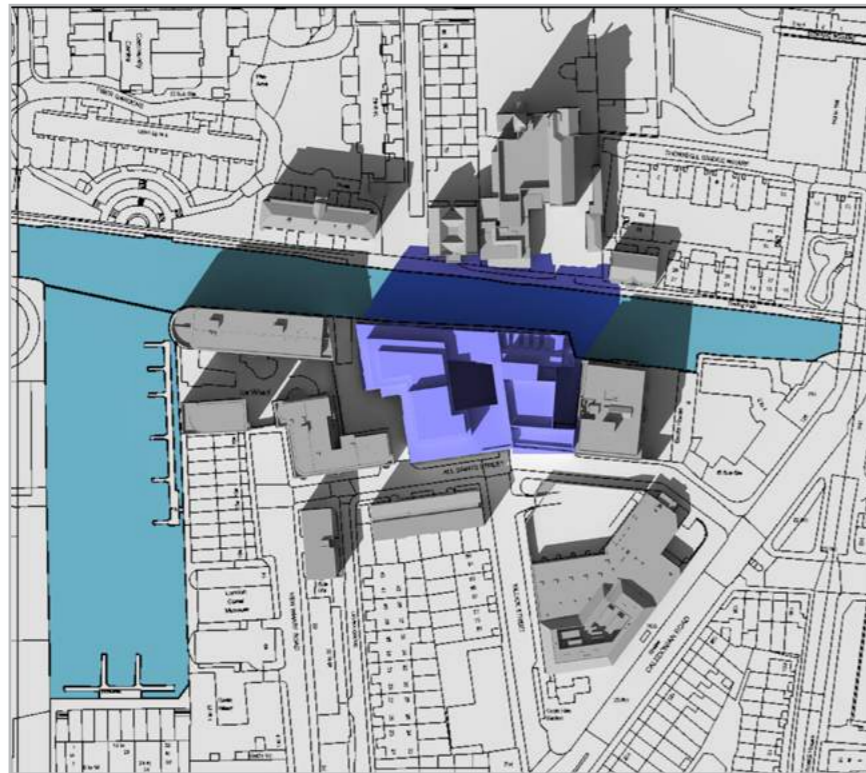
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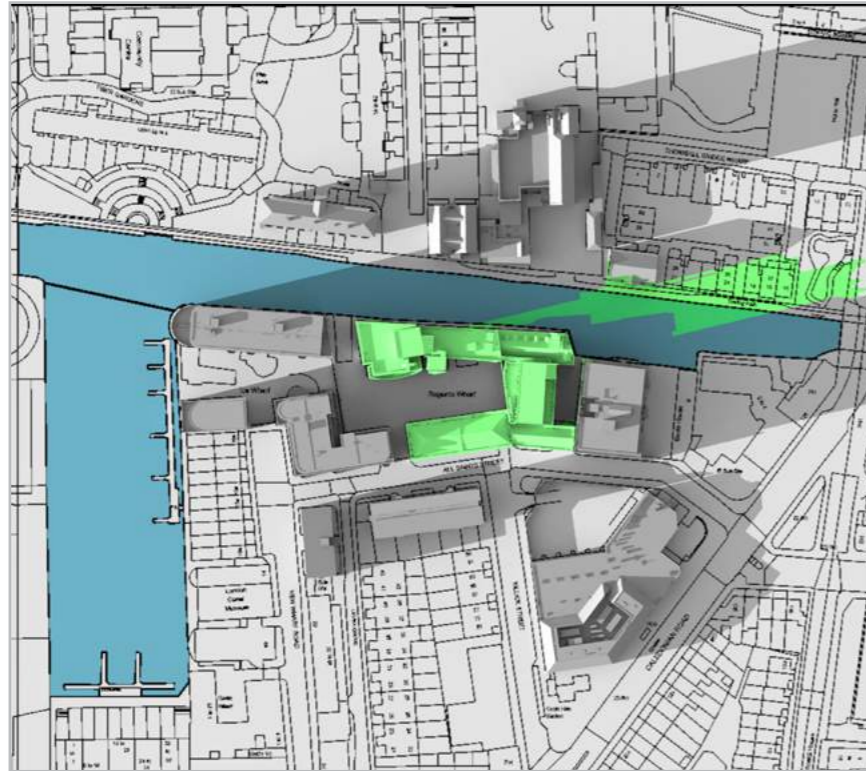
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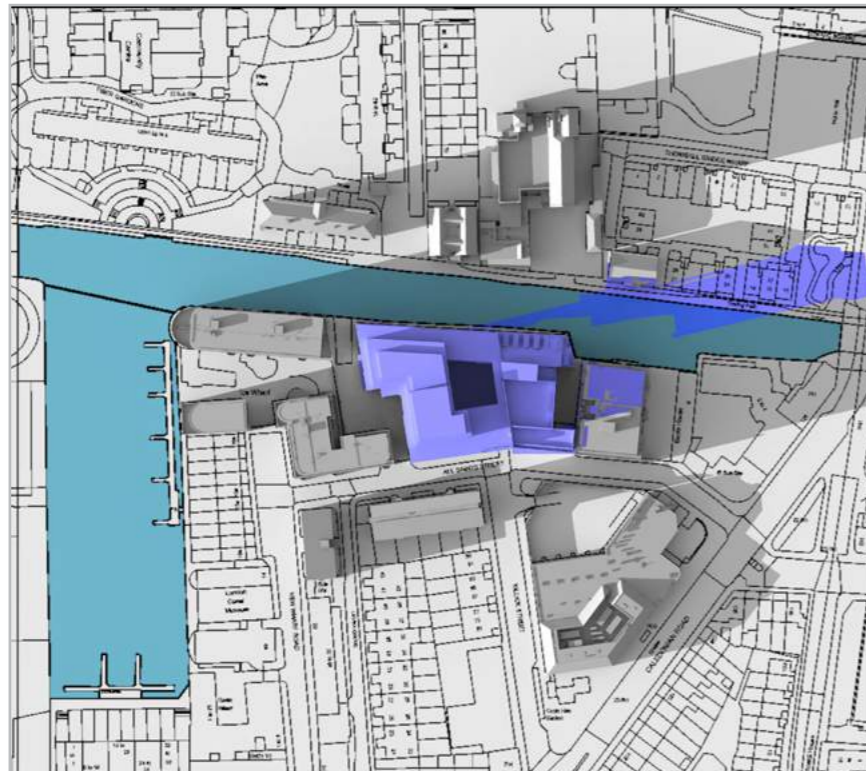
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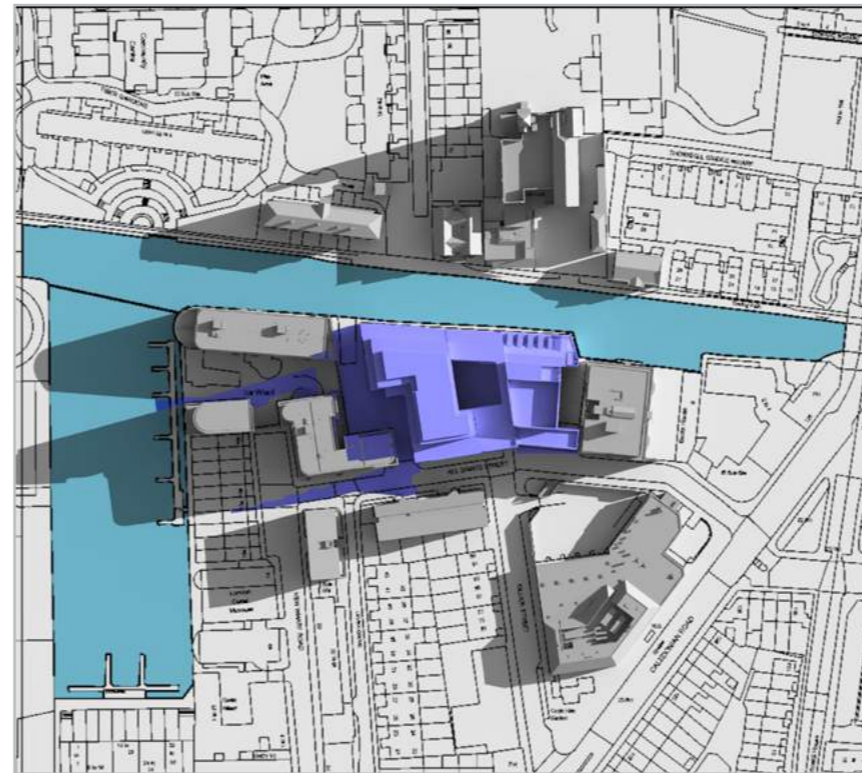
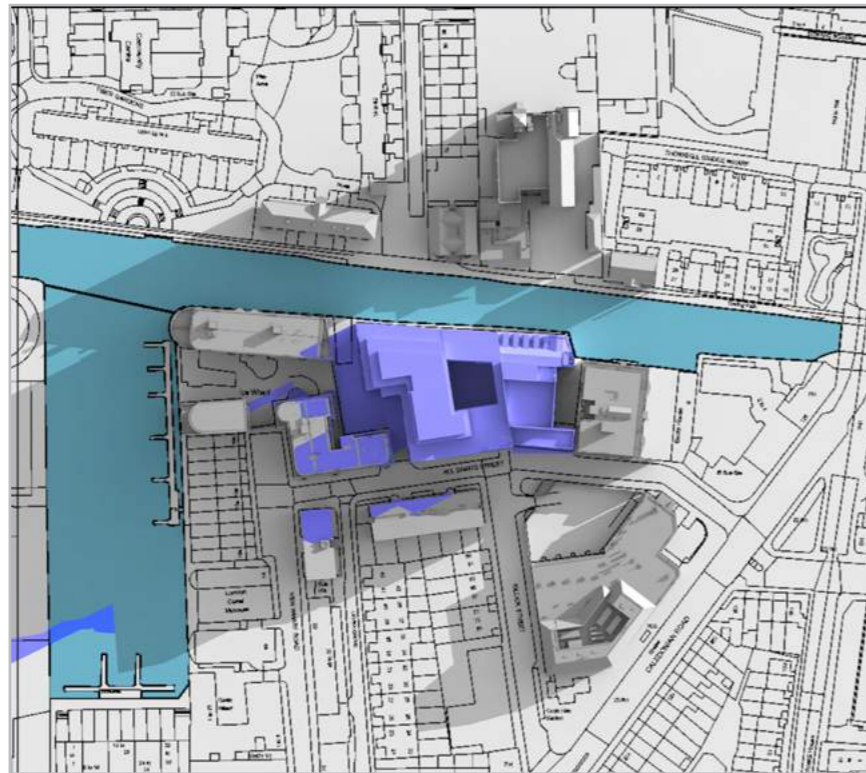
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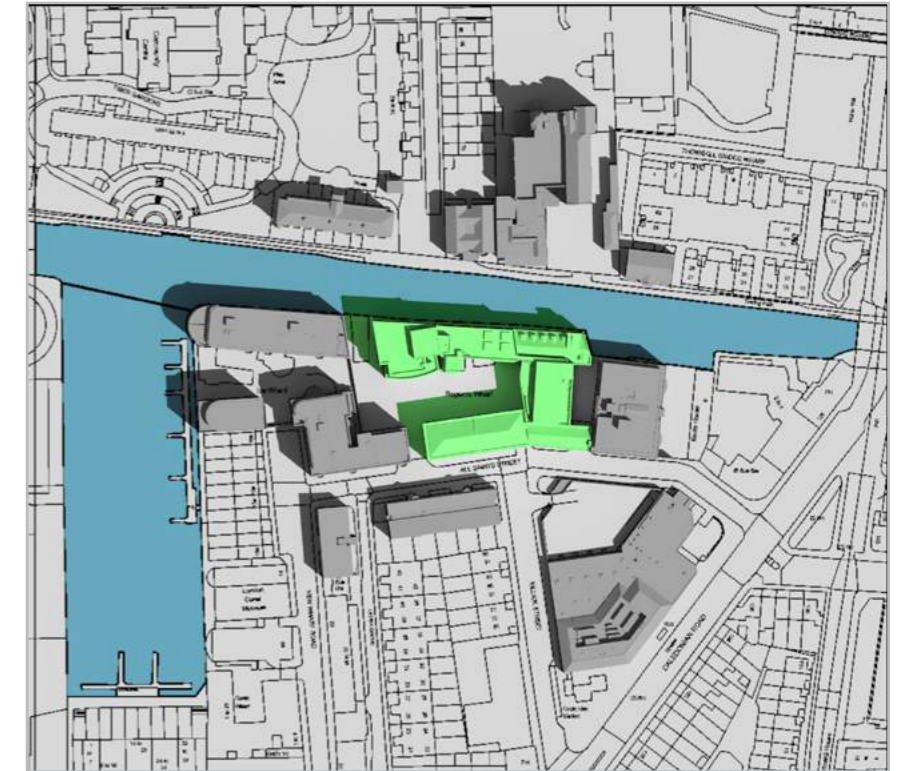


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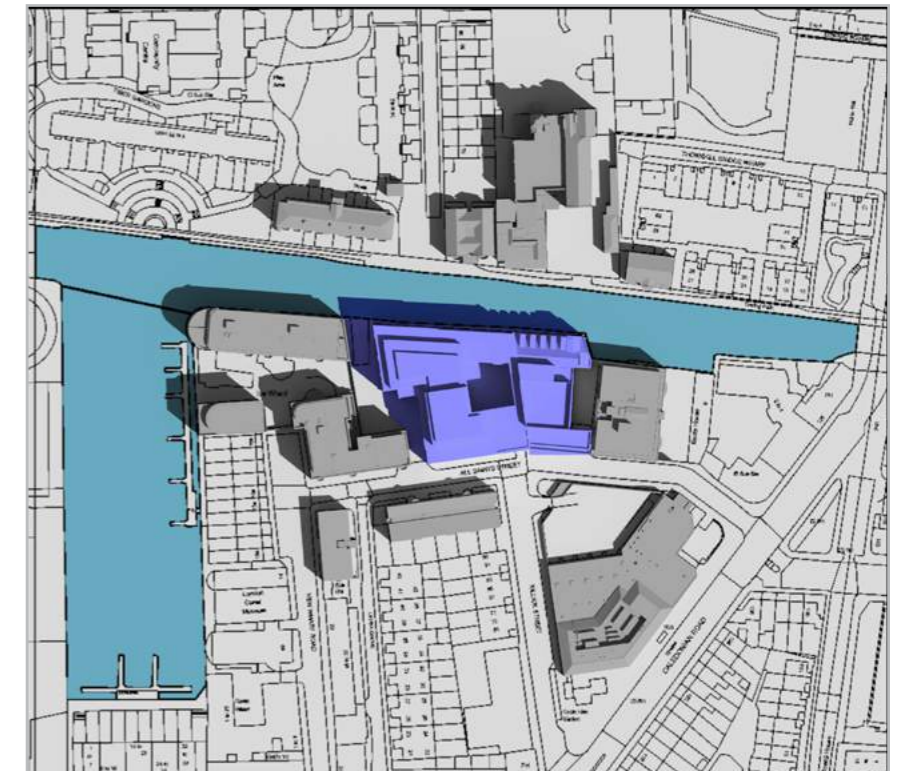
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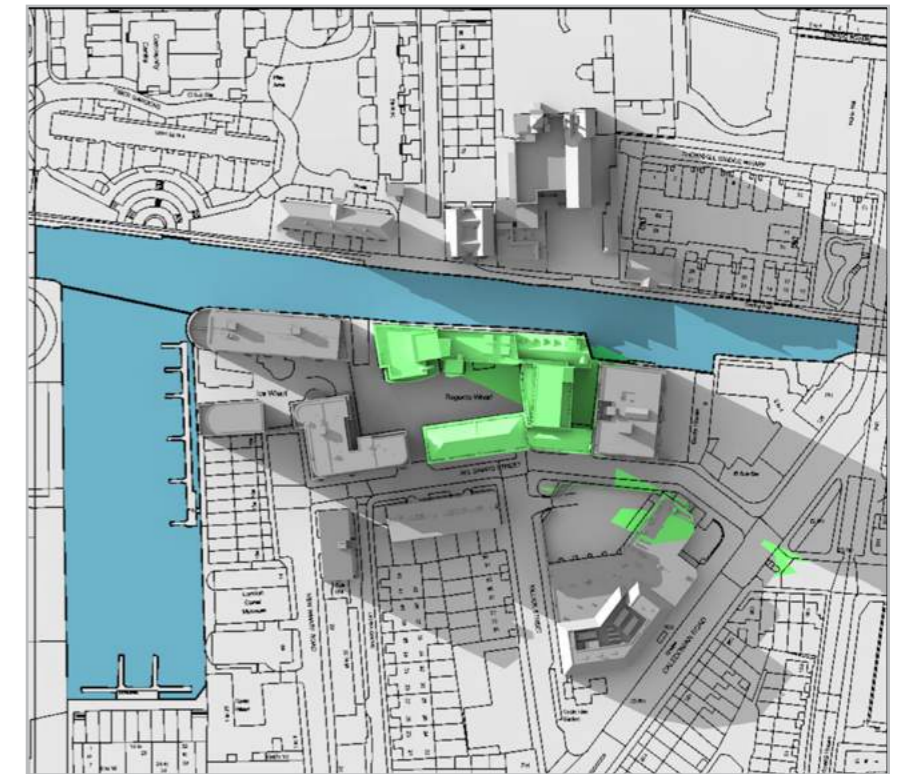


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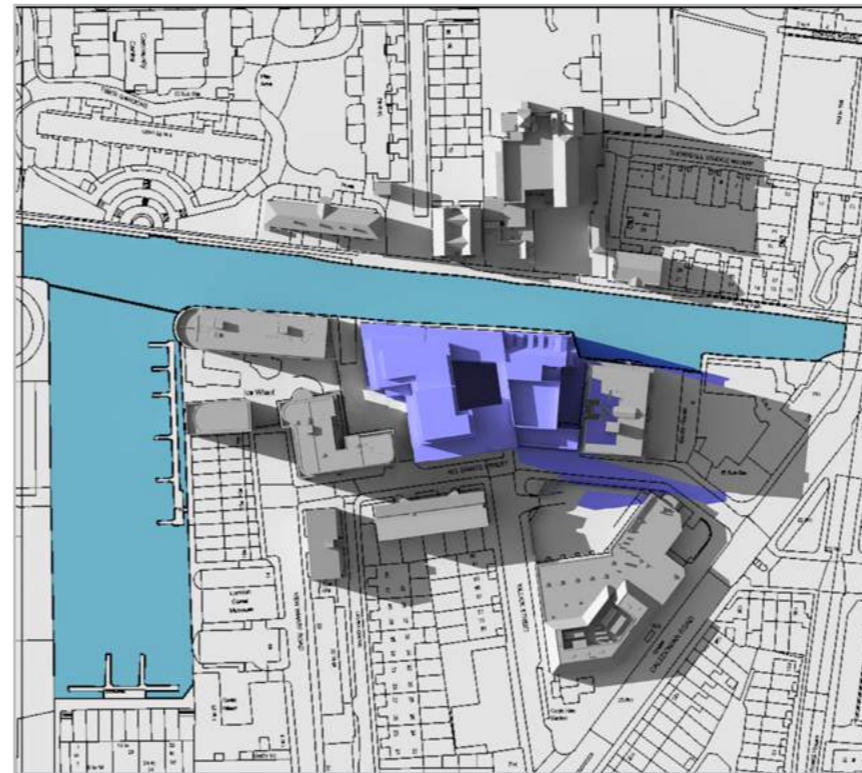
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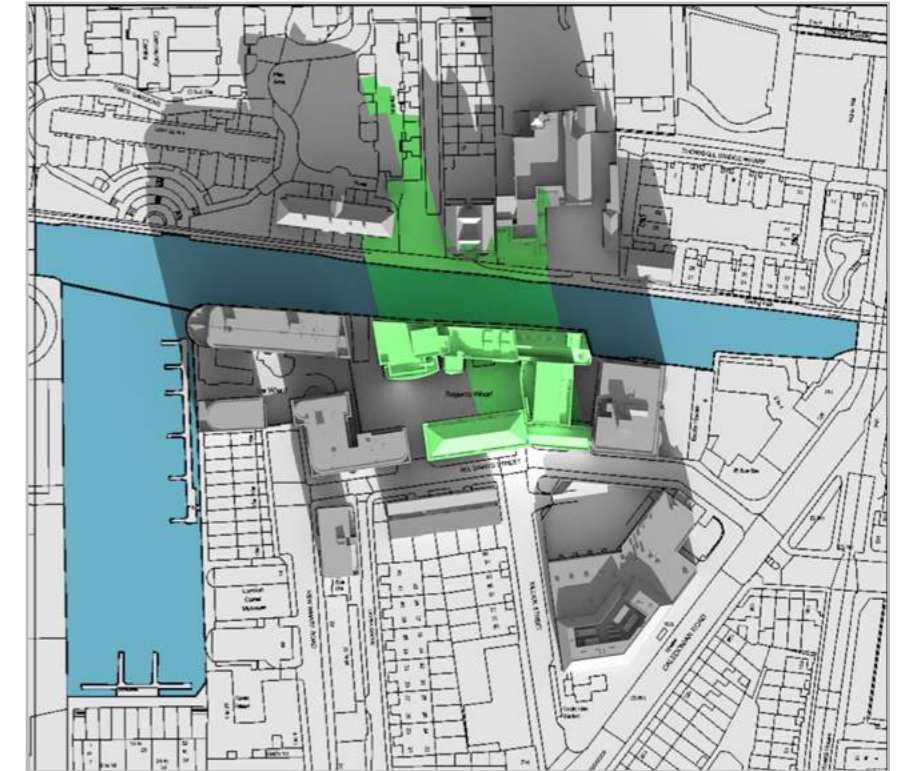
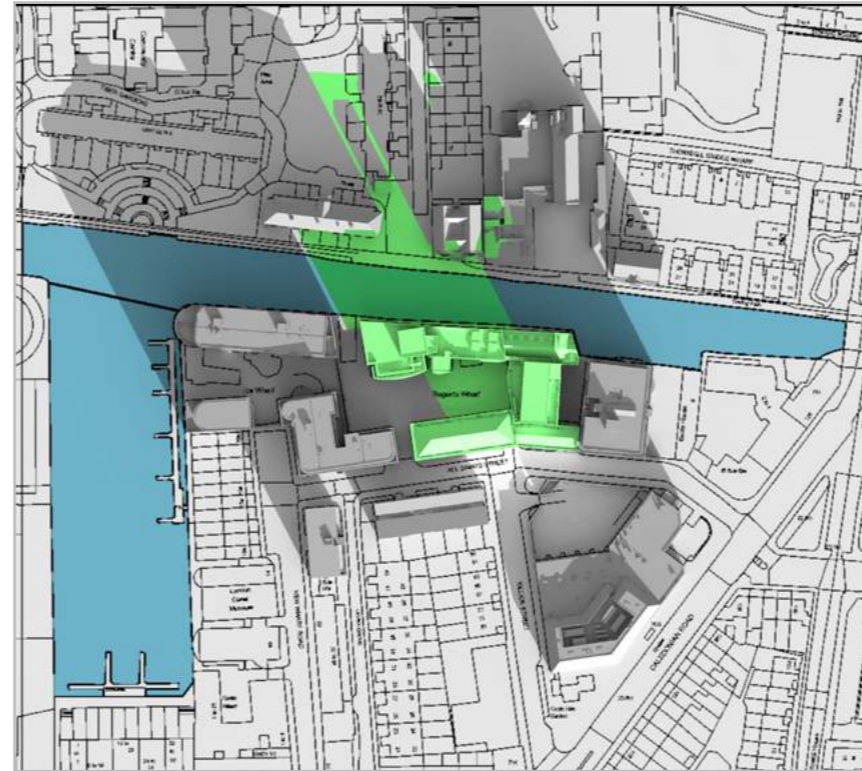


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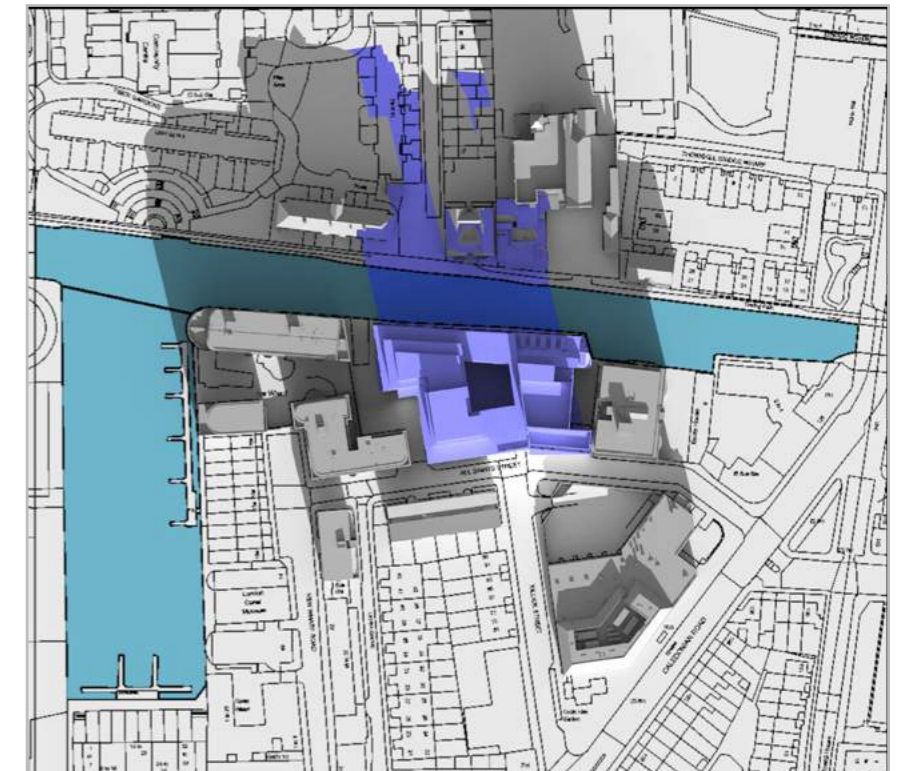
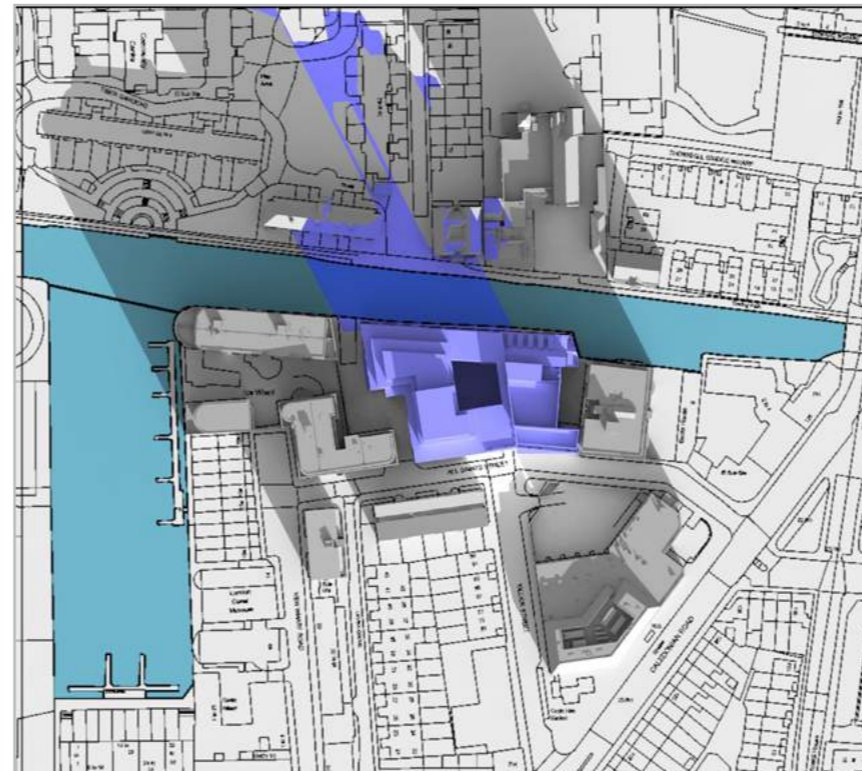
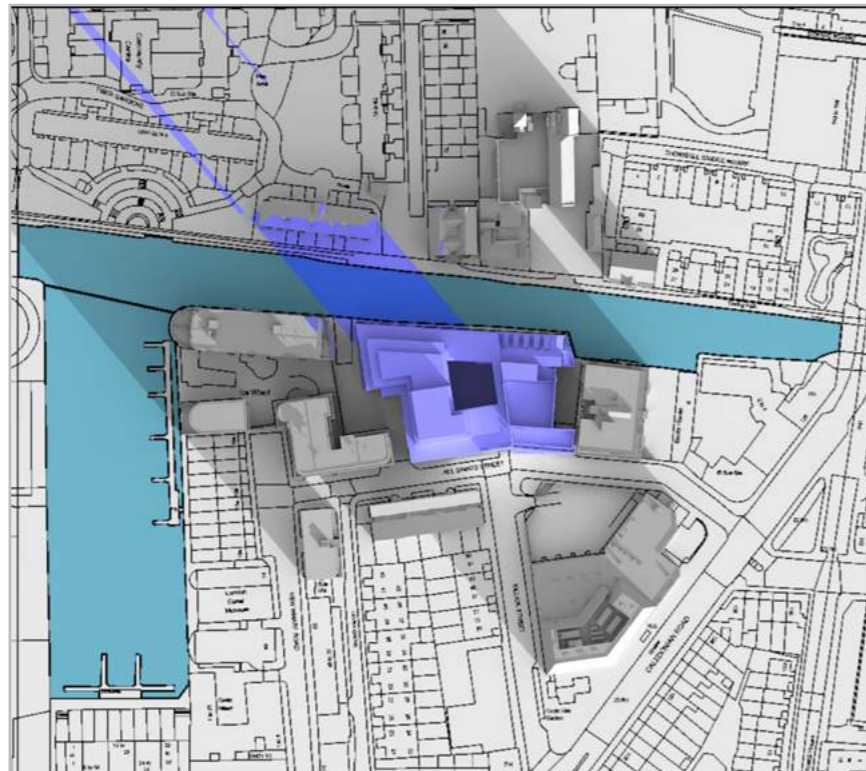
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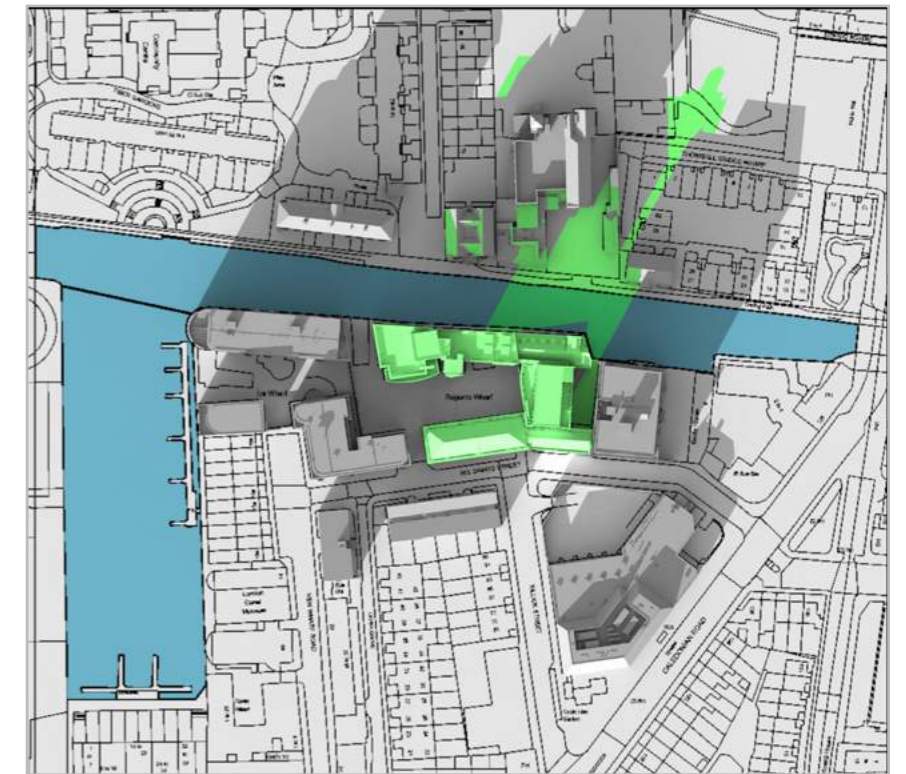
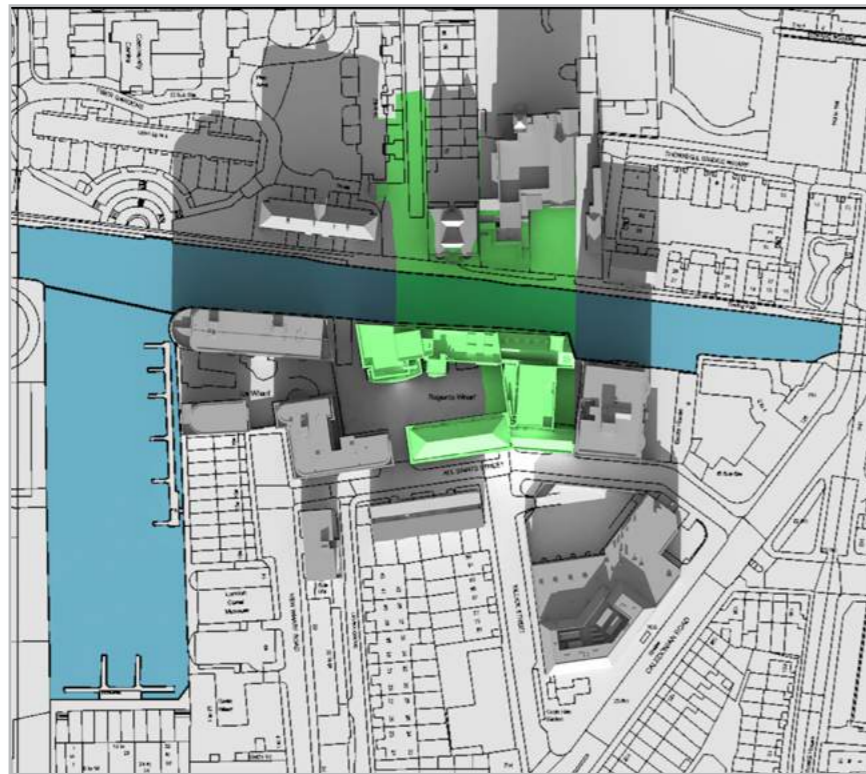


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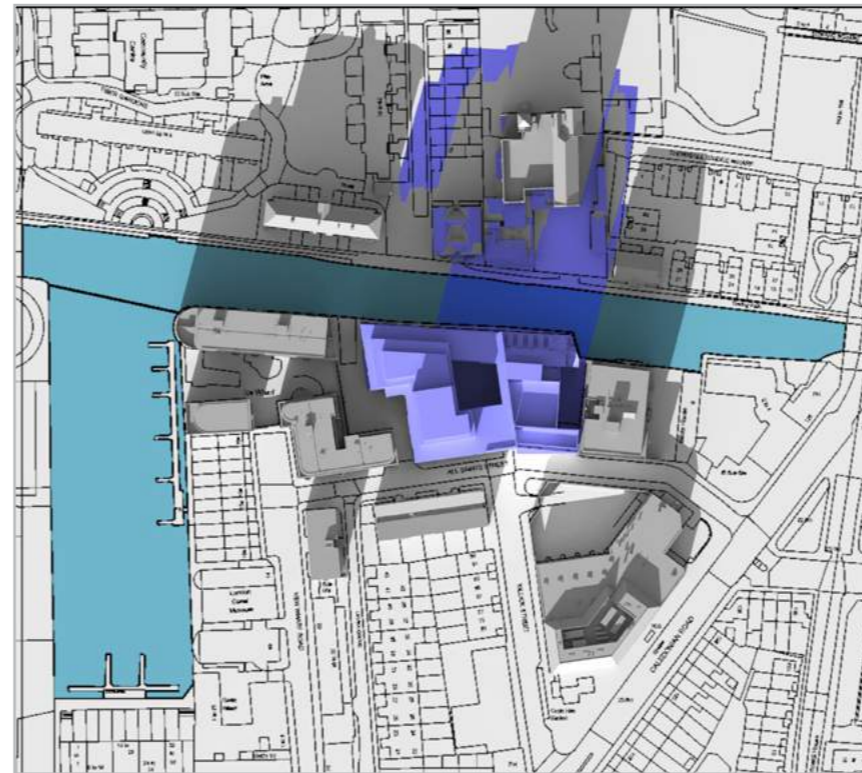
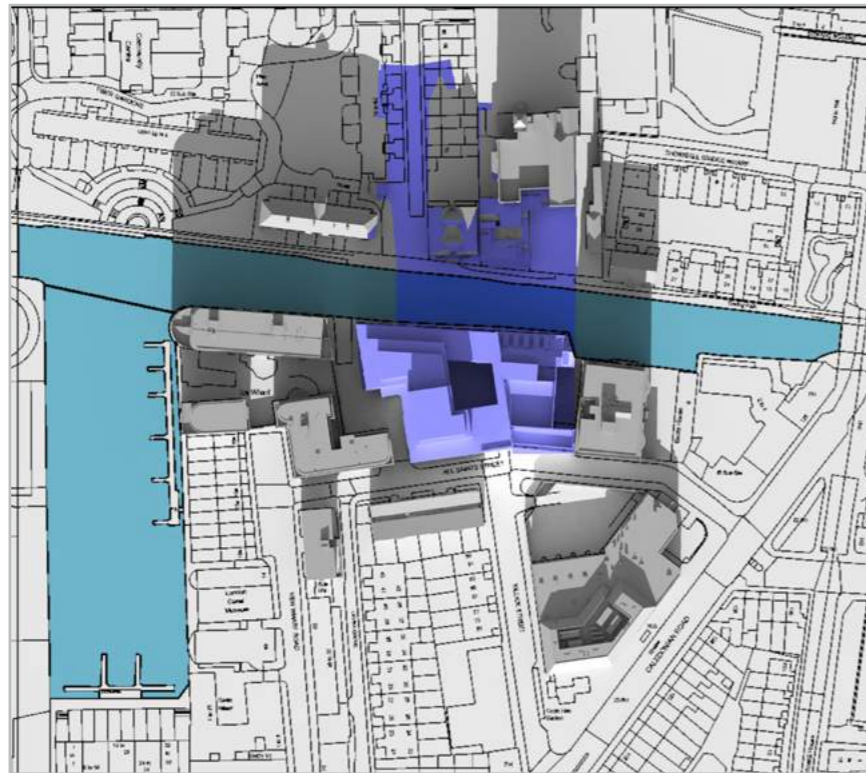
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Sun Hours on Ground

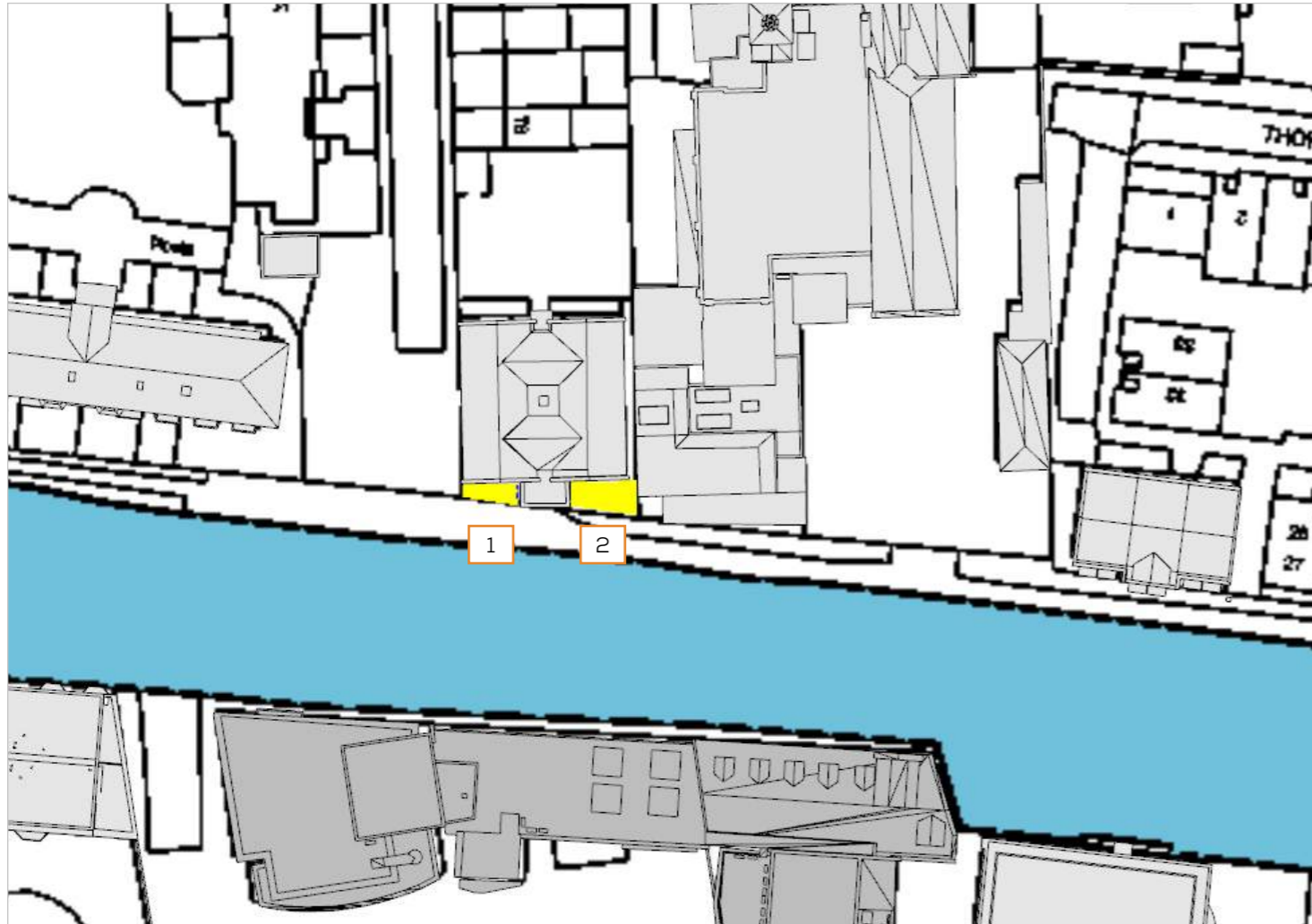


Figure 1: Existing Scenario

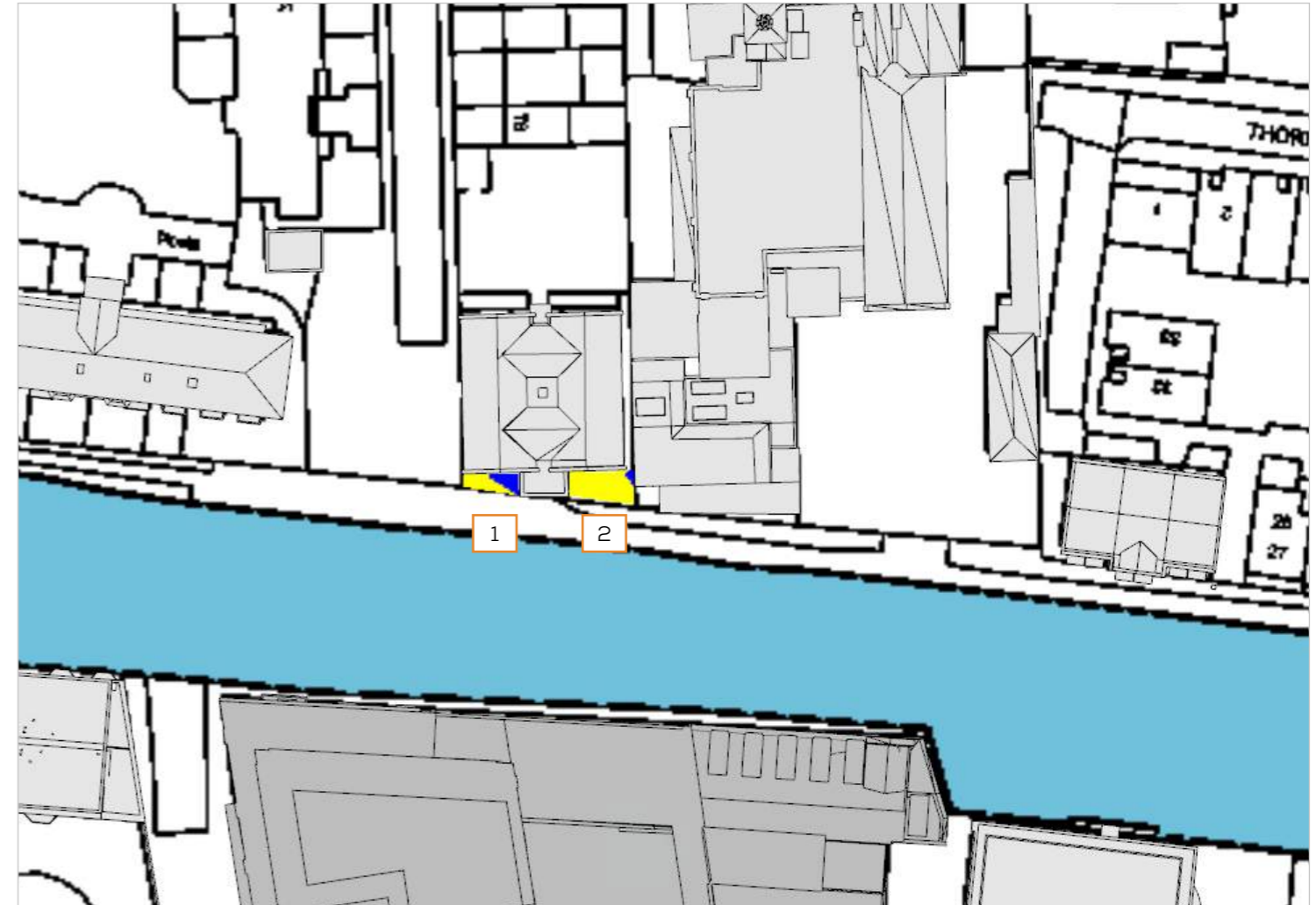
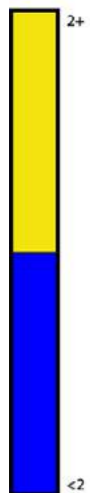


Figure 2: Proposed Scenario

Sun Hours on Ground



AREA	EXISTING	PROPOSED	% LOSS
1	95.1	60.9	36%
2	100	94.9	5%



Figure 3: Existing Scenario



Figure 4: Proposed Scenario

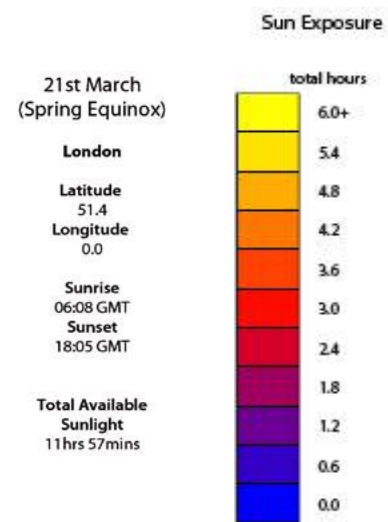
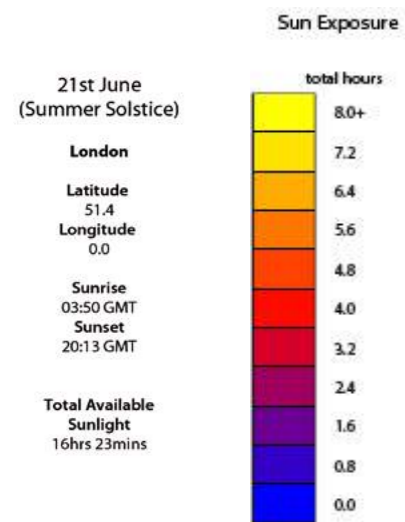




Figure 5: Existing Scenario



Figure 6: Proposed Scenario



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