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Stage 2 – Independent Daylight Review Report for Oxygen Towers, Store Street, Manchester M1 2FU

In Relation to:

Stocktons, 140 Great Ancoats Street,
Manchester M4 6DU

Project Number - EKA251011

17 December 2025

On Behalf of:

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2.0 Executive Summary

An independent daylight assessment has been completed by Akt Rights to Light Surveyors against the proposed Stocktons Site, 140 Great Ancoats Street, Manchester M4 6DU. The assessment focused on the impact on Oxygen Towers, Store Street, Manchester M1 2FU, conducted on behalf of the residents and Urbanbubble limited.

A digital 3D model replicating the existing and proposed building mass, including the assessed neighbouring properties and wider context properties were used within this assessment to calculate the light loss using specialist lighting software.

A thorough planning search investigation has been conducted to establish the internal layouts of each assessed property. This information was used within the digital 3D model and technical assessment to simulate the existing and proposed light levels within each property. Where appropriate, neighbouring consented schemes currently being implemented have been included within this assessment as part of the baseline assessment. This assessment has been conducted in accordance with the criteria set out in the BRE (Building Research Establishment) 209 guidance paper, 'Site layout planning for daylight and sunlight, A guide to good practice' 3rd Edition 2022 in line with Manchester City Council planning requirements.

The assessment focused on 8 different scenarios which are detailed in sections 7.0 to 14.0 of the report, the results for each scenario are covered in section 15.0.

Since becoming involved in this matter, our stance has not changed in regard to the impact of the proposed Stocktons development on Oxygen Towers. This assessment has cemented my concerns regarding the future amenity for the Oxygen Tower residents on the Store Street elevation. Everyone will be affected by the development from the 1st floor to the 32nd floor and the majority will experience catastrophic light losses to the point that artificial lighting may be required on a permanent basis to function within their property.

Our independent review and technical analysis has revealed the need to seriously consider the validity of the application in terms of light loss and amenity. The scheme cannot be allowed to generate this extortionate level of light loss and a major redesign is required to ensure that it is more sympathetic to Oxygen Towers. This is especially evident based on the results contained within this report. The results show that Building A is situated too close to Oxygen Towers however the results are packaged. This assessment demonstrates that the Stocktons current planning application is harmful and to the detriment of Oxygen Towers' natural light. It is recommended that the planning committee take heed of this report and reject / defer the application decision until such time the design allows / maintains sufficient light into Oxygen Towers.

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3.0 Introduction

Akt Rights to Light Surveyors Limited have been instructed by Urbanbubble Limited (“the client”) managing agents of Oxygen Towers, Store Street, Manchester M1 2FU (“the affected property”) to undertake an independent Stage 2 technical daylight assessment review, establishing the impacts for the Stocktons, 140 Great Ancoats Street, Manchester M4 6DU planning application scheme (ref:142535/FO/2025) by Simpsonhaugh Architects (“the development site”) on Oxygen Towers residential properties’ amenity for daylight.

This report is based on assessing a number of scenarios beyond those assessed by Stocktons’ own Daylight consultant (GIA), to demonstrate the damaging residual impacts in the following scenarios against the Oxygen Towers residential units and to their occupants, covered in the Appendices of this report.

- Appendix 1.1: Existing vs Proposed
- Appendix A.1: Mirror Mass vs Proposed
- Appendix B.1: Existing vs Proposed (Plus Emerging Context)
- Appendix C.1: Mirror Mass vs Proposed (Plus Emerging Context)
- Appendix D.1: Existing vs Proposed (Serving Suggestion 1)
- Appendix E.1: Existing vs Proposed (Serving Suggestion 2)
- Appendix F.1: Existing vs Proposed Cut Back
- Appendix G.1: Mirror Mass vs Proposed Cut Back

The scenarios above are detailed in sections 7.0 to 14.0. For brevity we have kept the descriptions as succinct as possible given the sheer volume of data and analysis within this independent study. Each scenario results are discussed in section 15.0.

All Stage 2 technical findings within this report have been generated in accordance with the assessment methods outlined in the Building Research Establishment’s (“BRE”) BR 209 guide – ‘Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice’ (2022) 3rd Edition.

The results summarised in the various scenarios assessed should not be interpreted in the context of any scheme other than the Simpsonhaugh Architects planning application scheme (ref:142535/FO/2025) except with written confirmation from Akt.

4.0 General

Daylight, sunlight and overshadowing is a material planning consideration generally guided by the Building Research Establishment's ("BRE") BR 209 guide – 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' (2022). The guide sets out numerical target values for various methods of assessing natural lighting adequacies both within and around buildings.

At Page 7 Section 1.6 (Introduction), the guide states:

1.6 The guide is intended for building designers and their clients, consultants, and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design (see Section 5). In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.

The BRE therefore acknowledge the numerous characteristics affecting construction projects and emphasise the purpose of BR 209 is to encourage good daylighting within buildings, not to create rigid planning constraints.

At Page 14 Section 2.2.2, the guide outlines methodology to be applied in respect of daylight to existing buildings. Here it states:

2.2.2 The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens, and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. The guidelines may also be applied to any existing non-domestic building where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops, and some offices.

When assessing impacts on neighbouring daylight, therefore, primarily habitable spaces should be considered; save for some special circumstances where safeguarding daylight within certain sensitive non-domestic receptors might be important.

5.0 Methodology

A site visit was conducted on 20 November 2025 with access to the boundaries and roof top of Oxygen Towers, this allowed views of the neighbouring properties included in this assessment.

Desktop research into the relevant neighbouring properties was undertaken to establish current internal and external configurations, building and room uses, listed heritage status, and any other relevant planning related information pertaining to neighbouring land. This was done using a mix of desktop resources including the local online planning portal, current and historic mapping tools and photography databases and commercial real estate websites.

The Digital 3D model used for our technical assessment comprised of an existing and proposed scheme digital 3D model produced by Akt based on Simpsonhaugh Architects planning application drawings (ref:142535/FO/2025) along with the purchase of a contextual digital 3D Model produced by AccuCities Limited.

The Digital 3D model for Oxygen Towers was produced by Akt against the planning consented drawings by 5plus Architects.

Our technical analysis was undertaken using specialist daylight software which functions within AutoCAD (3D modelling programme) by applying the latest BRE methodology. The assessment of impacts on neighbouring daylight and sunlight comprises a vertical sky component assessment ("VSC") for both windows and rooms, a daylight distribution assessment ("DD").

6.0 Assumptions and Limitations

The 3D model used for our technical assessment was assembled using data obtained from various surveying and architectural sources. Whilst we have undertaken validation exercises to identify discrepancies, we cannot guarantee the absolute accuracy of any modelled elements not produced or altered materially by Akt.

All relevant neighbouring planning consents (within the vicinity of Oxygen Towers) that are currently being implemented have been included within the baseline of this assessment to cover worst case scenario.

All relevant neighbouring planning consents (within the vicinity of Oxygen Towers) that have not been implemented or started have also been included within the baseline of this assessment, they are highlighted in a purple colour within the 3D models. Again, this is to cover worst case scenario.

There are some scenarios where emerging context mass has been included within the proposed scenario, this covers the SRF Massing and the CRP Phase 2 highlighted in green and red colours within the relevant 3D models.

A mirror massing scenario has also been run with various scenarios to investigate GIA's claims in regard to alternative benchmark results.

7.0 Existing vs Proposed

This is the existing site vs proposed development scenario. This is shown in the graphic of the 3D model images below. Plan Image showing existing building in orange, full drawings in Appendix 1.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09.



Plan Image showing proposed building in blue, full drawings in Appendix 1.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10.



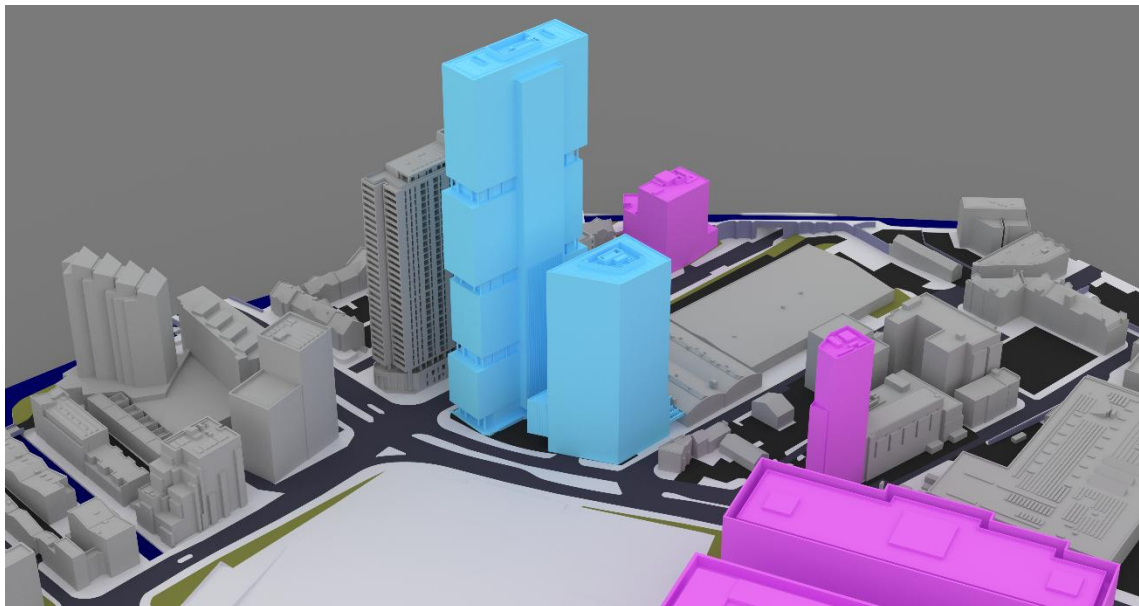
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This is the existing site vs proposed development scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing existing building in orange, full drawings in Appendix 1.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09.



Aerial Image showing proposed building in blue, full drawings in Appendix 1.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10.



This scenario covers the true impact residents will face upon completion of the development if granted consent.

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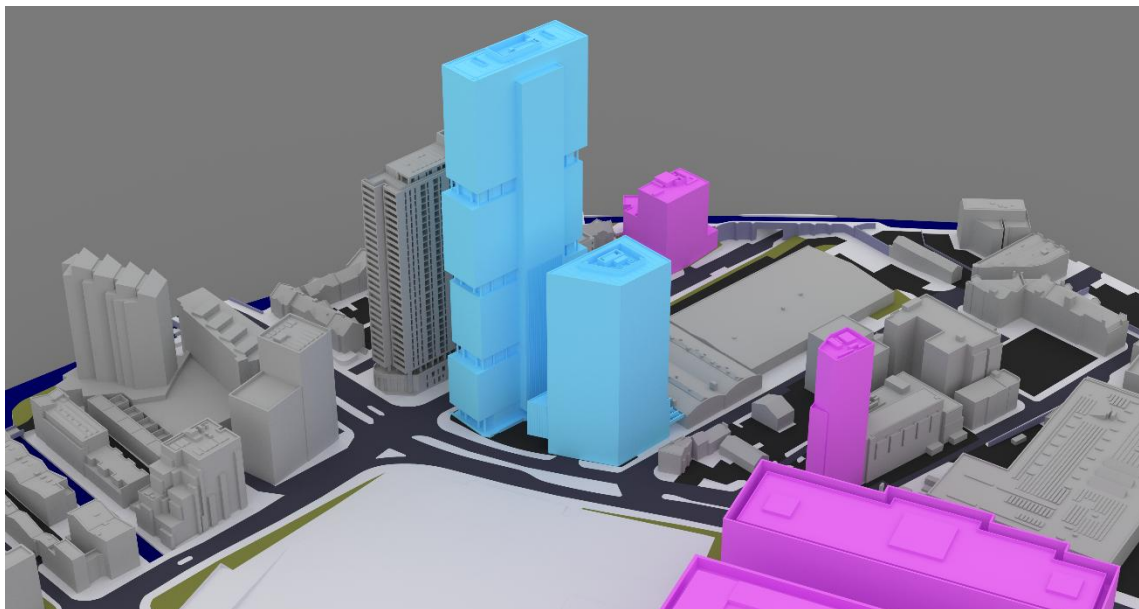
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8.0 Mirror Mass vs Proposed

This is the Oxygen Tower Mirror Mass vs proposed development scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing the Mirror Mass in peach colour, full drawings in Appendix A.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09 Rev A.



Aerial Image showing proposed building in blue, full drawings in Appendix A.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10 Rev A.



This scenario covers a hypothetical scenario devised by the BRE to set an alternative benchmark massing for alternative baseline figures to work to, in this instance I disagree with this approach as it is not appropriate given the magnitude of the results. This is the angle GIA are trying to justify within their DSO Reports.

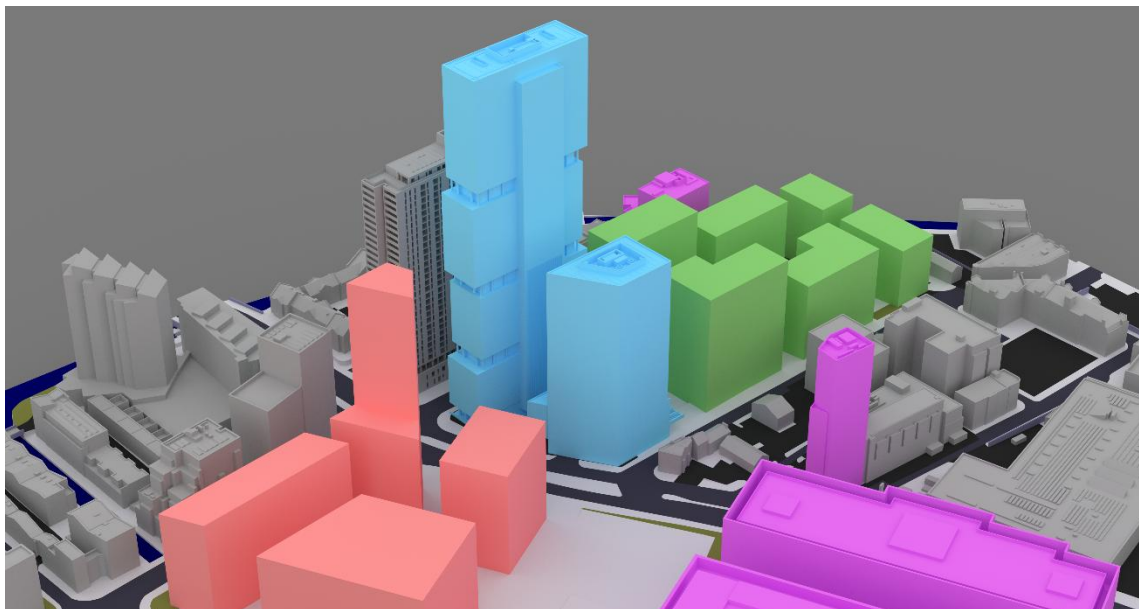
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9.0 Existing vs Proposed (Plus Emerging Context)

This is the existing site vs proposed (Plus Emerging Context) development scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing existing building in orange, full drawings in Appendix B.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09 Rev B.



Aerial Image showing proposed building in blue, full drawings in Appendix B.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10 Rev B.



This scenario covers a double whammy, the true impact residents will face upon completion of the development if granted consent plus the additional impact in the future if the emerging context schemes are implemented.

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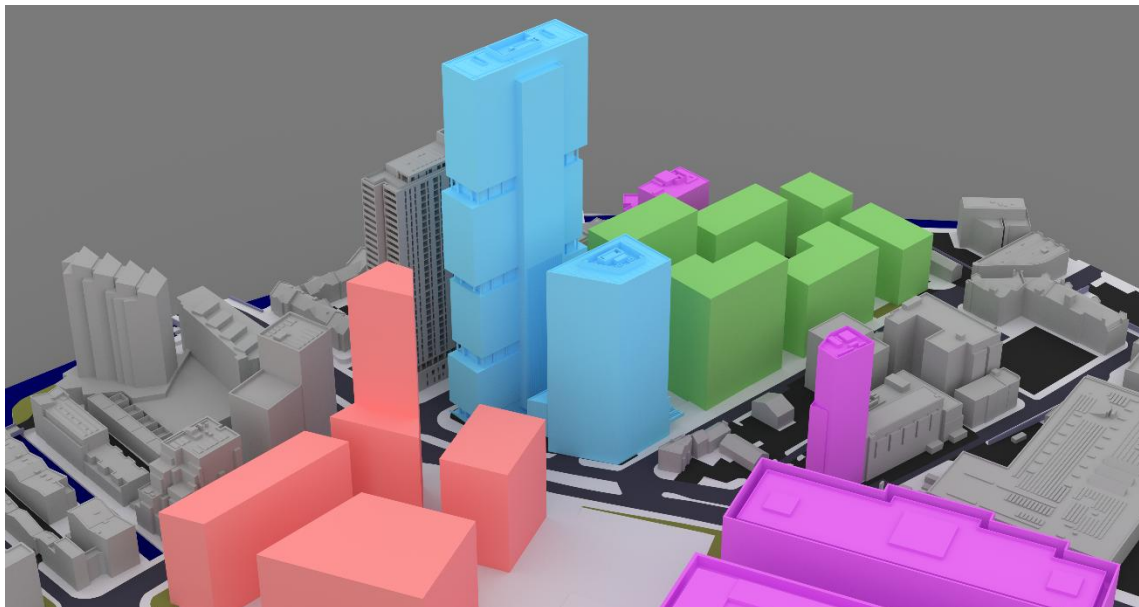
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10.0 Mirror Mass vs Proposed (Plus Emerging Context)

This is the Mirror Mass vs proposed (Plus Emerging Context) development scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing the Mirror Mass in peach, full drawings in Appendix C.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09 Rev C.



Aerial Image showing proposed building in blue, full drawings in Appendix C.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10 Rev C.



This scenario shows that even with the reliance on Mirror Massing, the scheme will still have an impact in tandem with the emerging context.

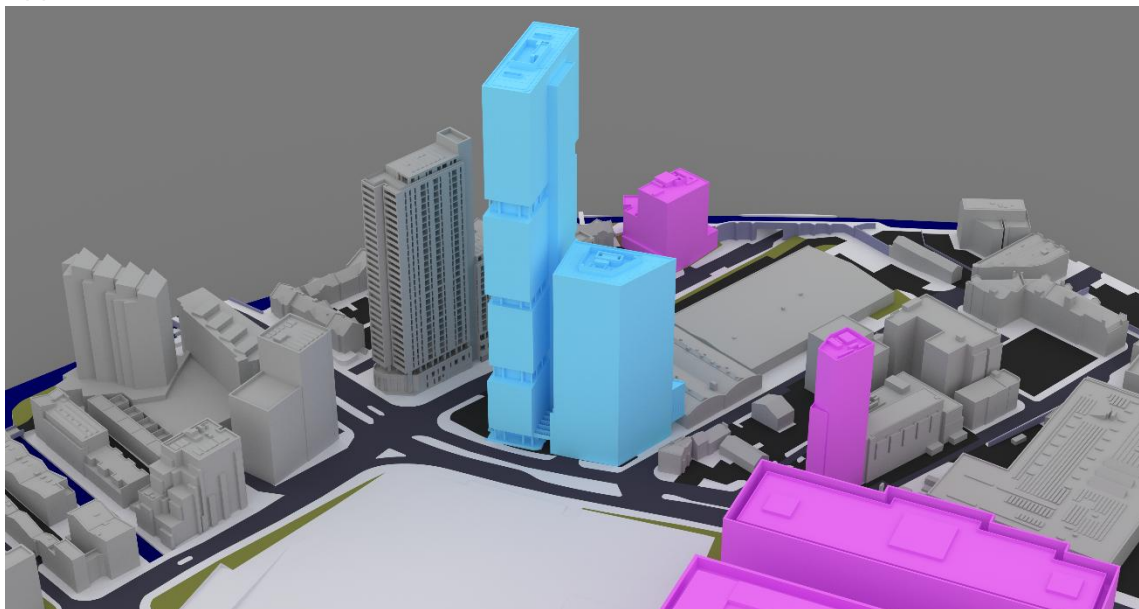
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11.0 Existing vs Proposed (Serving Suggestion 1)

This is the existing site vs proposed development (Serving Suggestion 1) scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing existing building in orange, full drawings in Appendix D.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09 Rev D.



Aerial Image showing proposed building (Serving Suggestion 1) in blue, full drawings in Appendix D.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10 Rev D.



This suggested scenario shows the impact improvement by relocating the footprint of Buildings A and B on a splayed angle away from Oxygen Towers and still achieve the same floor area and units. Building B model has been Mirrored to fit on the site.

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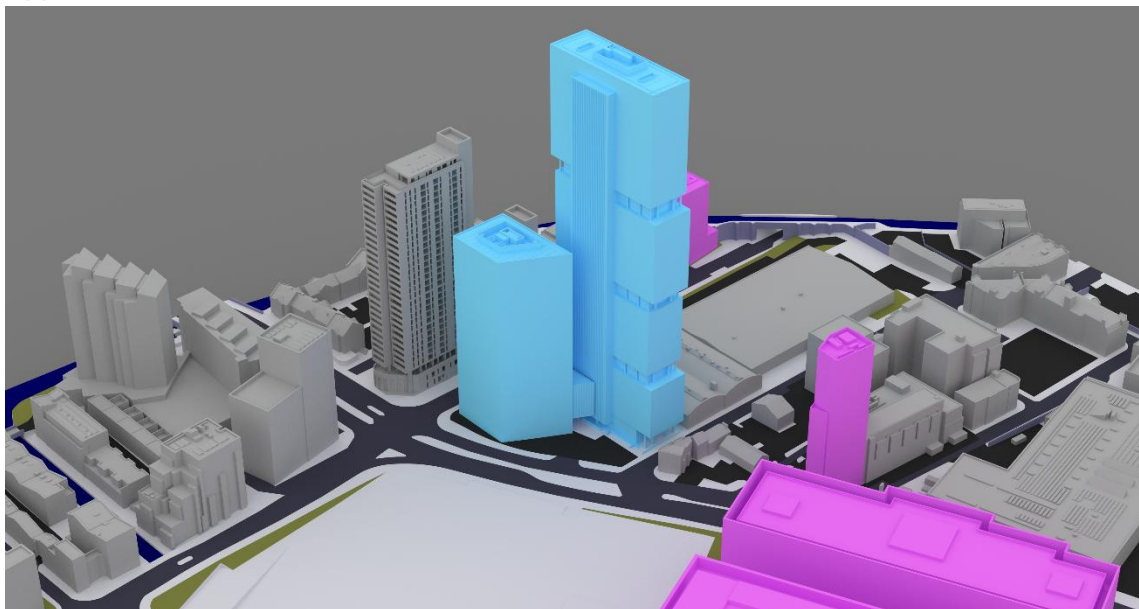
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12.0 Existing vs Proposed (Serving Suggestion 2)

This is the existing site vs proposed development (Serving Suggestion 2) scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing existing building in orange, full drawings in Appendix E.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09 Rev E



Aerial Image showing proposed building (Serving Suggestion 2) in blue, full drawings in Appendix E.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10 Rev E.



This suggested scenario shows the impact improvement by relocating the footprint of Buildings A and B on right angles away from Oxygen Towers and still achieve the same floor area and units. Building B model has been Mirrored to fit on the site.

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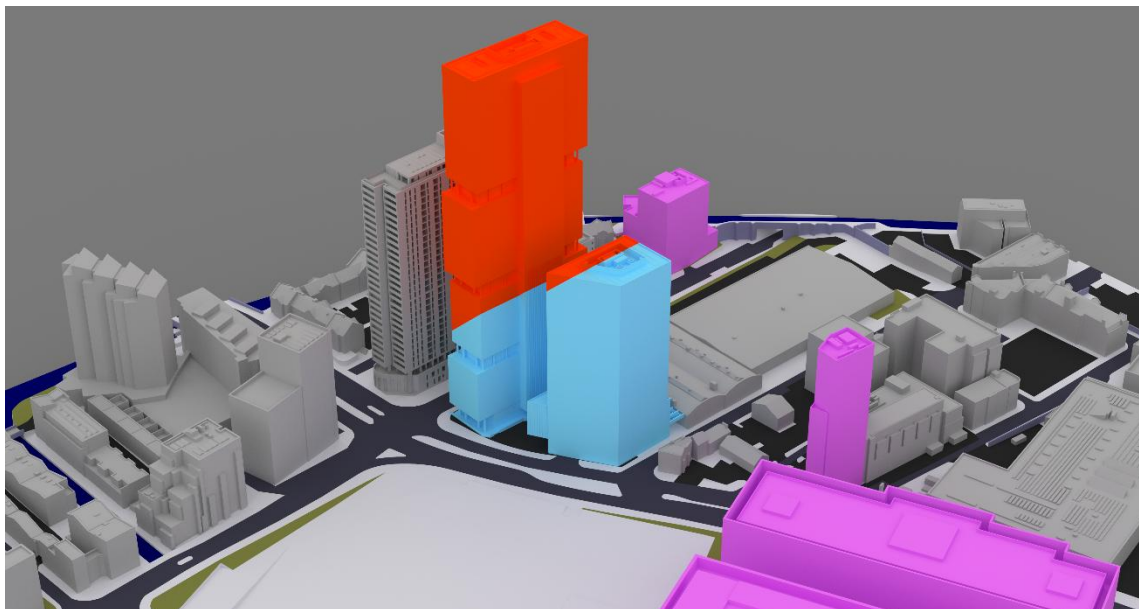
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13.0 Existing vs Proposed Cutback

This is the existing site vs proposed cutback development scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing existing building in orange, full drawings in Appendix F.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09 Rev F.



Aerial Image showing proposed building in blue and cutback in red, full drawings in Appendix F.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10 Rev F.



This scenario shows the VSC cut back to leave Oxygen Towers with good retained levels of VSC Daylight. However the cut backs will need to be far more severe if the scheme is to meet the VSC Room and Daylight Distribution criteria.

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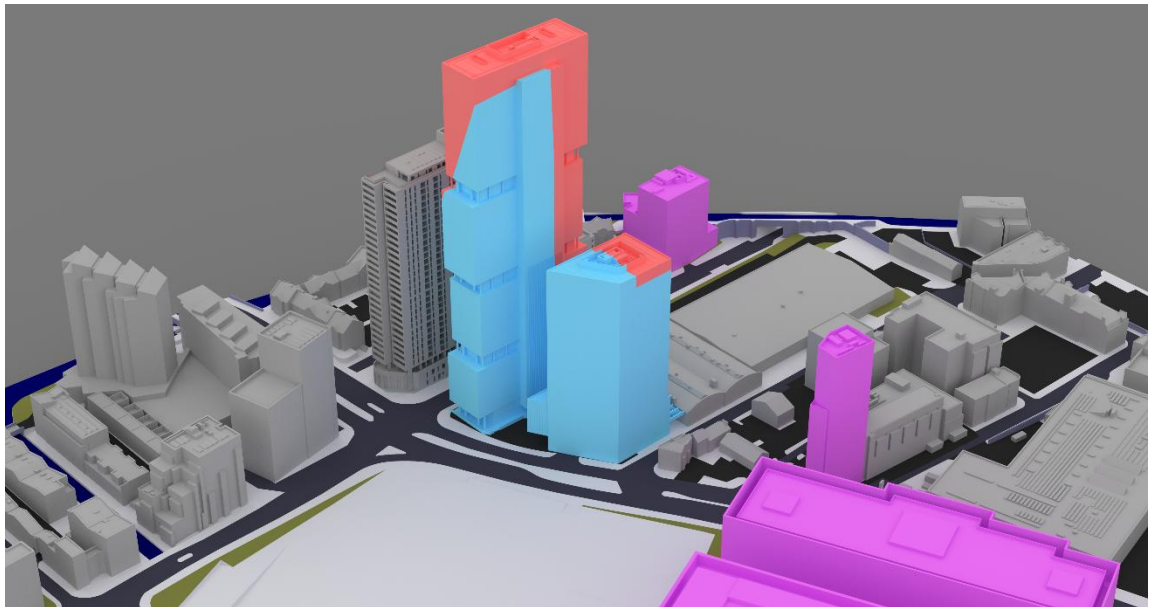
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14.0 Mirror Mass vs Proposed Cutback

This is the Mirror Mass vs proposed cutback development scenario. This is shown in the graphic of the 3D model images below. Aerial Image showing existing building in orange, full drawings in Appendix G.1 in EKA251011 DSO-3D_01, 03, 05, 07 & 09 Rev G.



Aerial Image showing proposed building in blue, full drawings in Appendix G.1 in EKA251011 DSO-3D_02, 04, 06, 08 & 10 Rev G.



This scenario shows the VSC cut back to leave Oxygen Towers with good retained levels of VSC Daylight against a Mirror Massing baseline. However the cut backs will need to be far more severe if the scheme is to meet the VSC Room and Daylight Distribution criteria. This is the angle GIA are trying to justify within their DSO Reports.

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15.0 Daylight Assessment on Oxygen Towers

Akt Drawing Convention

The 3D Model scenario views are in drawings: EKA251011 DSO-3D_01 to 10.

The Sample VSC Waldram Diagrams are in EKA251011 WD01.1, 01.2 and 01.3.

The Daylight Distribution Contour Drawings are in EKA251011 DD00.1 to 32.1.

The scenario drawings are covered by the revisions in their respective Appendices.

Appendix 1.1: Existing vs Proposed – **Rev -**

Appendix A.1: Mirror Mass vs Proposed – **Rev A**

Appendix B.1: Existing vs Proposed (Plus Emerging Context) – **Rev B**

Appendix C.1: Mirror Mass vs Proposed (Plus Emerging Context) – **Rev C**

Appendix D.1: Existing vs Proposed (Serving Suggestion 1) – **Rev D**

Appendix E.1: Existing vs Proposed (Serving Suggestion 2) – **Rev E**

Appendix F.1: Existing vs Proposed Cut Back – **Rev F**

Appendix G.1: Mirror Mass vs Proposed Cut Back – **Rev G**

For the purposes of quantifying the severity of reductions, all daylight losses beyond BRE criteria have been classified in accordance with the table at Figure 1 below.

Figure 1 – Severity classifications:

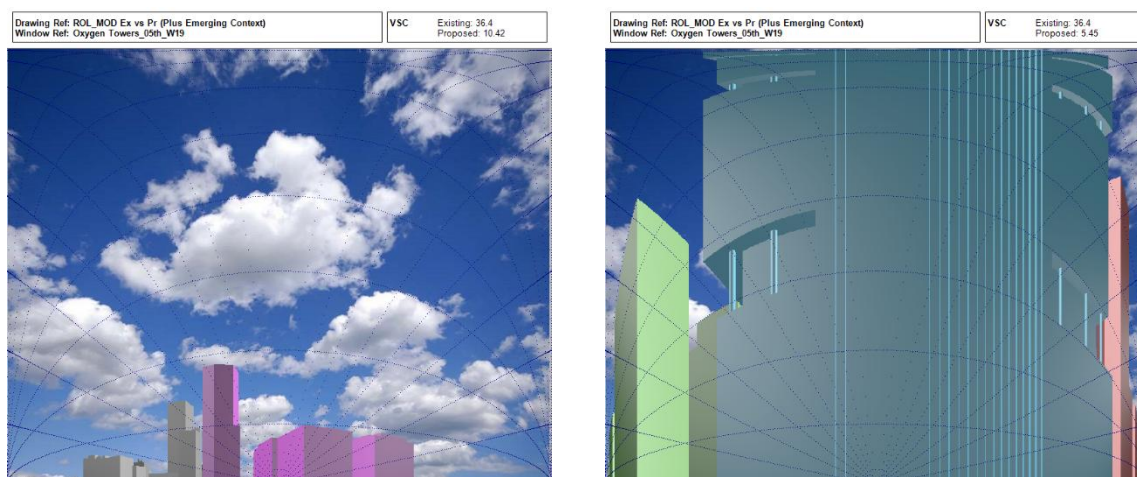
Severity Classification	Percentage Reduction
Meets BRE criteria	-0% to -19.99%
Minor losses	-20% to -29.99%
Moderate losses	-30% to -39.99%
Substantial losses	-40 to -100%

15.1 Vertical Sky Component Assessment Results: Daylight to windows

The VSC method does not measure actual light levels within a defined space, rather it measures the area of sky visible from the centre point of an external window face to provide an indication of the potential for light within a room directly from the sky.

The BRE states that an existing building will be adversely affected “if the vertical sky component is less than 27%, and less than 0.8 times its former value”. If a development therefore reduces an existing VSC by 20% or more and the remaining VSC is less than 27%, a BRE transgression will have occurred.

The summary tables below cover each scenario the results of our VSC assessment and the severity of impacts in each case against the overlooking windows of Oxygen Towers. Please refer to the relevant Appendix for a full breakdown of results. Each Appendix includes a sample set of VSC Waldram diagrams in drawings EKA251011 WD01.1, 01.2 and 01.3 plus relevant Rev - Letter, example below of Window 19, Room 11, 5th Floor Living / Kitchen / Diner.



The image above left is the existing VSC Waldram, the image above right is the identical window with proposed plus emerging context.

Existing vs Proposed:

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows		
		No.	%	No.	%	No. of Windows Experiencing Adverse Impacts		
						20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	196	21%	0	0	54	58	620
Total	928	196	21%	0	0%	54	58	620

The results show that 196 (21%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 54 windows (6%) will experience a minor adverse impact that could be deemed acceptable

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in the urban context. **58 windows (6%) will experience a moderate adverse effect** and **620 windows (67%) will experience a substantial loss. That's a 73% combined failure rate.** These are extremely poor results showing a major light loss to the majority of the Store Street elevation windows, this is clearly unacceptable to the residents of Oxygen Towers.

Mirror Mass vs Proposed:

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows No. of Windows Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	638	69%	183	0	72	66	152
Total	928	638	69%	183	20%	72	66	152

The results show that 638 (69%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 72 windows (8%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **66 windows (7%) will experience a moderate adverse effect** and **152 windows (16%) will experience a substantial loss. A total failure rate of 23%**

This method shows that 183 Windows will experience a gain in light, however this is only a gain against a hypothetical mass. Even then there are still 218 windows experiencing a moderate to substantial impact.

Existing vs Proposed (Plus Emerging Context):

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows No. of Windows Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	111	12%	0	0	20	11	786
Total	928	111	12%	0	0%	20	11	786

The results show that 111 (12%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 20 windows (2%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **11 windows (6%) will experience a moderate adverse effect** and **786 windows (85%) will experience a substantial loss. That's a combined 91% failure rate**

These are extremely poor results showing a major light loss to the majority of the Store Street elevation windows, the existing vs proposed scenario failure rate is 23%. This is set to increase to 73% with the emerging context, this is clearly unacceptable to the residents of Oxygen Towers. This is set to get worse still if the Diecast Site is tested to the proposed heights of the updated East Village SRF.

Mirror Mass vs Proposed (Plus Emerging Context):

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows No. of Windows Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	131	14%	1	0	106	180	511
Total	928	131	14%	1	0%	106	180	511

The results show that 131 (14%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 106 windows (11%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **180 windows (19%) will experience a moderate adverse effect** and **511 windows (54%) will experience a substantial loss. That's a combined failure rate of 73%.**

These are still extremely poor in this scenario showing a major light loss to the majority of the Store Street elevation windows, the Mirror Mass vs proposed scenario failure rate is 73%. This is set to increase to 91% with the emerging context, this is clearly unacceptable to the residents of Oxygen Towers. This is set to get worse still if the Diecast Site is tested to the proposed heights of the updated East Village SRF.

Existing vs Proposed (Serving Suggestion 1):

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows No. of Windows Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	236	25%	0	0	57	77	558
Total	928	236	25%	0	0%	57	77	558

The results show that 236 (25%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 57 windows (6%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **77 windows (8%) will experience a moderate adverse effect** and **558 windows (60%) will experience a substantial loss. A combined 68% failure rate**

Compared to the Existing vs Proposed scenario the Serving Suggestion 1 shows an improvement from a 73% failure rate down to 68% by locating the proposed buildings on a splayed angle from Oxygen Towers.

Existing vs Proposed (Serving Suggestion 2):

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows No. of Windows Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	296	32%	0	0	43	168	421
Total	928	296	32%	0	0%	43	168	421

The results show that 296 (32%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 43 windows (5%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **168 windows (18%) will experience a moderate adverse effect and 421 windows (45%) will experience a substantial loss. A combined loss of 63%.**

Compared to the Existing vs Proposed scenario the Serving Suggestion 2 shows an improvement from a 73% failure rate down to 63% by locating the proposed buildings on right angles to Oxygen Towers.

Existing vs Proposed Cut Back:

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows No. of Windows Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	672	72%	0	0	52	91	113
Total	928	672	72%	0	0%	52	91	113

The results show that 672 (72%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 52 windows (6%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **91 windows (10%) will experience a moderate adverse effect and 113 windows (12%) will experience a substantial loss. A combine failure rate of 22%**

Compared to the Existing vs Proposed scenario the Cutback shows an improvement from a 73% failure rate down to 22% if the building was cut back as per the Appendix F.1 drawings. This cut back is purely VSC Window driven to leave adequate retained values.

Mirror Mass vs Proposed Cut Back

Property	Number of Windows Tested	Windows that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Windows No. of Windows Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	928	830	89%	331	0	52	46	0
Total	928	830	89%	331	36%	52	46	0

The results show that 830 (89%) of 928 windows assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 52 windows (6%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **46 windows (5%) will experience a moderate adverse effect and 0 windows (0%) will experience a substantial loss. 6% Combined failure rate.**

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Compared to the Mirror Massing vs Proposed scenario the Serving Suggestion 2 shows an improvement from a 23% failure rate down to 6% if the building was cut back as per the Appendix G.1 drawings. This cut back is purely VSC Window driven to leave adequate retained values.

15.2 Vertical Sky Component Assessment Results: Daylight to rooms

Further to the VSC method for windows, if a room has more than one window then the mean VSC figure for all windows can be used if those windows are lighting the same area of the room. This is to establish whether the rooms windows combined would meet BRE recommendations.

The summary tables below cover each scenario the results of our VSC assessment and the severity of impacts in each case against Oxygen Towers. Please refer to the relevant Appendix for a full breakdown of results. Each Appendix includes a sample set of VSC Waldram diagrams in drawings EKA251011 WD01.1, 01.2 and 01.3 plus relevant Rev – Letter.

Existing vs Proposed:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	64	13%	0	0%	26	32	387
Total	509	64	13%	0	0%	26	32	387

The results show that 64 (13%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 26 rooms (5%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **32 rooms (6%) will experience a moderate adverse effect and 387 rooms (76%) will experience a substantial loss. A combined failure rate of 82%.** These are extremely poor results showing a major light loss to the majority of the Store Street elevation rooms, this impact is clearly unacceptable to the residents of Oxygen Towers.

Mirror Mass vs Proposed:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	320	63%	94	18%	46	53	90
Total	509	320	63%	94	18%	46	53	90

The results show that 320 (63%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 46 rooms (9%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **53 rooms (10%) will experience a moderate adverse effect and 90 rooms (18%) will experience a substantial loss. A combined failure rate of 28%.**

This method shows that 94 rooms will experience a gain in light, however this is only a gain against a hypothetical mass. Even then there are still 143 rooms experiencing a moderate to substantial impact.

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Existing vs Proposed (Plus Emerging Context):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	24	5%	0	0%	7	2	476
Total	509	24	5%	0	0%	7	2	476

The results show that 24 (5%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 7 rooms (1%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **2 rooms (0.4%) will experience a moderate adverse effect and 476 rooms (94%) will experience a substantial loss. That's a combined 94% failure rate.**

These are extremely poor results showing a major light loss to the majority of the Store Street elevation rooms, the existing vs proposed scenario failure rate is 82%. This is set to increase to 94% with the emerging context, this is clearly unacceptable to the residents of Oxygen Towers. This is set to get worse still if the Diecast Site is tested to the proposed heights of the updated East Village SRF.

Mirror Mass vs Proposed (Plus Emerging Context):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	40	8%	0	0%	48	105	316
Total	509	40	8%	0	0%	48	105	316

The results show that 40 (8%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 48 rooms (9%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **105 rooms (21%) will experience a moderate adverse effect and 316 rooms (62%) will experience a substantial loss. A combined loss of 83%**

These are extremely poor results showing a major light loss to the majority of the Store Street elevation rooms, the Mirror Mass vs proposed scenario failure rate is 28%. This is set to increase to 83% with the emerging context, this is clearly unacceptable to the residents of Oxygen Towers. This is set to get worse still if the Diecast Site is tested to the proposed heights of the updated East Village SRF.

Existing vs Proposed (Serving Suggestion 1):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	78	15%	0	0%	24	50	357
Total	509	78	15%	0	0%	24	50	357

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The results show that 78 (15%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 24 rooms (5%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **50 rooms (10%) will experience a moderate adverse effect and 357 rooms (70%) will experience a substantial loss. A combined loss of 80%**

Compared to the Existing vs Proposed scenario the Serving Suggestion 1 shows an improvement from a 82% failure rate down to 80% by locating the proposed buildings on a splayed angle from Oxygen Towers.

Existing vs Proposed (Serving Suggestion 2):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	113	22%	0	0%	31	111	254
Total	509	113	22%	0	0%	31	111	254

The results show that 296 (32%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 31 rooms (6%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **111 rooms (22%) will experience a moderate adverse effect and 254 rooms (50%) will experience a substantial loss. A combined loss of 72%**

Compared to the Existing vs Proposed scenario the Serving Suggestion 2 shows an improvement from a 82% failure rate down to 72% by locating the proposed buildings on right angles to Oxygen Towers

Existing vs Proposed Cut Back:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	354	70%	0	0%	44	55	56
Total	509	354	70%	0	0%	44	55	56

The results show that 354 (70%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 44 rooms (9%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **55 rooms (11%) will experience a moderate adverse effect and 56 rooms (11%) will experience a substantial loss. A combined loss of 22%.**

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Compared to the Existing vs Proposed scenario the Cutback shows an improvement from a 82% failure rate down to 22% if the building was cut back as per the Appendix F.1 drawings. This cut back is purely VSC Window driven to leave adequate retained values.

Mirror Mass vs Proposed Cut Back:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Windows that experience gains beyond the consented baseline		VSC Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	450	88%	199	39%	34	25	0
Total	509	450	88%	199	39%	34	25	0

The results show that 450 (88%) of 509 rooms assessed meet BRE criteria with a VSC reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 34 rooms (7%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **25 rooms (5%) will experience a moderate adverse effect** and **0 rooms (0%) will experience a substantial loss. A combined loss of 5%.**

Compared to the Mirror Massing vs Proposed scenario the Serving Suggestion 2 shows an improvement from a 28% failure rate down to 5% if the building was cut back as per the Appendix G.1 drawings. This cut back is purely VSC Window driven to leave adequate retained values.

15.3 Daylight Distribution Assessment Results: Daylight to rooms

The BRE guide suggests the daylight distribution (or no skyline) method can be used for existing buildings where room layouts are known. This assessment method measures the area of a room benefitting from light directly from the sky at a height of 850mm above floor (or 700mm above floor for non-domestic building types).

The BRE guide states Page 16 Section 2.2.1.1 that if “*If, following construction of a new development, the no sky line moves so that the area of the existing room, which does receive direct skylight, is reduced to less than 0.80 times its former value this will be noticeable to the occupants, and more of the room will appear poorly lit. This is also true if the no sky line encroaches on key areas like kitchen sinks and worktops*”

Contour drawings of each room assessed within Oxygen Towers are detailed in drawing numbers EKA-251011 DD_00.1 to 32.1 in their relevant Rev – Letter within their corresponding Appendix. The orange colour contour denotes the existing level of sky visibility, the blue colour contours shows the level of zero sky visibility and the cross hatch colour shows the areas of the rooms that will lose sky visibility.

The summary tables below list the results of our DD assessment and the severity of impacts in each case.. Please refer to relevant Appendix, for a full breakdown of results.

Existing vs Proposed:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	159	31%	1	0	31	47	272
Total	509	159	31%	1	0%	31	47	272

The results show that 159 (31%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 31 rooms (6%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **47 rooms (9%) will experience a moderate adverse effect** and **272 rooms (53%) will experience a substantial loss. A combined failure rate of 62%** These are extremely poor results showing a major light loss to the majority of the Store Street elevation rooms, this impact is clearly unacceptable to the residents of Oxygen Towers.

Mirror Mass vs Proposed:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	399	78%	255	1	19	11	80
Total	509	399	78%	255	50%	19	11	80

The results show that 399 (78%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 19 rooms (4%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **11 rooms (2%) will experience a moderate adverse effect and 80 rooms (16%) will experience a substantial loss. A combined failure rate of 27%**

This method shows that 255 rooms will experience a gain in light, however this is only a gain against a hypothetical mass. Even then, there are still 91 rooms experiencing a moderate to substantial impact.

Existing vs Proposed (Plus Emerging Context):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	77	15%	1	0	44	49	339
Total	509	77	15%	1	0%	44	49	339

The results show that 77 (15%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 44 rooms (9%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **49 rooms (10%) will experience a moderate adverse effect and 339 rooms (67%) will experience a substantial loss. A combined failure rate of 77%.**

These are extremely poor results showing a major light loss to the majority of the Store Street elevation rooms, the existing vs proposed scenario failure rate is 62%. This is set to increase to 77% with the emerging context, this is clearly unacceptable to the residents of Oxygen Towers. This is set to get worse still if the Diecast Site is tested to the proposed heights of the updated East Village SRF.

Mirror Mass vs Proposed (Plus Emerging Context):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	325	64%	210	0	37	17	130
Total	509	325	64%	210	41%	37	17	130

The results show that 325 (64%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 37 rooms (7%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **17 rooms (3%) will experience a moderate adverse effect** and **130 rooms (26%) will experience a substantial loss. A combined failure rate of 29%.**

These are extremely poor results showing a major light loss to the majority of the Store Street elevation rooms, the Mirror Mass vs proposed scenario failure rate is 27%. This is set to increase to 29% with the emerging context, this is clearly unacceptable to the residents of Oxygen Towers. This is set to get worse still if the Diecast Site is tested to the proposed heights of the updated East Village SRF.

Existing vs Proposed (Serving Suggestion 1):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	187	37%	1	0	54	109	159
Total	509	187	37%	1	0%	54	109	159

The results show that 187 (37%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 54 rooms (11%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **109 rooms (21%) will experience a moderate adverse effect** and **159 rooms (31%) will experience a substantial loss. A combined failure rate of 52%.**

Compared to the Existing vs Proposed scenario the Serving Suggestion 1 shows an improvement from a 62% failure rate down to 52% by locating the proposed buildings on a splayed angle from Oxygen Towers.

Existing vs Proposed (Serving Suggestion 2):

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	267	52%	0	0	56	43	143
Total	509	267	52%	0	0%	56	43	143

The results show that 267 (52%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 56 rooms (11%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **43 rooms (8%) will experience a moderate adverse effect and 143 rooms (28%) will experience a substantial loss. A combined failure rate of 36%.**

Compared to the Existing vs Proposed scenario the Serving Suggestion 2 shows an improvement from a 62% failure rate down to 36% by locating the proposed buildings on right angles to Oxygen Towers

Existing vs Proposed Cut Back:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	340	67%	1	0	27	41	101
Total	509	340	67%	1	0%	27	41	101

The results show that 340 (67%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 37 rooms (7.2%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **41 rooms (8%) will experience a moderate adverse effect and 101 rooms (20%) will experience a substantial loss. A combined failure rate of 36%.**

Compared to the Existing vs Proposed scenario the Cutback shows an improvement from a 62% failure rate down to 28% if the building was cut back as per the Appendix F.1 drawings. This cut back is purely VSC Window driven to leave adequate retained values.

Mirror Mass vs Proposed Cut Back:

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		Rooms that experience gains beyond the consented baseline		DD Rooms No. of Rooms Experiencing Adverse Impacts		
		No.	%	No.	%	20-29.99% loss (minor adverse losses)	30-39.99% loss (moderate adverse losses)	>40% loss (substantial losses)
Oxygen Towers	509	436	86%	276	1	26	30	17
Total	509	436	86%	276	54%	26	30	17

The results show that 436 (86%) of 509 rooms assessed meet BRE criteria with a DD reduction of less than 20% which is akin to a suburban setting. This is an urban setting and 26 rooms (5%) will experience a minor adverse impact that could be deemed acceptable in the urban context. **30 rooms (6%) will experience a moderate adverse effect and 17 rooms (3%) will experience a substantial loss. A combined failure rate of 36%.**

Compared to the Mirror Massing vs Proposed scenario the Serving Suggestion 2 shows an improvement from a 27% failure rate down to 9% if the building was cut back as per the Appendix G.1 drawings. This cut back is purely VSC Window driven to leave adequate retained values.

16.0 Conclusions

An independent daylight assessment has been completed by Akt Rights to Light Surveyors against the proposed Stocktons Site, 140 Great Ancoats Street, Manchester M4 6DU. The assessment focused on the impact on Oxygen Towers, Store Street, Manchester M1 2FU, conducted on behalf of the residents and Urbanbubble limited.

A digital 3D model replicating the existing and proposed building mass, including the assessed neighbouring properties and wider context properties were used within this assessment to calculate the light loss using specialist lighting software.

A thorough planning search investigation has been conducted to establish the internal layouts of each assessed property. This information was used within the digital 3D model and technical assessment to simulate the existing and proposed light levels within each property. Where appropriate, neighbouring consented schemes currently being implemented have been included within this assessment as part of the baseline assessment. This assessment has been conducted in accordance with the criteria set out in the BRE (Building Research Establishment) 209 guidance paper, 'Site layout planning for daylight and sunlight, A guide to good practice' 3rd Edition 2022 in line with Manchester City Council planning requirements.

The assessment focused on 8 different scenarios which are detailed in sections 7.0 to 14.0 of the report, the results for each scenario are covered in section 15.0. Below is a summary of each scenario based on Akt's Independent review and Stage 2 technical analysis.

Existing vs Proposed:

There is no getting away with results here, the results show catastrophic losses for all 3 daylight methodologies for Oxygen House way beyond those acceptable for the BRE 209 Paper in an inner city environment. This is the true impact and will be highly noticeable.

Mirror Mass vs Proposed:

This hypothetical assessment is somewhat flawed in this scenario, the results show gains alongside some major substantial impacts. The results clearly mask the true impact and this shows up in the Mirror Mass plus emerging context scenario.

Existing vs Proposed (Plus Emerging Context):

The results for this scenario show that the catastrophic daylight results reported for existing vs Proposed are beyond catastrophic and that what ever remaining oblique light is left for Oxygen Towers residents will be wiped out upon completion of the emerging context. The results reports are likely to be even worse if the East Village SRF update mass is assessed.

Mirror Mass vs Proposed (Plus Emerging Context):

The assessment provides similar results to **Existing vs Proposed (Plus Emerging Context)** which demonstrates the hypothetical mirror massing (in this instance) is a mask to cover the overall future residual emerging context impact.

Existing vs Proposed (Serving Suggestion 1):

We conducted our own investigations to see how the results would improve by relocating proposed Building A and B on the development site. Serving Suggestion 1 improved the results by a fair degree.

Existing vs Proposed (Serving Suggestion 2):

This serving suggestion proved to be the more effective one in terms of reducing the light loss impact to Oxygen Towers, however even with these changes there are still seismic impacts. Both serving suggestions retain the same proposed volume, although we appreciate that there would need to be design resolution to make these work.

Existing vs Proposed Cut Back:

This cut back was designed to keep acceptable urban retained VSC light levels, although if implemented would seriously eat away at the development potential for Buildings A and in small part Building B.

Mirror Mass vs Proposed Cut Back:

As per Existing vs Proposed Cut Back, the mirror mass cut back is less severe, this too was designed to keep acceptable urban retained VSC light levels. Due to the angles of cut back both Building A & B will lose volume as result of respecting the light levels.

Overall Summary:

Since becoming involved in this matter, our stance has not changed in regard to the impact of the proposed Stocktons development on Oxygen Towers. This assessment has cemented my concerns regarding the future amenity for the Oxygen Tower residents on the Store Street elevation. Everyone will be affected by the development from the 1st floor to the 32nd floor and the majority will experience catastrophic light losses to the point that artificial lighting may be required on a permanent basis to function within their property.

Our independent review and technical analysis has revealed the need to seriously consider the validity of the application in terms of light loss and amenity. The scheme cannot be allowed to generate this extortionate level of light loss and a major redesign is required to ensure that it is more sympathetic to Oxygen Towers. This is especially evident based on the results contained within this report. The results show that Building A is situated too close to Oxygen Towers however the results are packaged. This assessment demonstrates that the Stocktons current planning application is harmful and to the detriment of Oxygen Towers'

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natural light. It is recommended that the planning committee take heed of this report and reject / defer the application decision until such time the design allows / maintains sufficient light into Oxygen Towers.

May I remind you that we are still yet to review Oxygen Towers' legal easement to natural light over and above the Stocktons site, now that we have our own assessment model we can provide this advice in due course.

Akt Rights to Light Surveyors Limited.

17.0 Appendices

Appendix 1.1: Existing vs Proposed

Appendix A.1: Mirror Mass vs Proposed

Appendix B.1: Existing vs Proposed (Plus Emerging Context)

Appendix C.1: Mirror Mass vs Proposed (Plus Emerging Context)

Appendix D.1: Existing vs Proposed (Serving Suggestion 1)

Appendix E.1: Existing vs Proposed (Serving Suggestion 2)

Appendix F.1: Existing vs Proposed Cut Back

Appendix G.1: Mirror Mass vs Proposed Cut Back

17.1 Appendix 1.1

Existing vs Proposed

17.2 Appendix A.1

Mirror Mass vs Proposed

17.3 Appendix B.1

Existing vs Proposed (Plus Emerging Context)

17.4 Appendix C.1

Mirror Mass vs Proposed (Plus Emerging Context)

17.5 Appendix D.1

Existing vs Proposed (Serving Suggestion 1)

17.6 Appendix E.1

Existing vs Proposed (Serving Suggestion 2)

17.7 Appendix F.1

Existing vs Proposed Cut Back

17.8 Appendix G.1

Mirror Mass vs Proposed Cut Back