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60 MARTIN PLACE_ PLANNING JUSTIFICATION APPENDIX B SHADOW IMPACT ANALYSIS REPORT

Prepared for Investa & Gwynvill Group
07 July 2014

Issue Date	Description	Reviewed	Approved
040713	FINAL DRAFT	JH	MP
100713	UPDATED FINAL DRAFT	JH	MP
150813	FINAL REPORT	JH	MP
070714	2014 UPDATE	JH	MP

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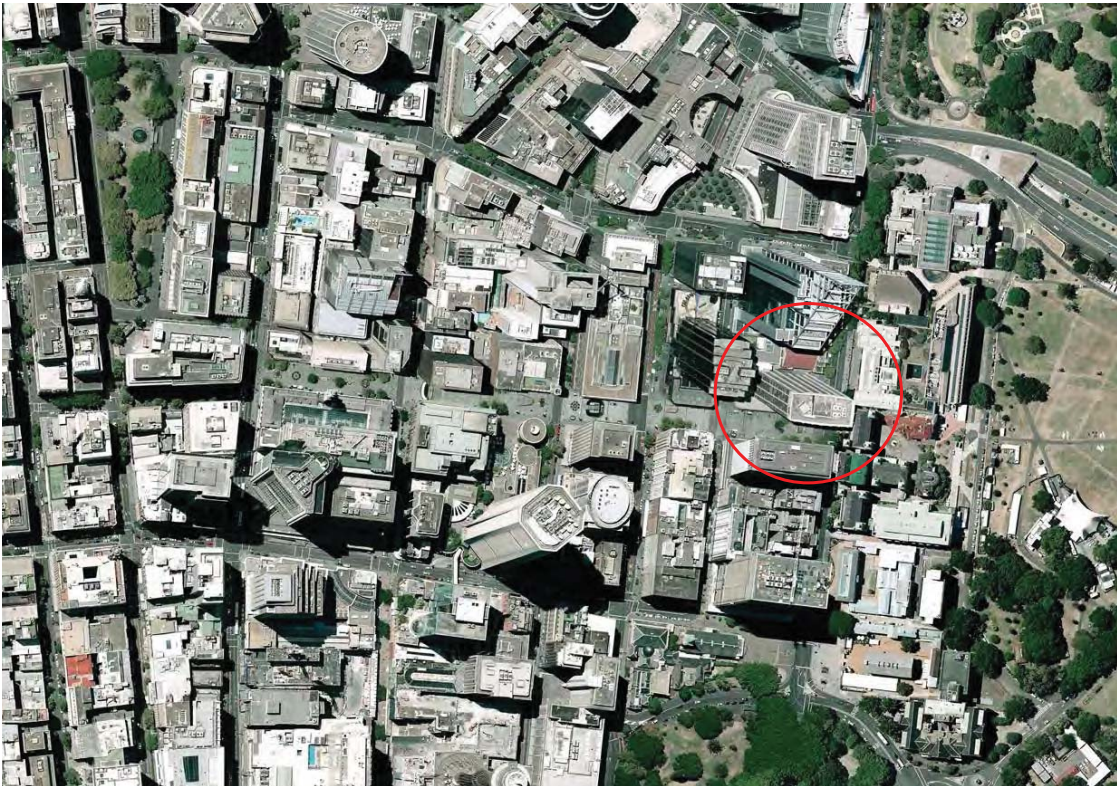


Figure1_ Aerial View of Site [Google Earth Pro]

01 Introduction

Introduction

This Shadow Impact Analysis Report is submitted as supporting documentation for a Planning Justification Report prepared by JBA Urban Planning Consultants and should be read in conjunction with this and its appendices. The Planning Proposal seeks an amendment to the Sydney Local Environment Plan 2012 (SLEP 2012) to facilitate the redevelopment of 60 Martin Place. This report has been prepared by Hassell on behalf of Investa Nominees Pty Ltd ATF 60 Martin Place Trust.

This report seeks to examine and assess the overshadowing impact of the proposed development as described by the proposed built form maximum envelope.

The Location

The proposed amendment seeks to facilitate the redevelopment of no.58 - 60 Martin Place and a portion of No 187 Macquarie Street, for the rest of this report referred to as 60 Martin Place.

60 Martin Place is located on the North West intersections of Macquarie Street, Martin Place and Phillip Street. It is bounded on the fourth side by St Stephens Uniting Church and the annex of 126 Phillip Street tenanted by Deutsche Bank. On the southern edge below ground it is bounded by Martin Place Railway Station concourse and tunnels. The site includes 2561 sqm within the boundary of 60 Martin Place plus a 5.5m cantilever over St Stephens Church boundary providing an additional 155 sqm. The existing building consists of a 116/120m tall tower set back from a 16/20m tall podium which was added at a later date.

Proposed Built Form Maximum Envelope

The Proposed Built Form Maximum Envelope documents the geometric envelope achievable within the constraints of the site.

This envelope has been defined by;

- _ solar access controls set out by The City of Sydney,
- _ and agreed setbacks to Martin Place and Macquarie Street that respond to the particular context of surrounding buildings, notably St Stephens Church, the RBA and the Sydney Hospital.

Refer to page 4 and 5 of this report for an explanation of how this envelope has been generated.

Methodology

The images have been produced by HASSELL using 3D Studio Max, and have been based on the following base information:

_ City model supplied by the City of Sydney including city buildings and topography (The supplied model has an accuracy of +/- 300mm)

The shadow studies contained within this report are accurate to the implied limits of the supplied base information. HASSELL does not accept responsibility for the

01 Introduction

Reference Documents_LEP

Sun Access Protection Map

60 Martin Place falls within the Martin Place 5B sun access plane as defined by LEP controls and highlighted on the map opposite.

The objective of the sun access plane controls is to ensure that sunlight is maximised within significant public spaces and "to ensure sunlight access to the facades of sandstone buildings in special character areas to assist the conservation of the sandstone and to maintain amenity to those areas".¹

1 LEP 2012 Item 6.17

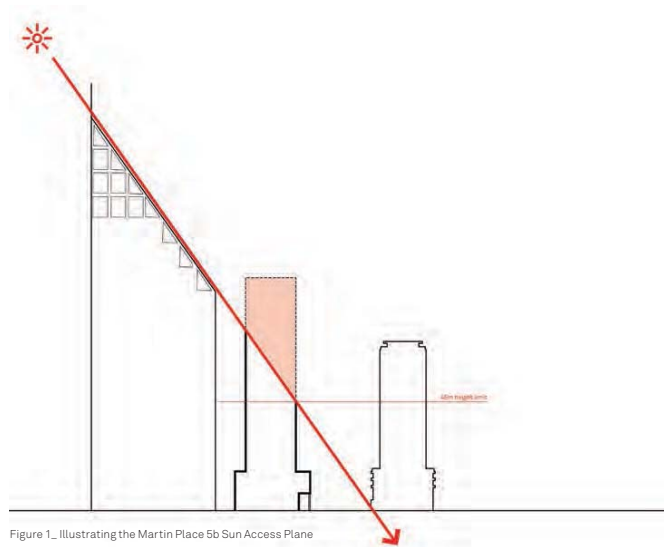


Figure 1_ Illustrating the Martin Place 5b Sun Access Plane

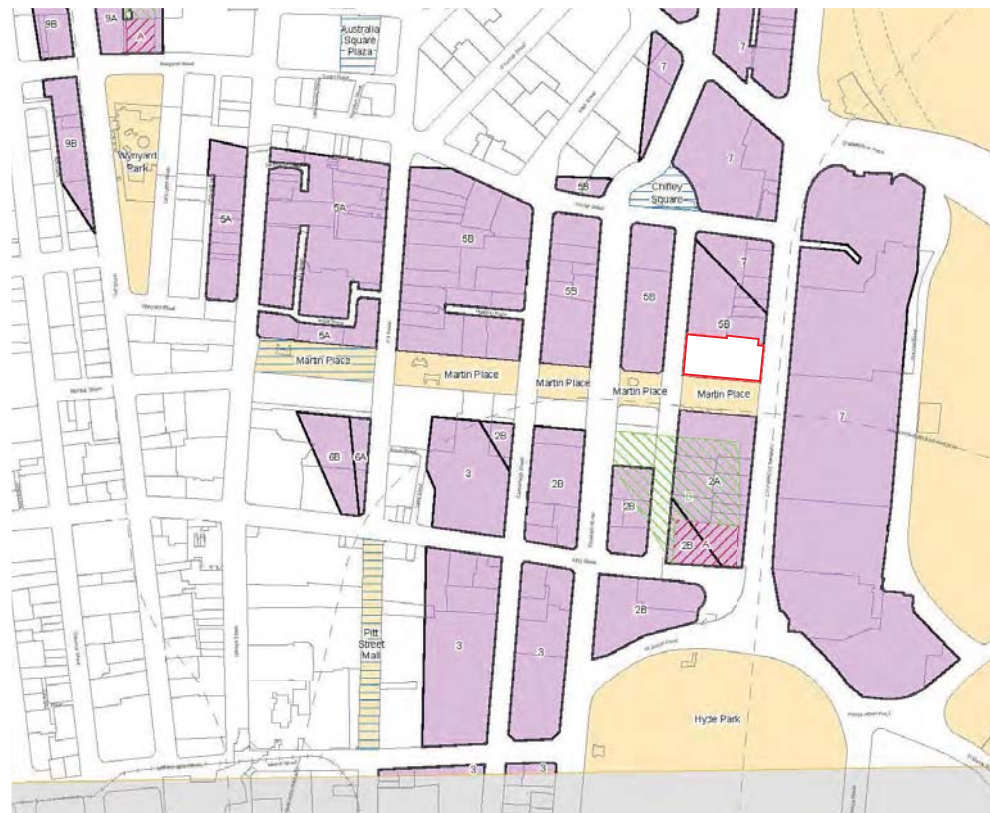


Figure 2_ Sun Access Protection Map
Source: City of Sydney LEP 2012, Sheet SAP_014

Legend

- Refer Martin Place controls
- Area protected by sun access plane

01 Introduction

Reference Documents_LEP

Sun Access Plane 5b

Sun access plane 5b is described in the diagram opposite and the text below taken from clause 6.17 (13) of the LEP2012. More detailed information is provided by the DCP 2012 and outlined on page 23 of this report.

"The front of each plane is a line between two specified points (X and Y) and the sides of the plane extend back from those points along a specified horizontal bearing (B) and vertical angle (V)." The coordinates and bearings are taken from true north.

(13) For the Martin Place 5B sun access plane:

- (a) X is a point at 34298E, 51098N, 60RL, and Note. Approximately 45 metres above the junction of the northern alignment of Martin Place and the eastern alignment of Pitt Street.
- (b) Y is a point at 34626E, 51069N, 78RL, and Note. Approximately 45 metres above the junction of the northern alignment of Martin Place and the western alignment of Macquarie Street.
- (c) B is 358.4 degrees, and
- (d) V is 47.0 degrees.

The sun access plane described for Martin Place 5b is equivalent to the sun angle on April 14th at noon.

The diagram below illustrates the maximum envelope permitted by LEP controls.

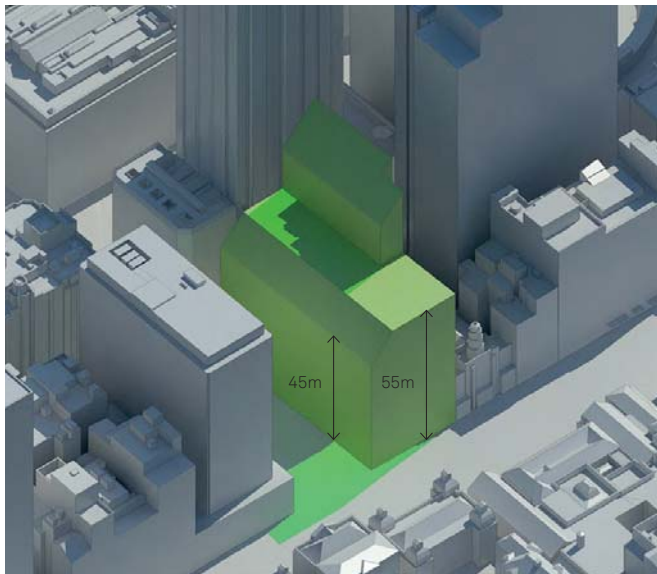


Figure 3_Diagram illustrating the maximum envelope permitted by the LEP

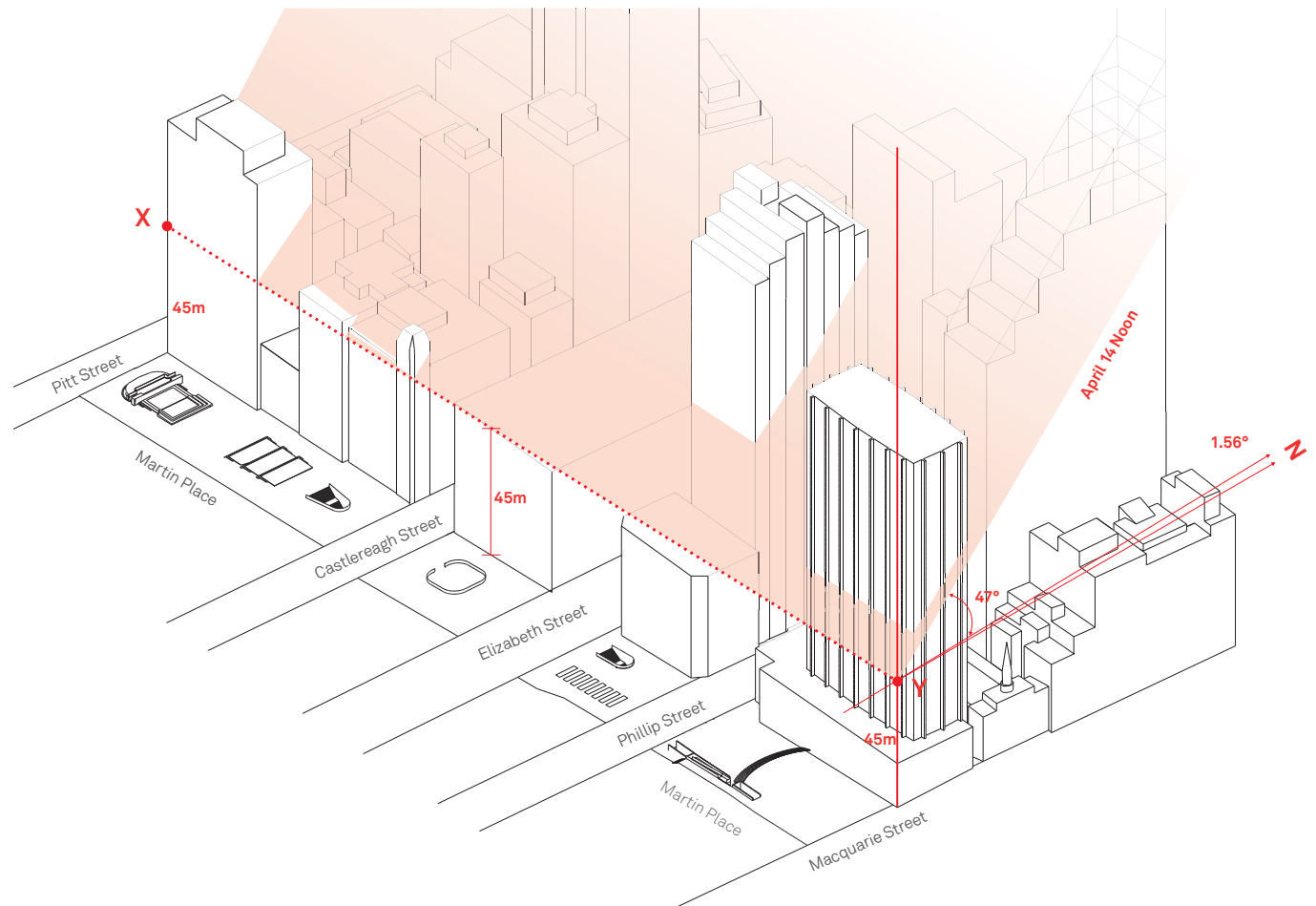


Figure 4_Diagram illustrating the sun access plane

02 Methodology

Determining the proposed built form maximum envelope

Controls

The key controls that determine the proposed built form maximum envelope are described in the letter dated 27 February 2013

"The CSPC indicated they would consider the merits of a development to replace the commercial tower that did not add to, and preferably reduced, the existing shadow profile on both the ground plane of Martin Place and the building facades on its southern edge. The critical date and period for assessment is as follows:

*_14 April;
_Between 12 noon and 2pm*

The total area of shadow on both the ground plane and the building facades must each be less than or equal to the existing shadow, when assessed independently of each other. The height of the new building must be no higher than the existing building."

Further advice was given dated 19th June 2014 which relaxed the constraint with regard the existing height.

"The briefing was positively received by the committee. They saw merit in reinforcing the dominant street wall height to Macquarie Street with the nil-setback extension of the tower footprint to the 45m height level. They were comfortable with additional height (to 32 floors) within the envelope as shown, with the proviso that shadow impacts are handled sensitively."

Figure 1 and 2 illustrate the control times overlayed on the existing tower. When understood in conjunction with the existing overshadowing they demonstrate how the controls effectively pin the western edge of the tower to the existing position.

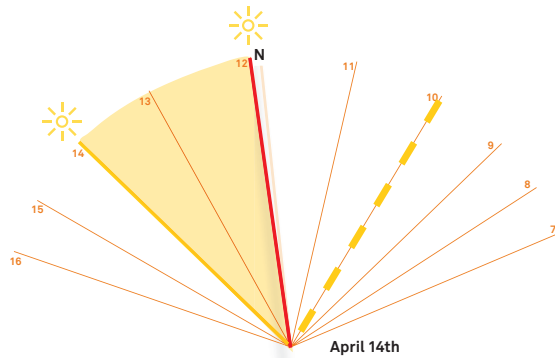


Figure 1_Angles of the sun in plan view on April 14th

Solar Access Maximum Envelope

Figures 3 and 4 illustrate the existing tower.



Figure 3_ Existing Tower

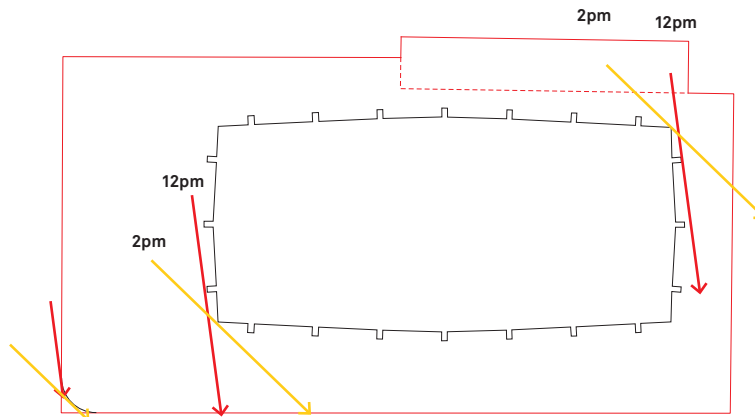


Figure 2_Control Times

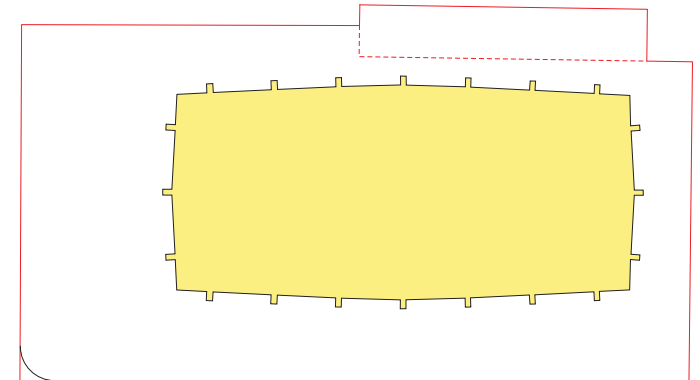


Figure 4_ Existing Tower

02 Methodology

Solar Access Maximum Envelope

Figures 5 and 6 illustrate the maximum allowable envelope for the tower if the solar access controls were the only constraint.

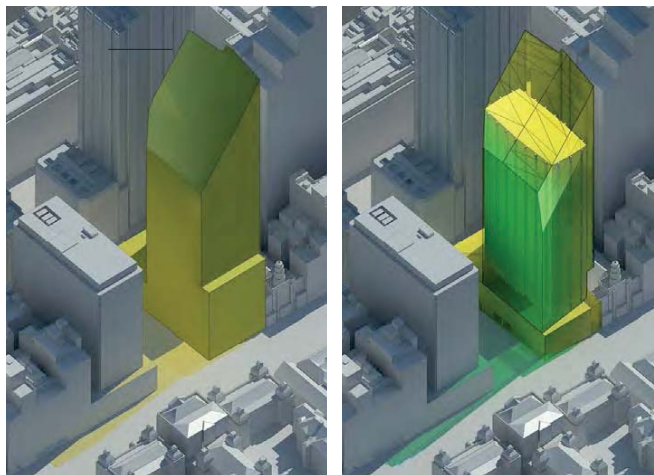


Figure 5 _ Solar Access Maximum Envelope

Proposed Built Form Maximum Envelope

Figures 7 and 8 describe the proposed built form maximum envelope for which approval is sought. It is based on the solar access maximum envelope but with the following modifications:

- _setback to Martin Place to equal the existing RBA setback,
- _setback above 45m to Macquarie St to equal the existing outside face of 60 Martin Place parallel to the Macquarie Street alignment
- _defined roof feature zone shown dashed and sitting within the solar access maximum envelope - subject to further refinement during the preparation of a detailed DA for the site.

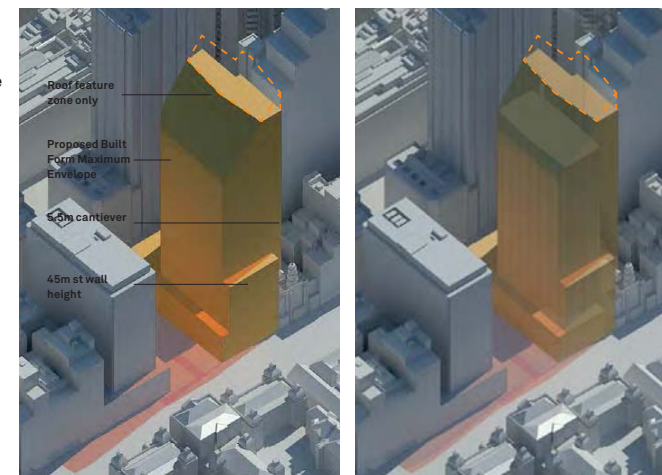


Figure 7 _ Proposed Built Form Maximum Envelope

The allowance for the roof feature zone will permit a design able to make a full contribution to the Sydney skyline as view from The Domain, Botanical Gardens and harbour.

Legend

- Proposed building envelope
- Maximum sun access envelope
- Site boundary

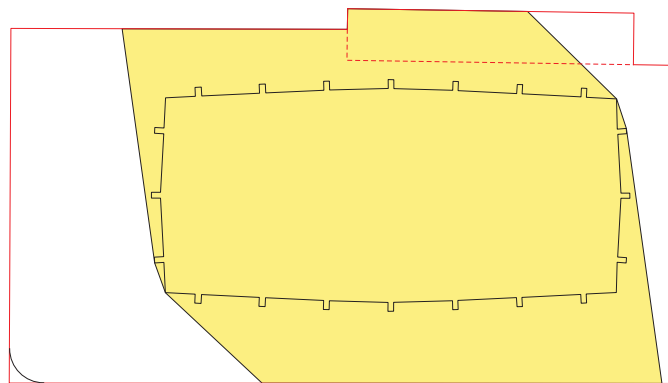


Figure 6 _ Solar Access Maximum Envelope

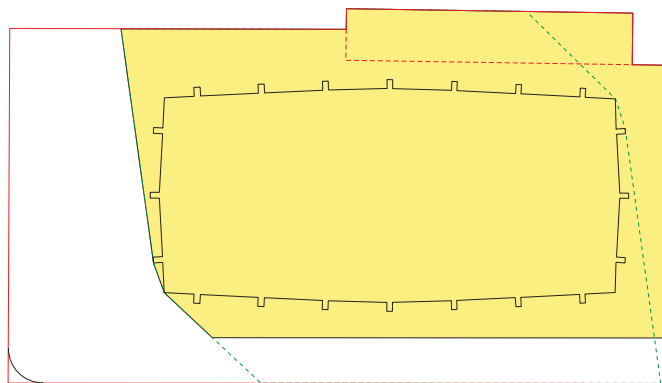


Figure 8 _ Proposed Built Form Maximum Envelope

02 Methodology

6 Aerial view of an Proposed maximum allowable envelope



Figure 1_Existing aerial with proposed maximum allowable envelope _copyright Air view online

02 Methodology

Existing

7

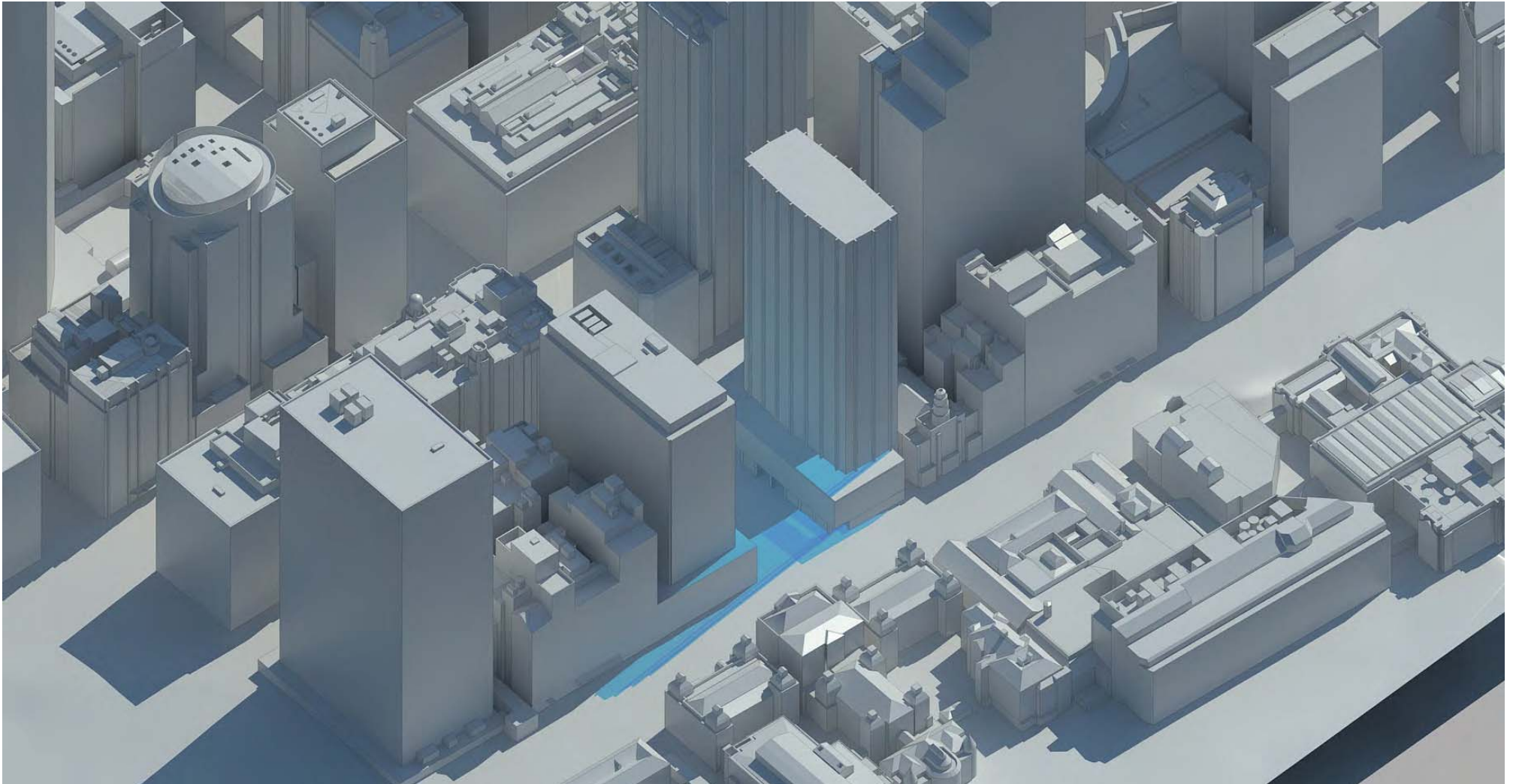


Figure 1_Existing building

02 Methodology

8

Solar Access Maximum Envelope

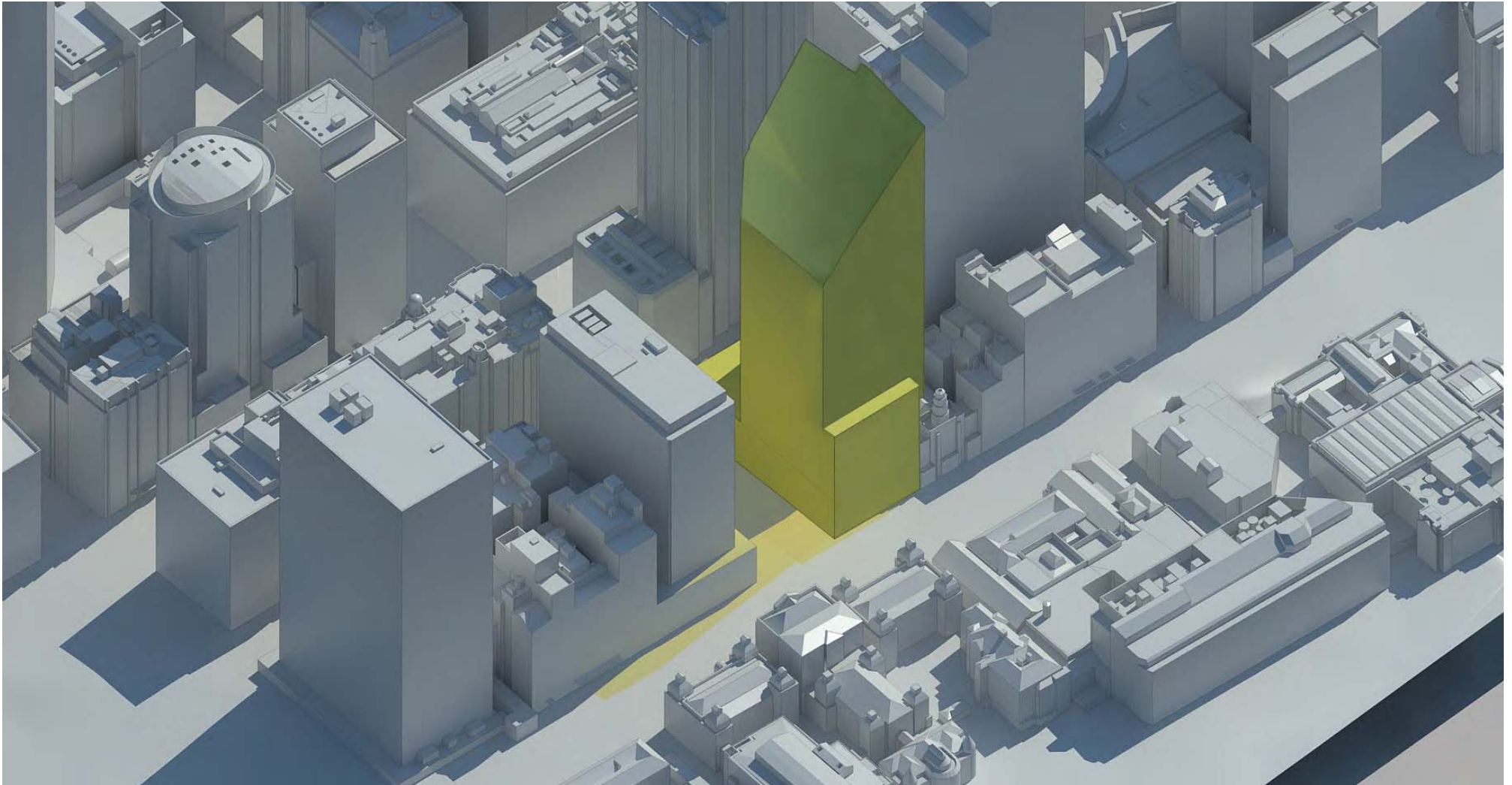


Figure 1_Solar Access Maximum Envelope

02 Methodology

Solar Access Maximum Envelope (with existing)

9

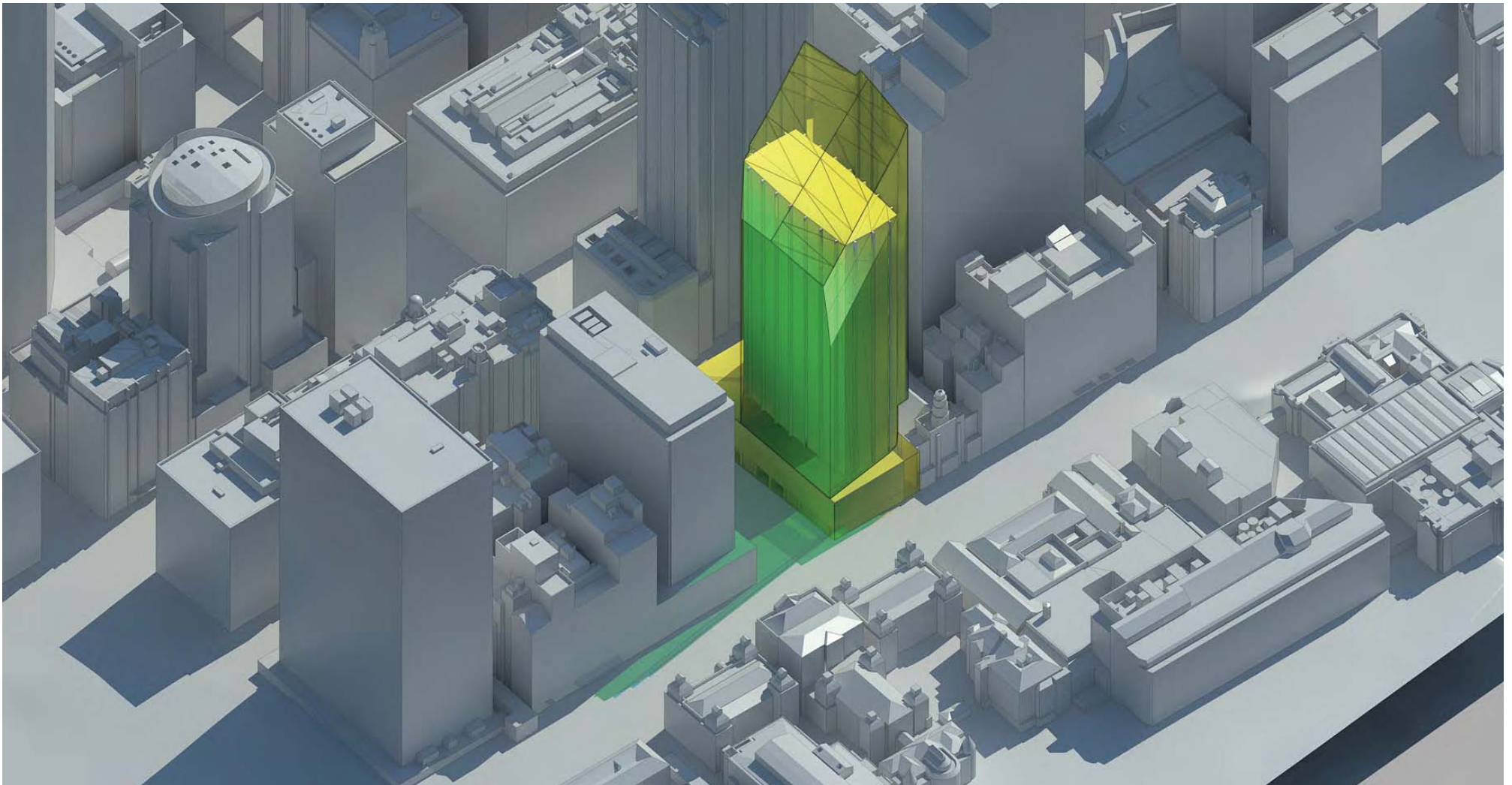


Figure 1_Solar Access Maximum Envelope with Existing

02 Methodology

Proposed Built Form Maximum Envelope

Option 1

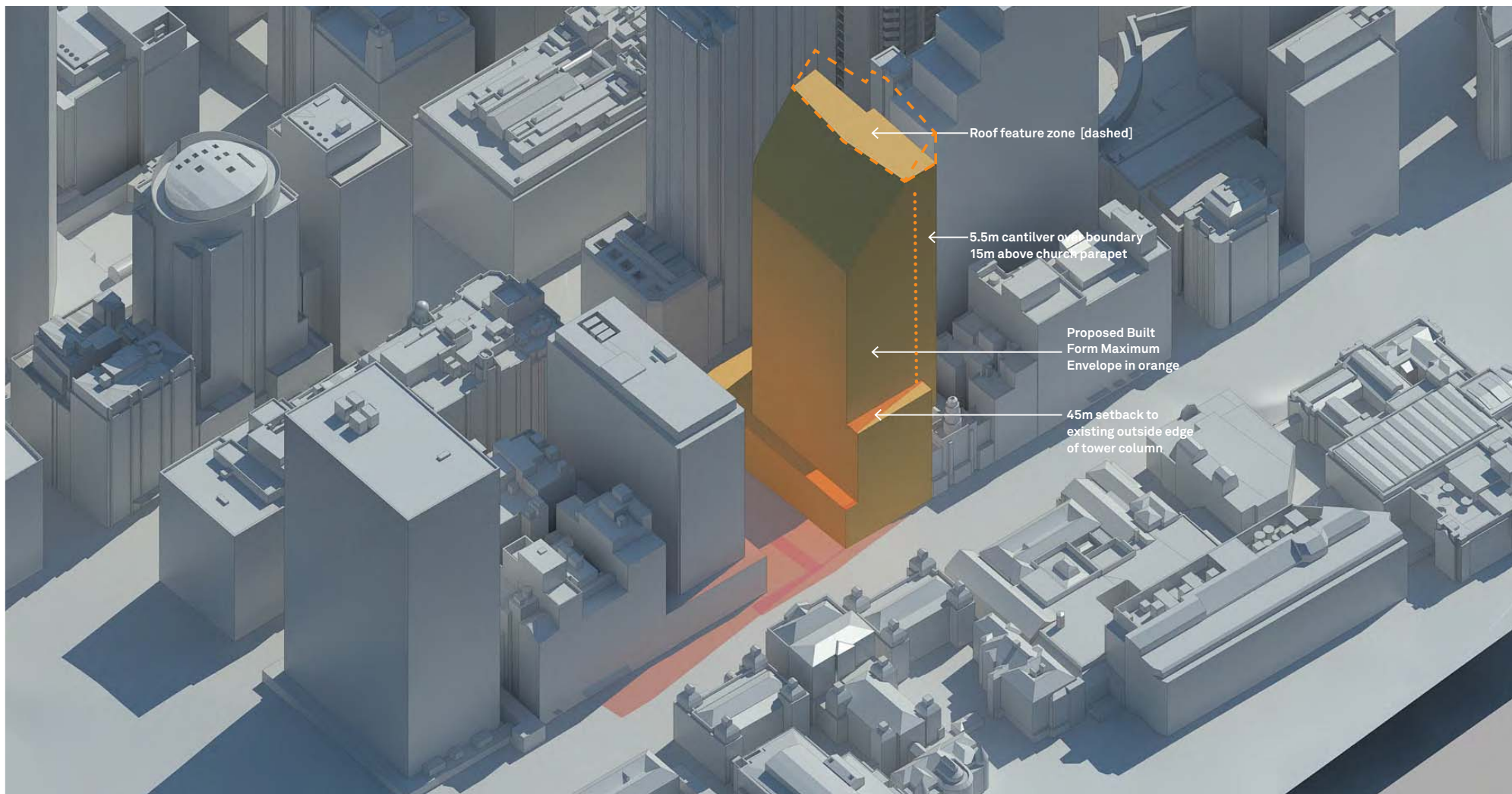


Figure 1_Proposed Built Form Maximum Envelope

02 Methodology

Proposed Built Form Maximum Envelope (with existing)

11

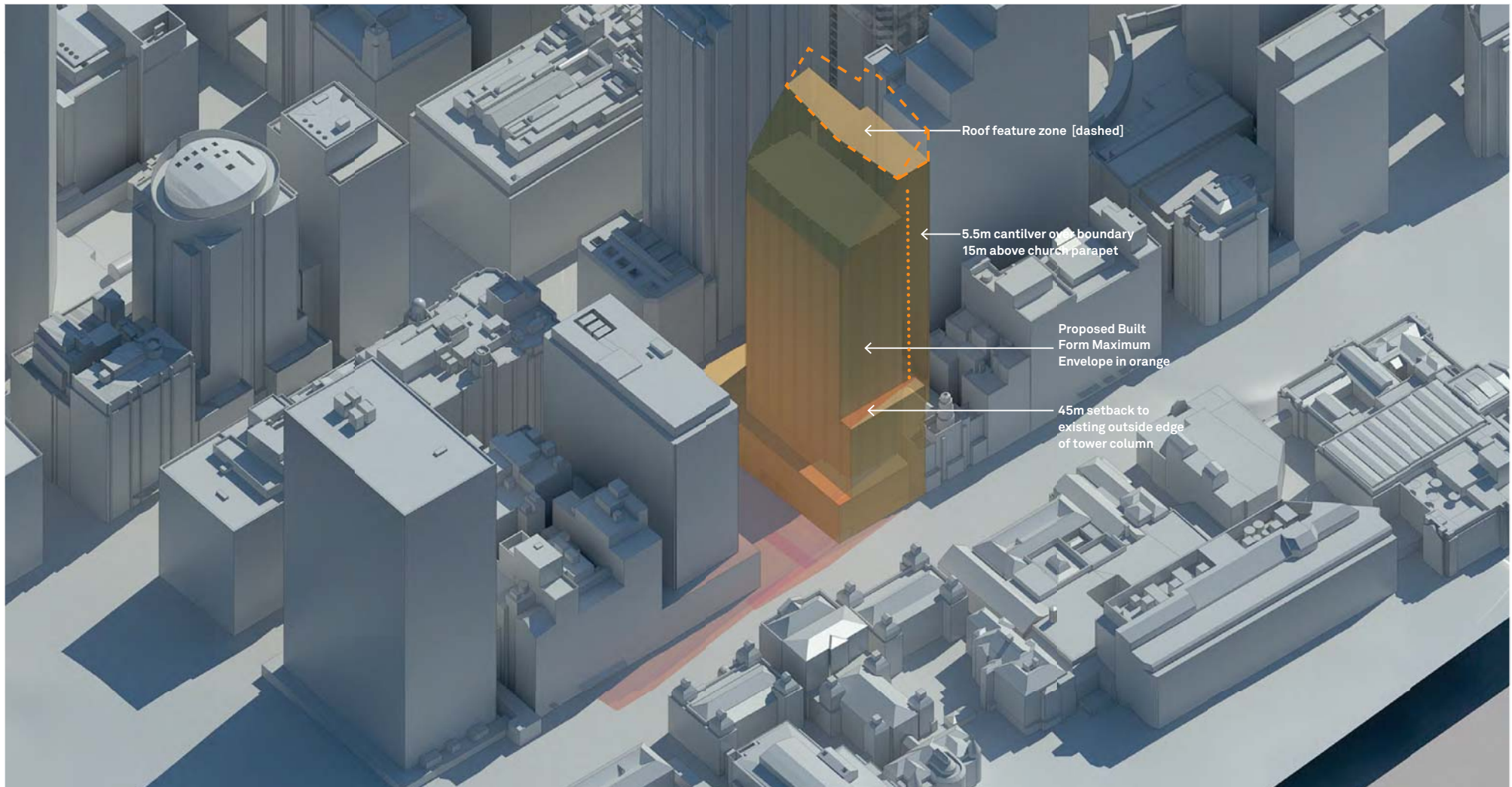


Figure 1_Proposed Built Form Maximum Envelope with Existing

02 Methodology

12

LEP Compliant Maximum Envelope

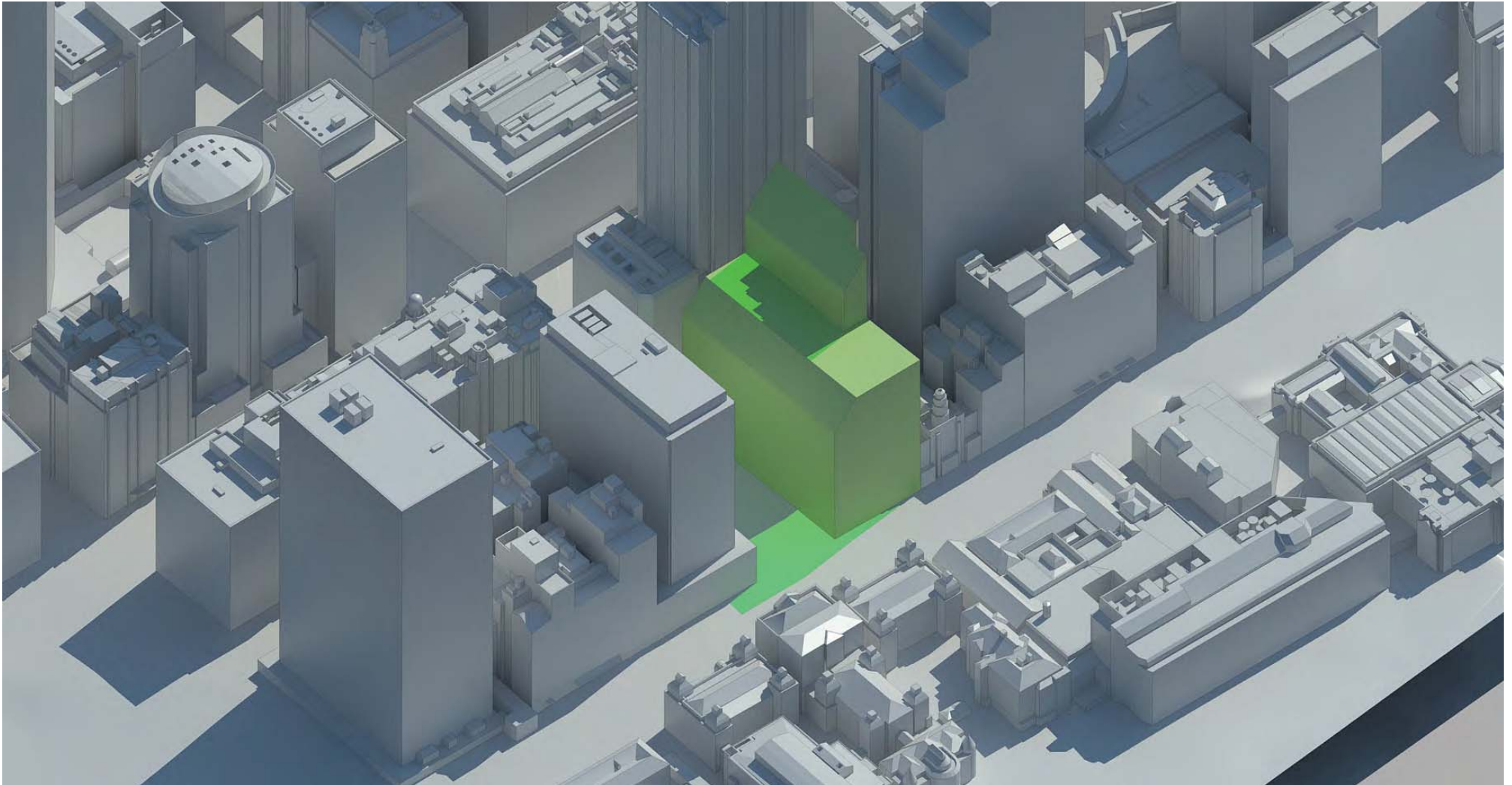


Figure 1_LEP compliant Maximum Envelope

02 Methodology

LEP Compliant Maximum Envelope (with existing)

13

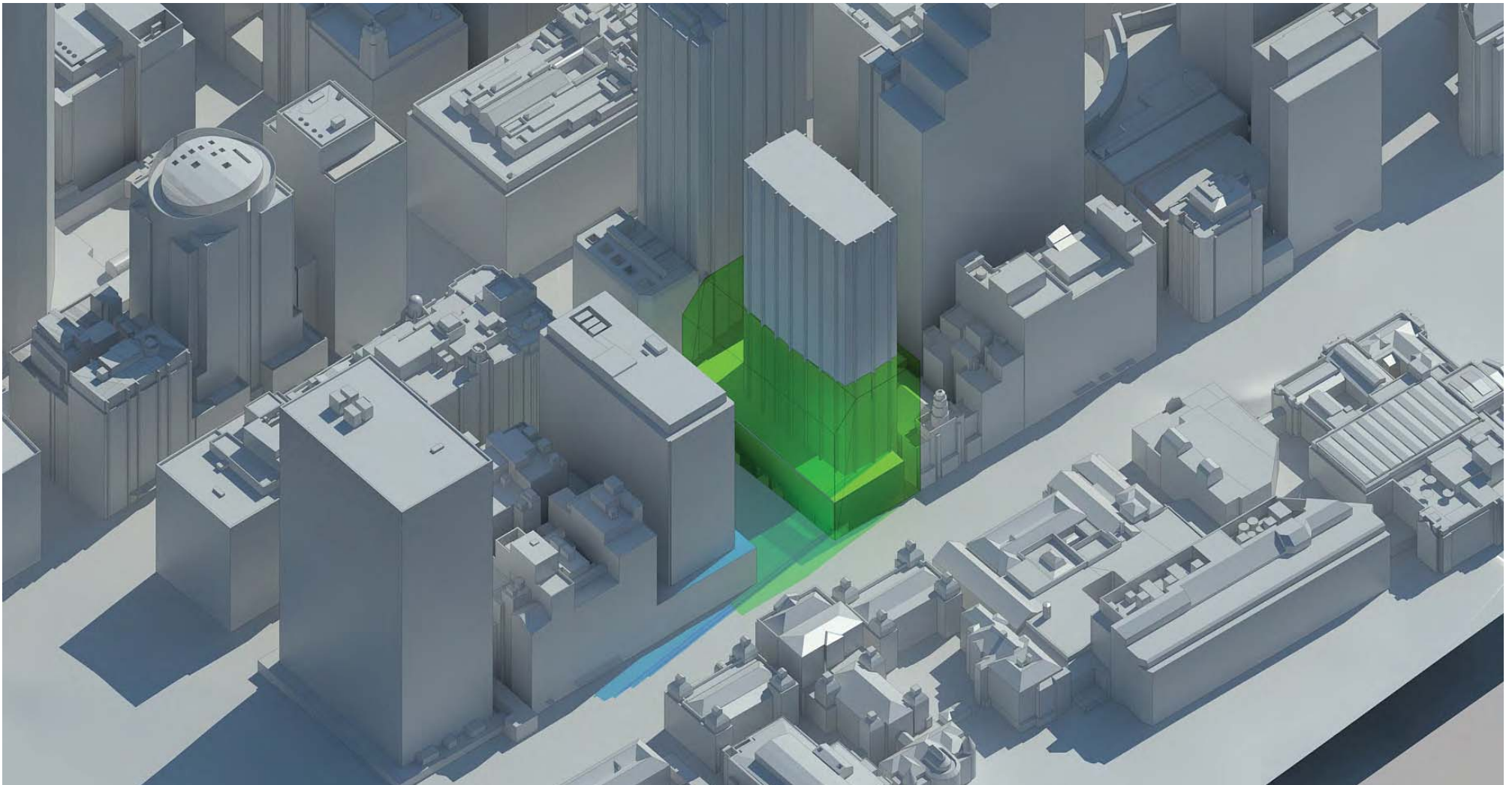


Figure 1_LEP compliant Maximum Envelope with Existing

April 14 12pm - 2pm every 10 mins



03 Control Time

16

Proposed Built Form Maximum Envelope

14 April 12.00pm

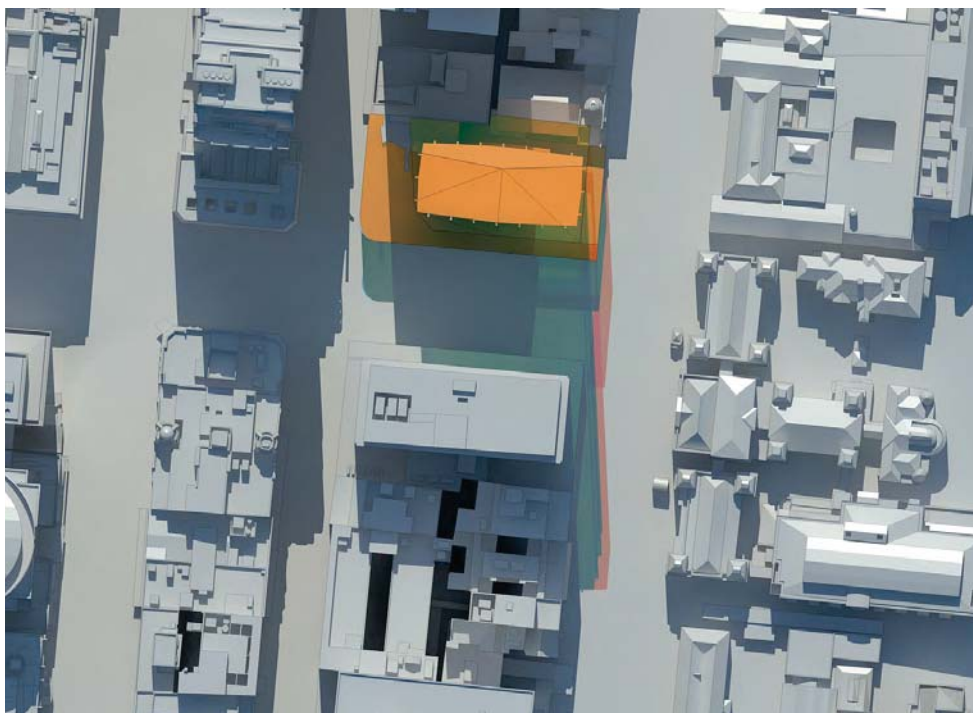


Figure 1_Plan view

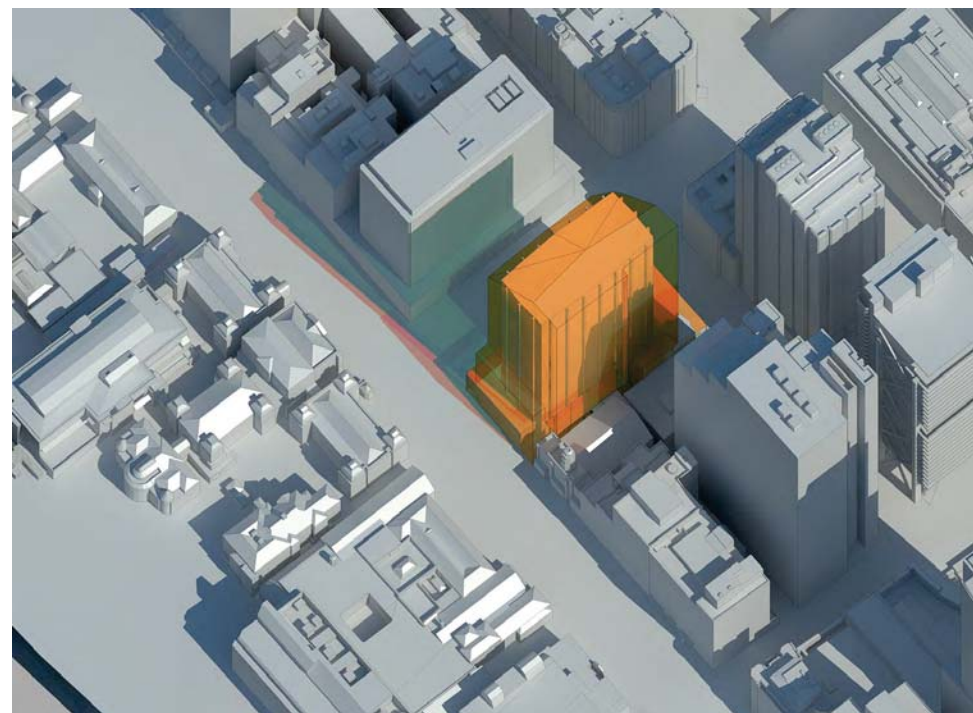


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 12.10pm

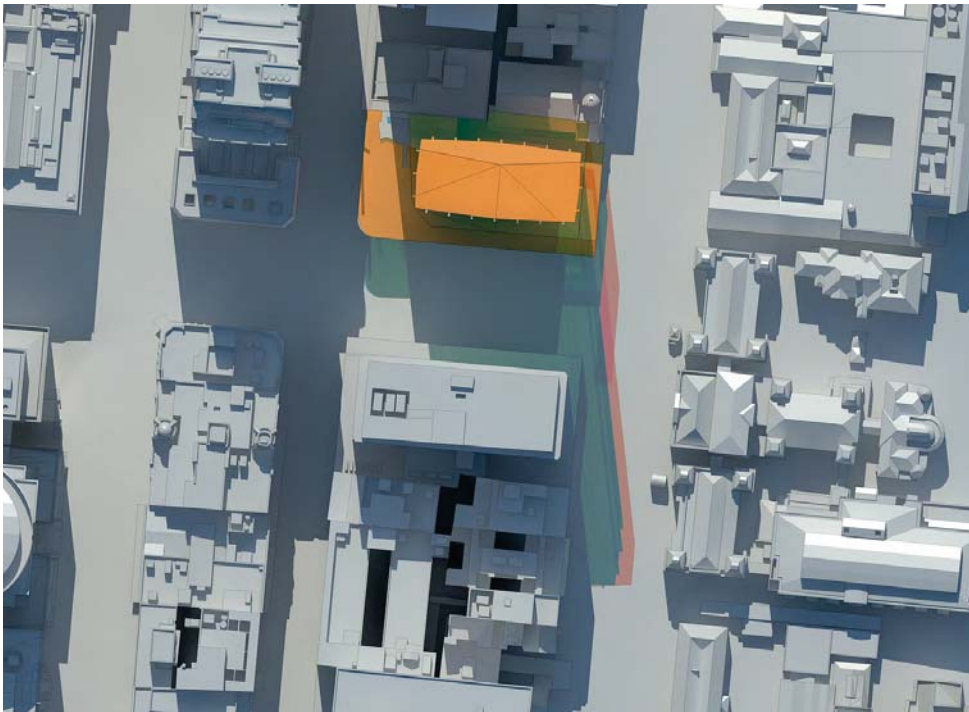


Figure 1_Plan view

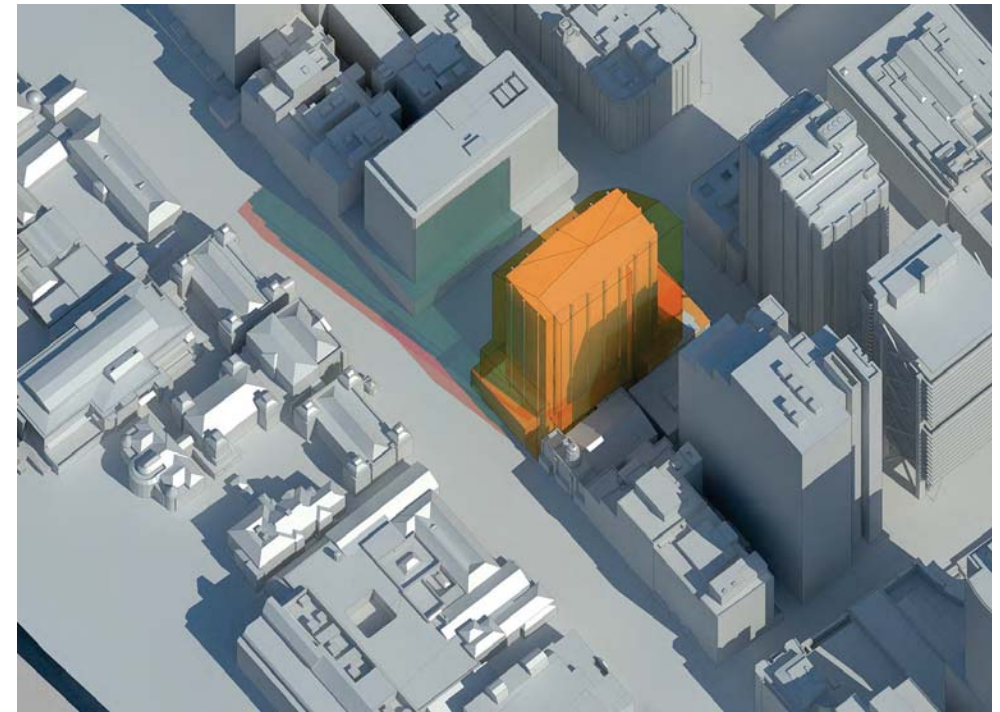


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

18

Proposed Built Form Maximum Envelope

14 April 12.20pm

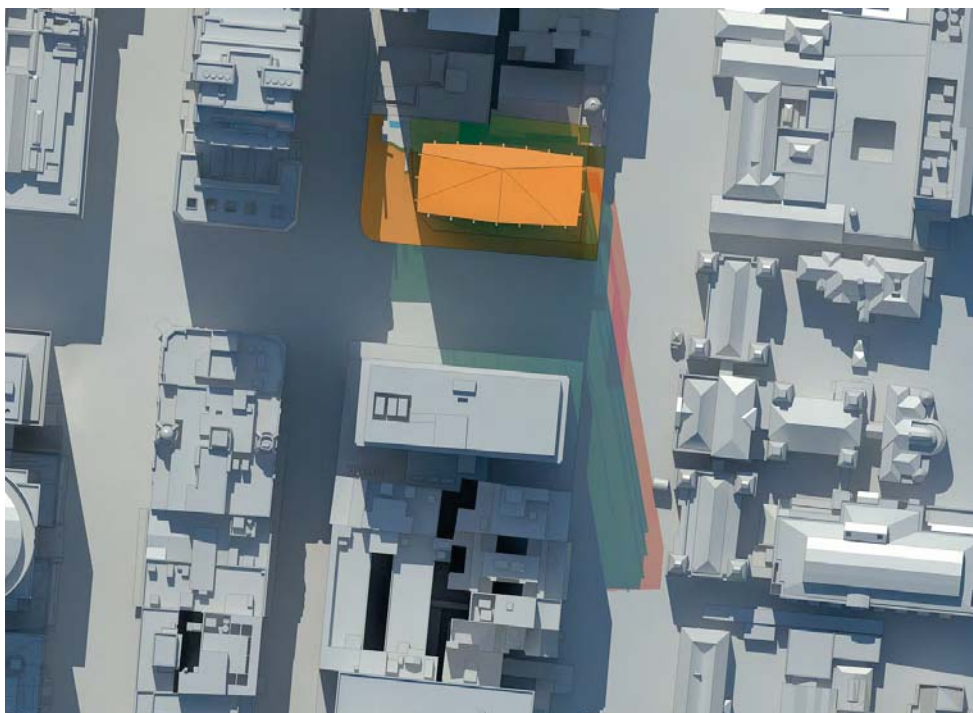


Figure 1_Plan view

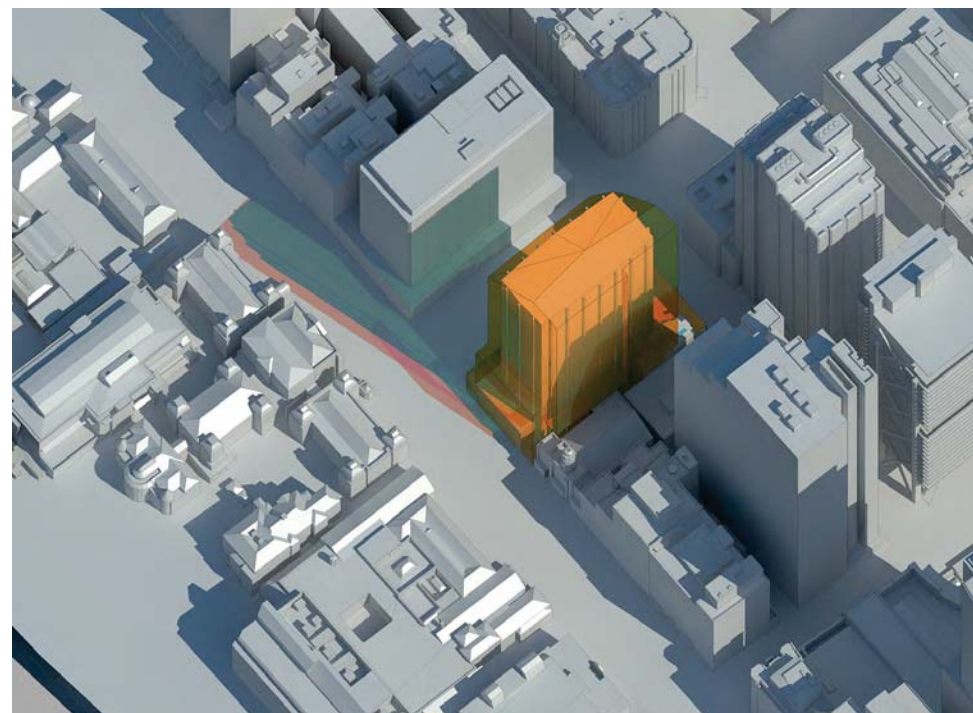


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 12.30pm

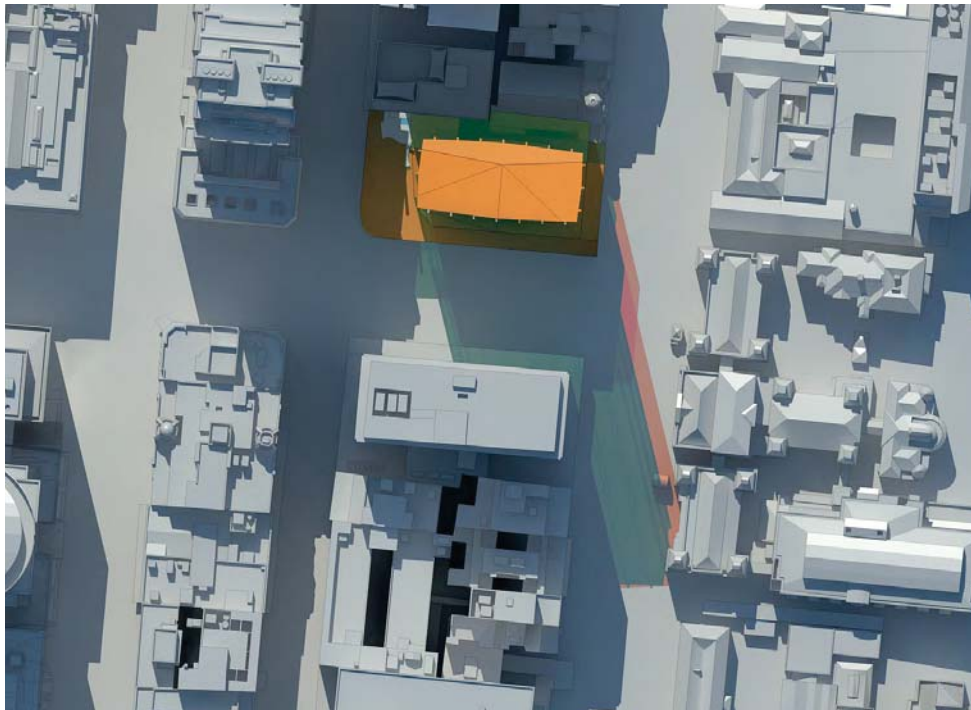


Figure 1_Plan view

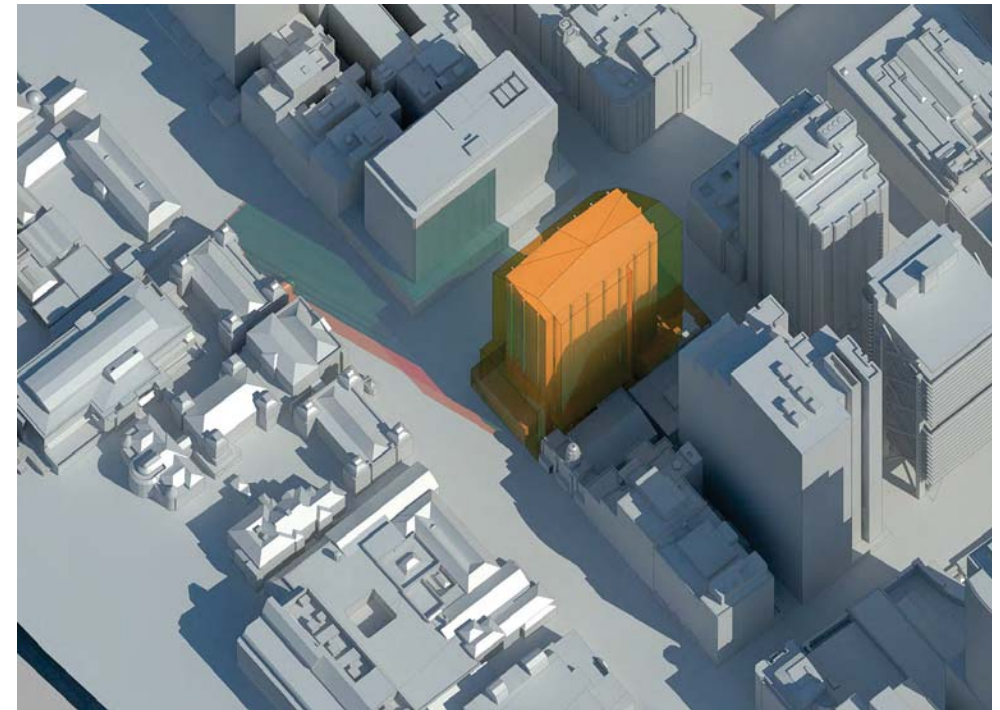


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 12.40pm

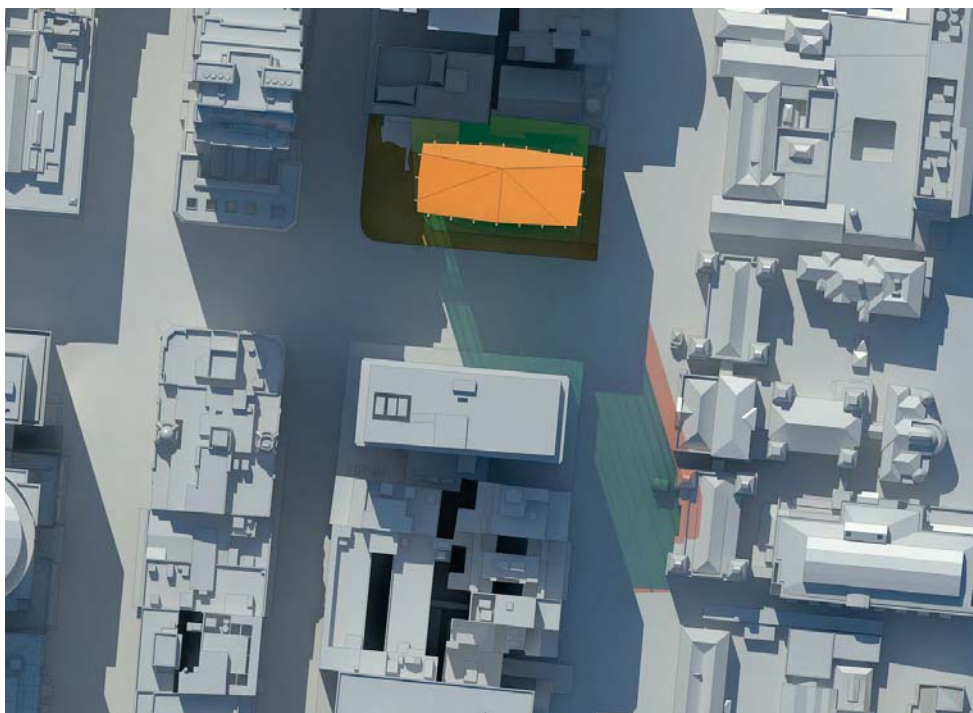


Figure 1_Plan view

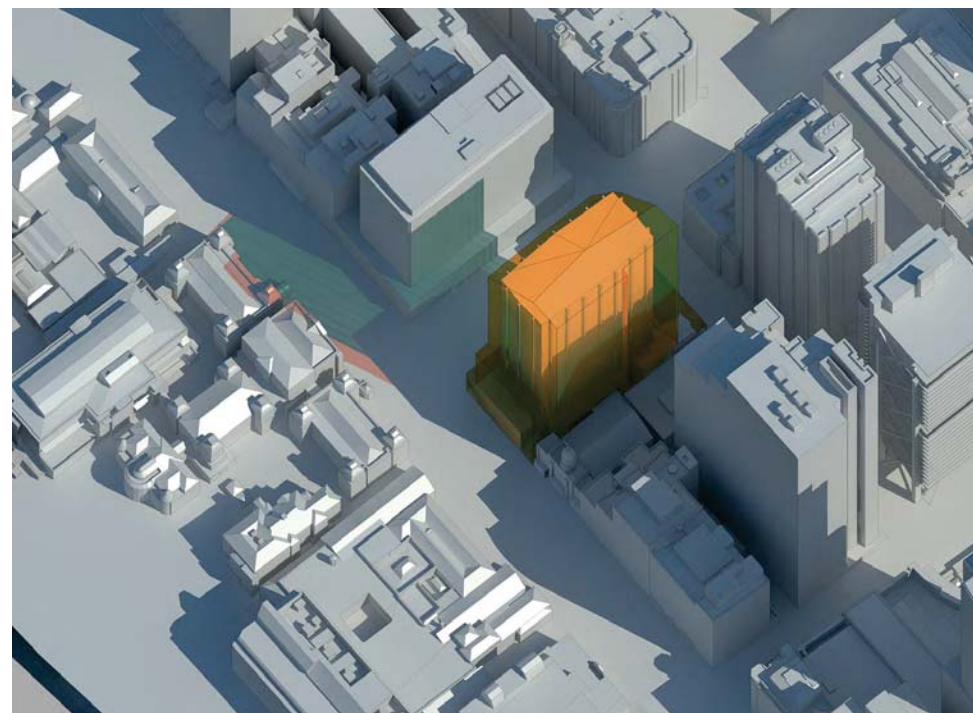


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 12.50pm

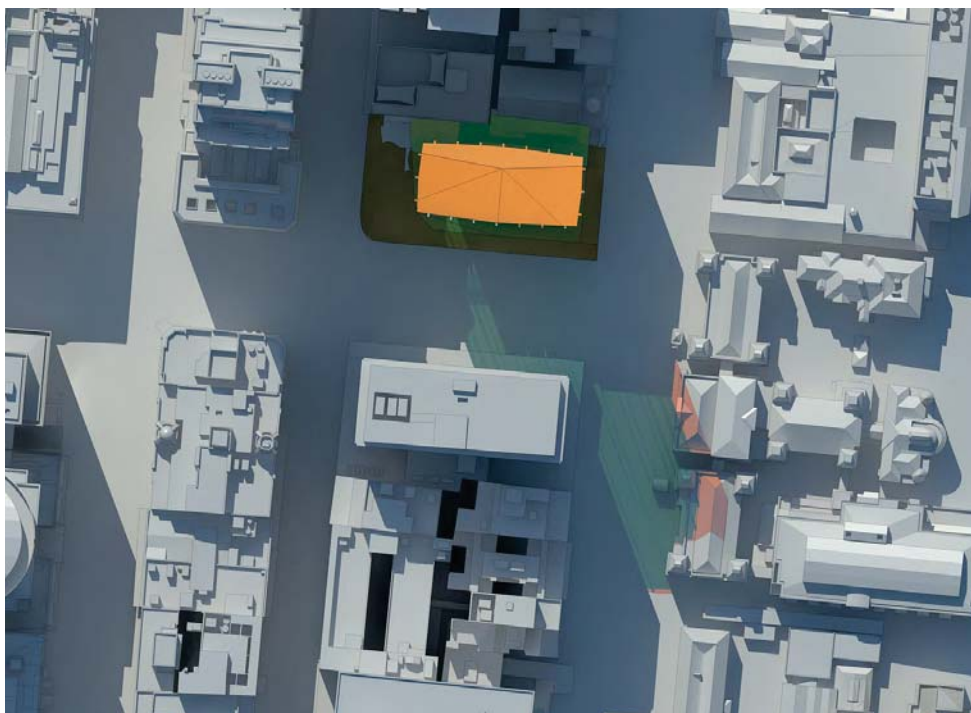


Figure 1_Plan view



Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

22

Proposed Built Form Maximum Envelope

14 April 1.00pm

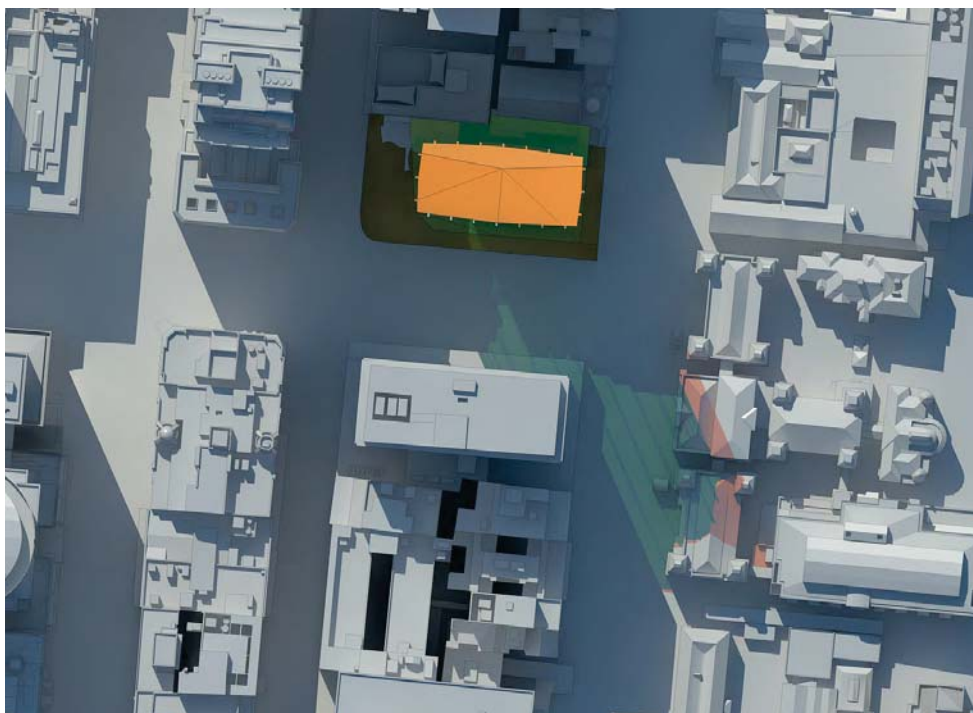


Figure 1_Plan view



Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 1.10pm

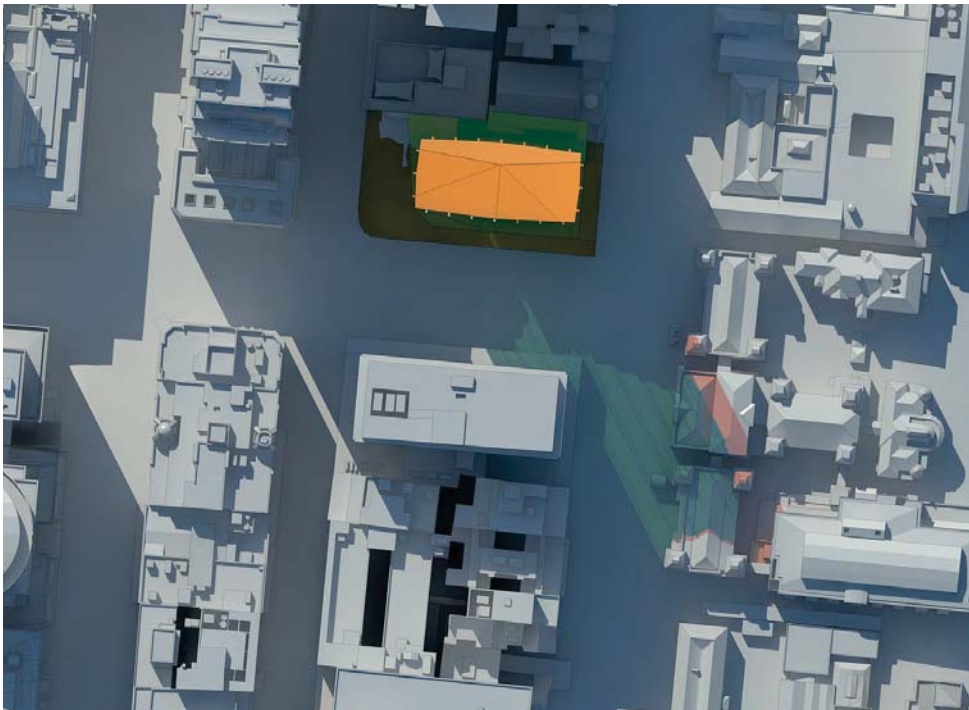


Figure 1_Plan view

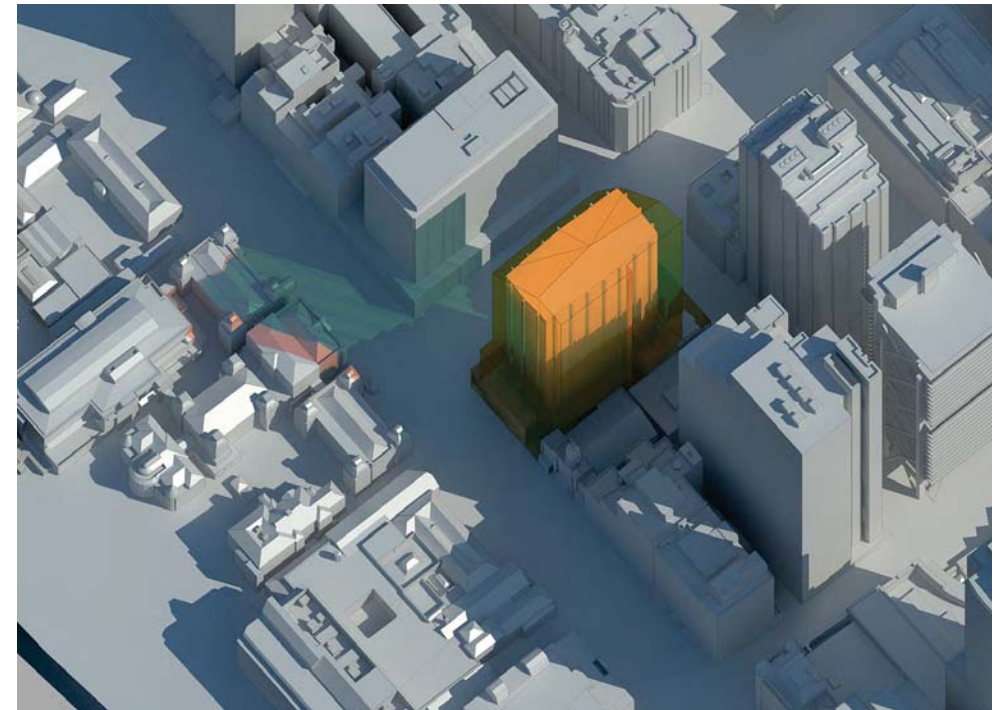


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

24

Proposed Built Form Maximum Envelope

14 April 1.20pm

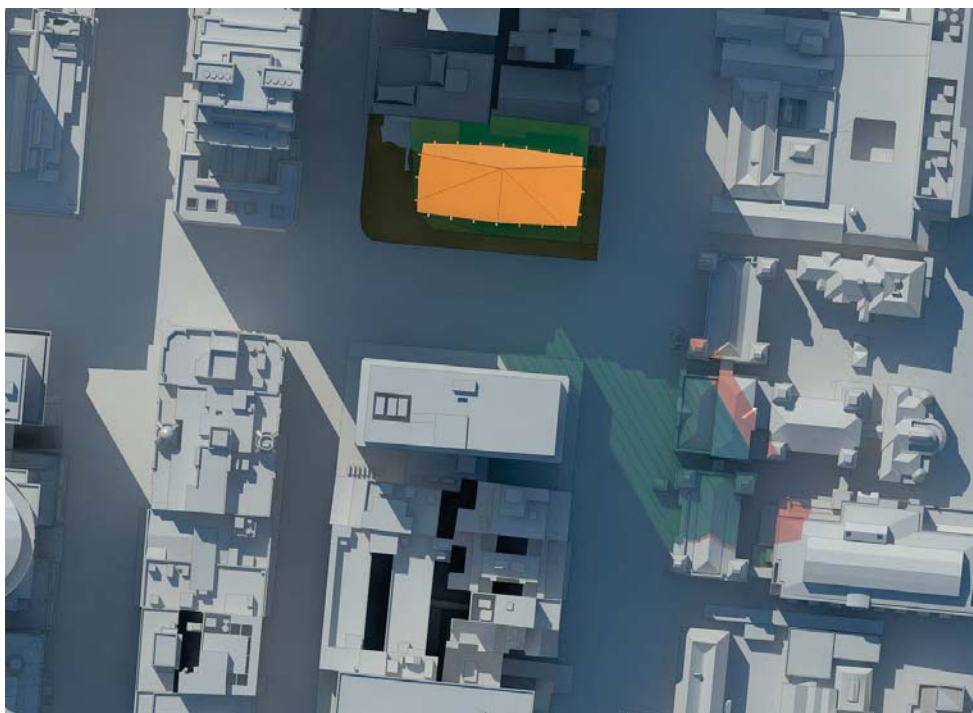


Figure 1_Plan view



Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 1.30pm

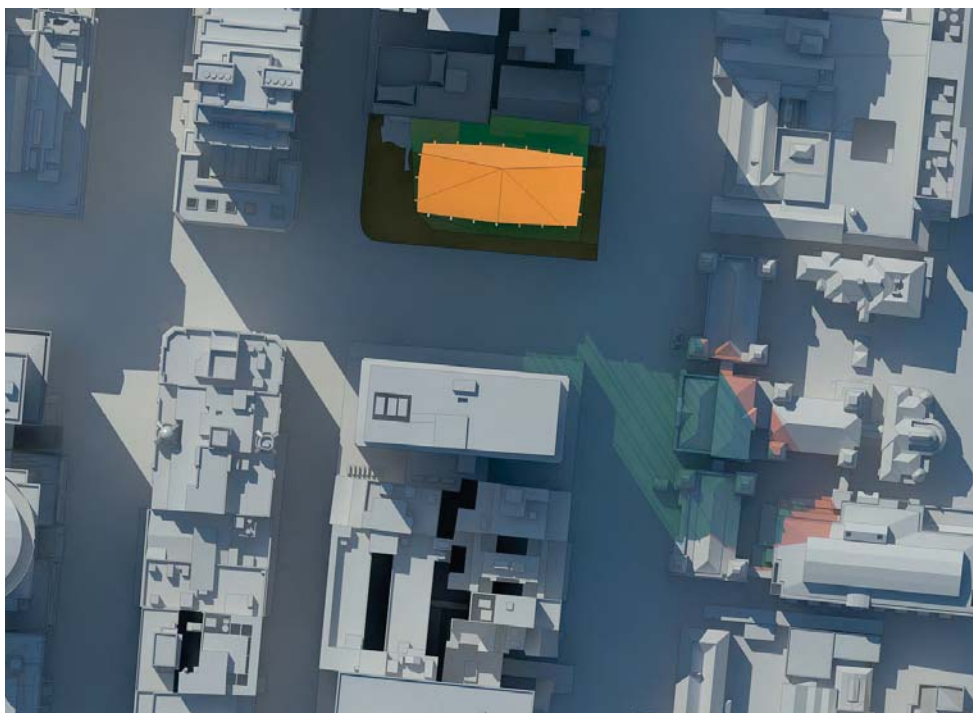


Figure 1_Plan view



Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

26

Proposed Built Form Maximum Envelope

14 April 1.40pm

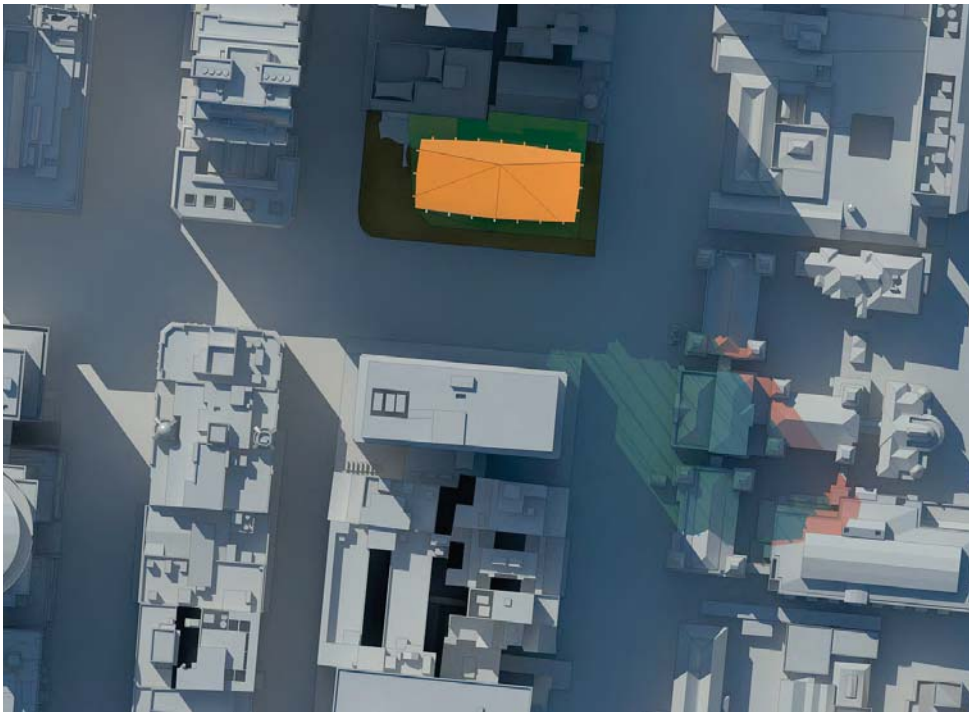


Figure 1_Plan view

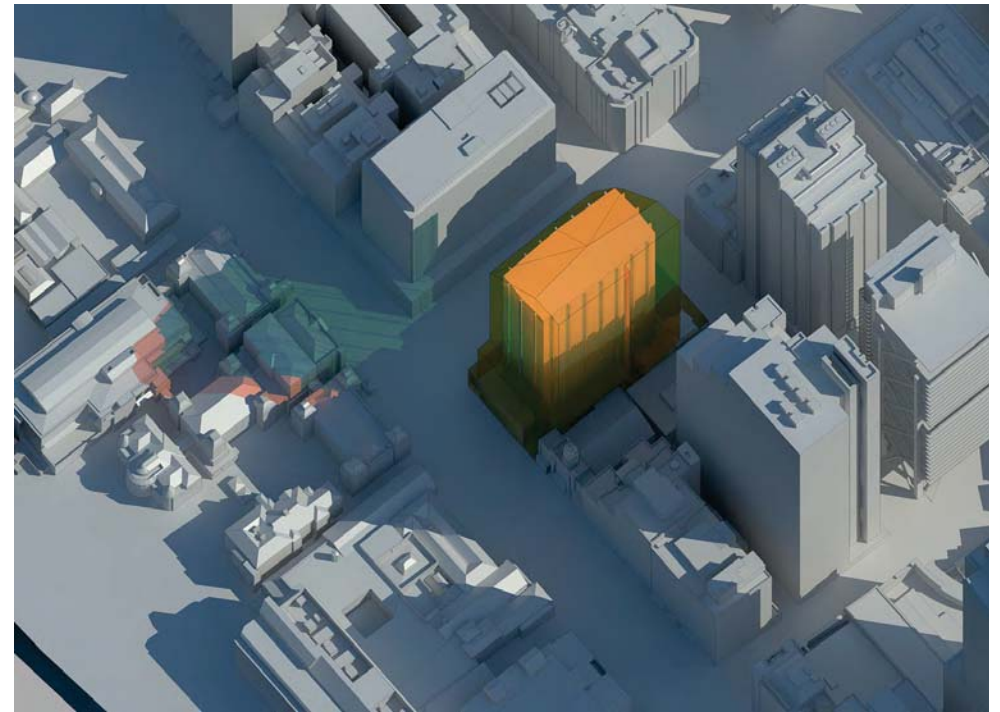


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 1.50pm

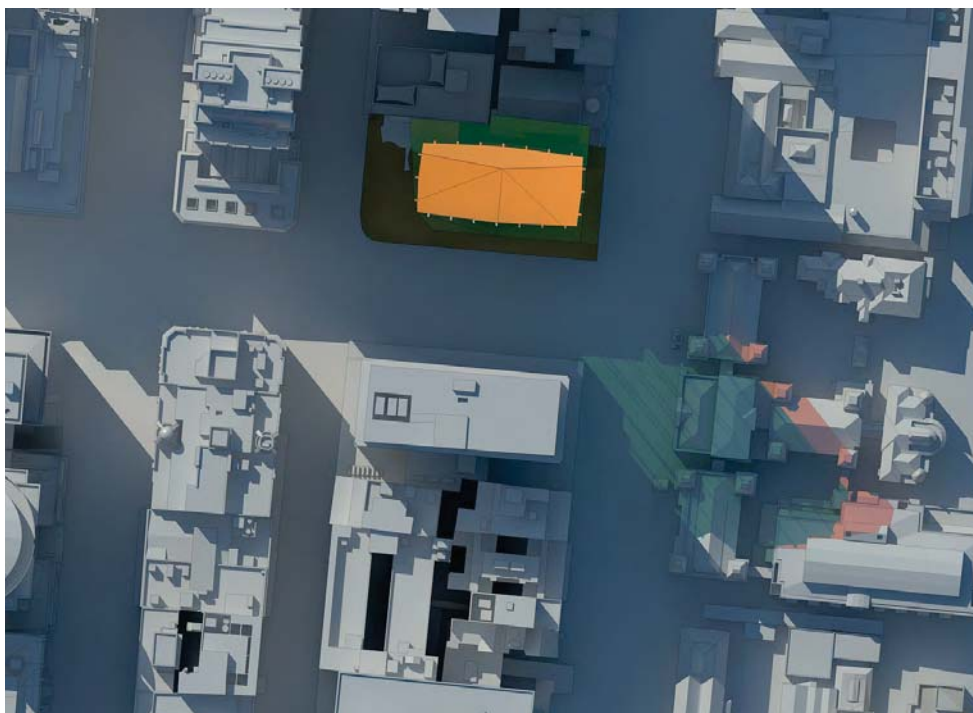


Figure 1_Plan view



Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

Proposed Built Form Maximum Envelope

14 April 2.00pm

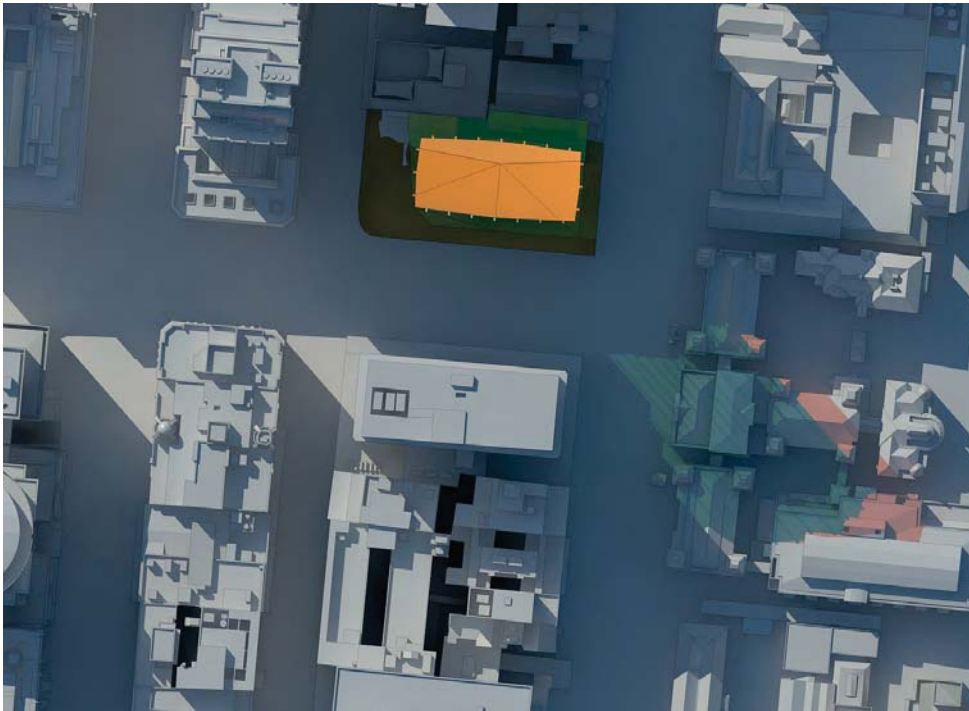


Figure 1_Plan view

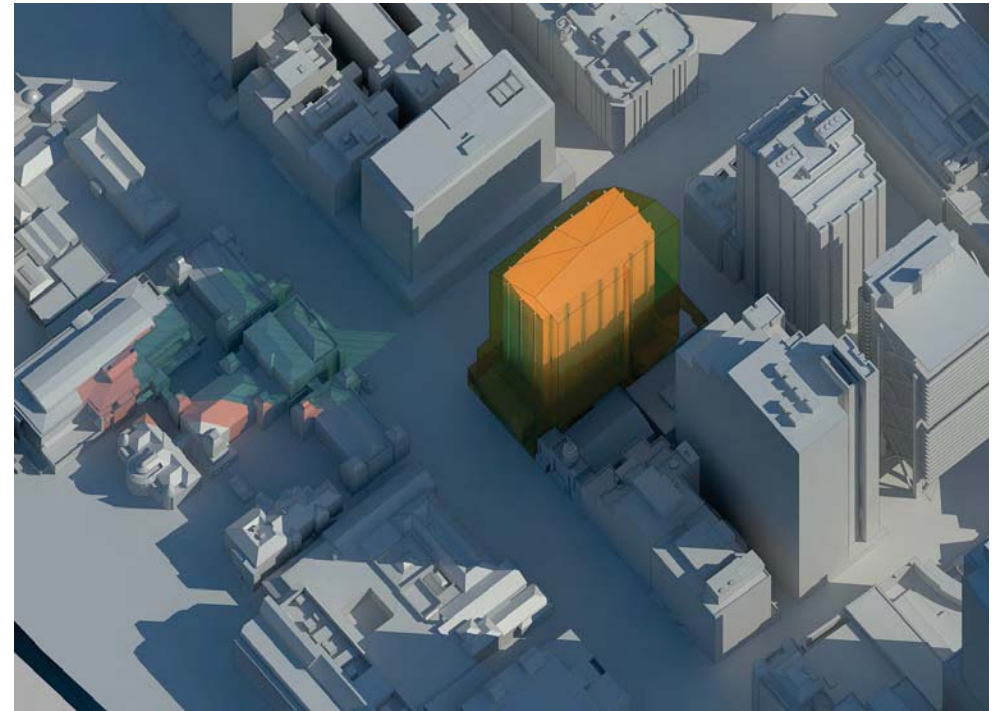


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

April 14 12pm - 2pm every 10 mins



03 Control Time

LEP Compliant Envelope

14 April 12.00pm

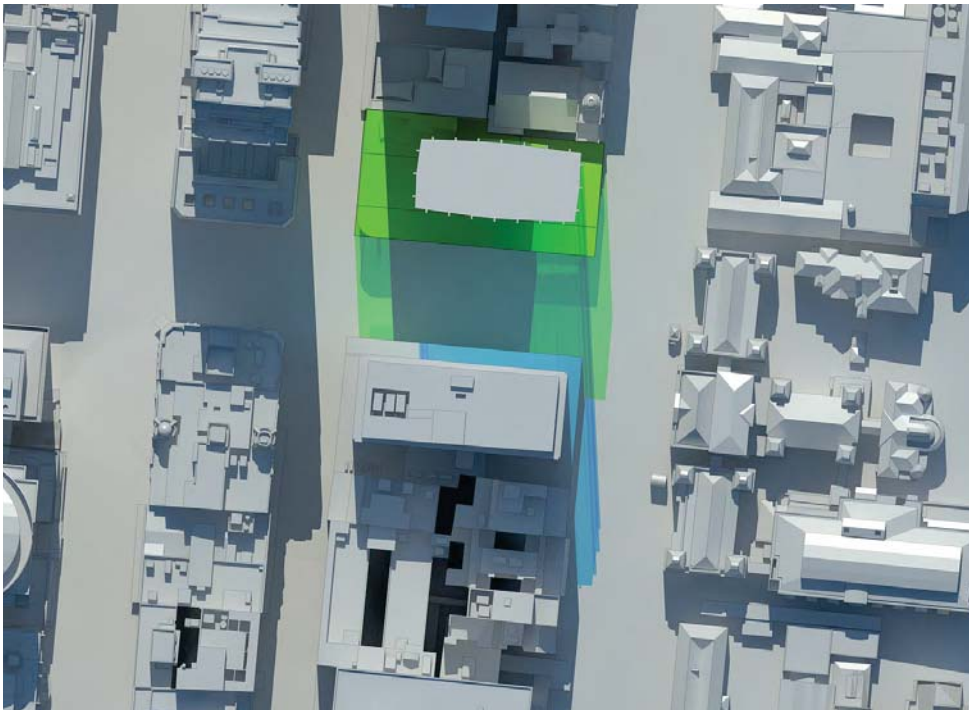


Figure 1_Plan view

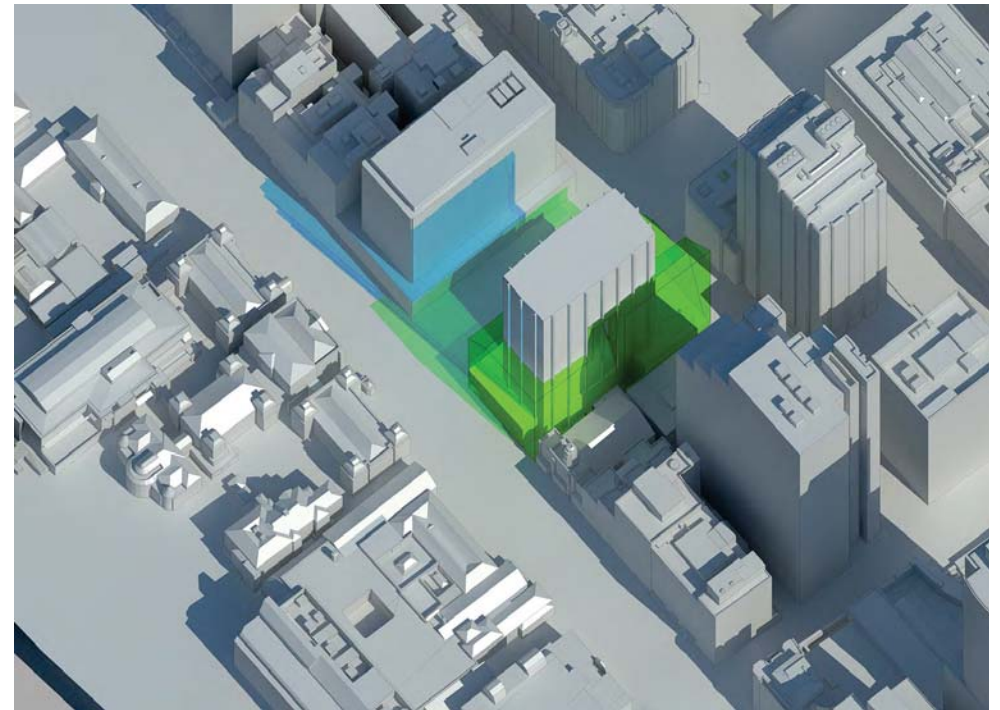


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

LEP Compliant Envelope

14 April 12.10pm

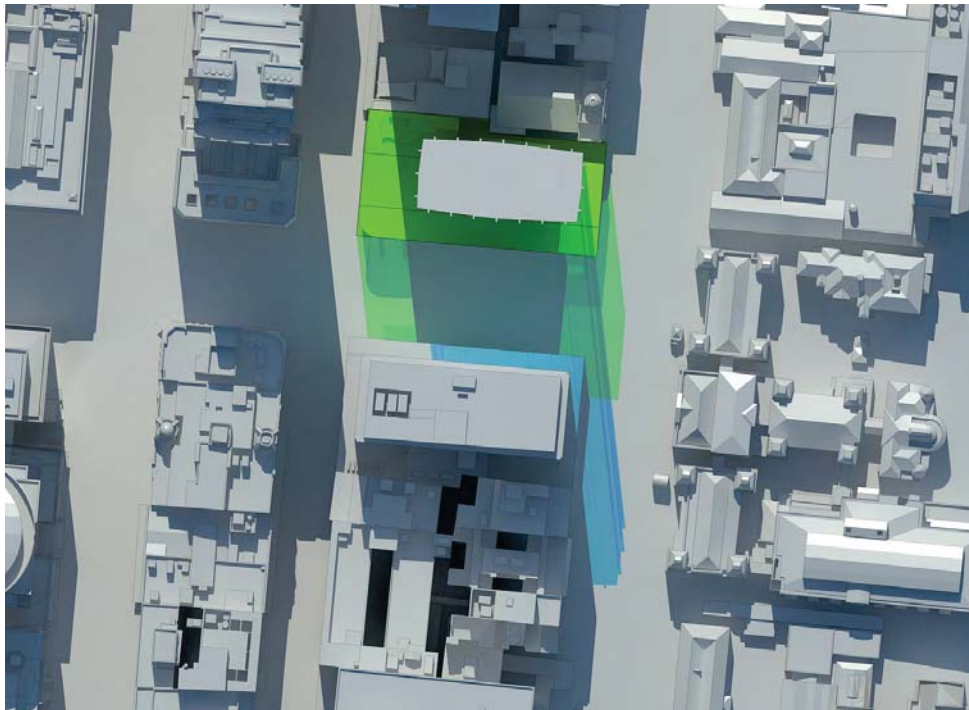


Figure 1_Plan view

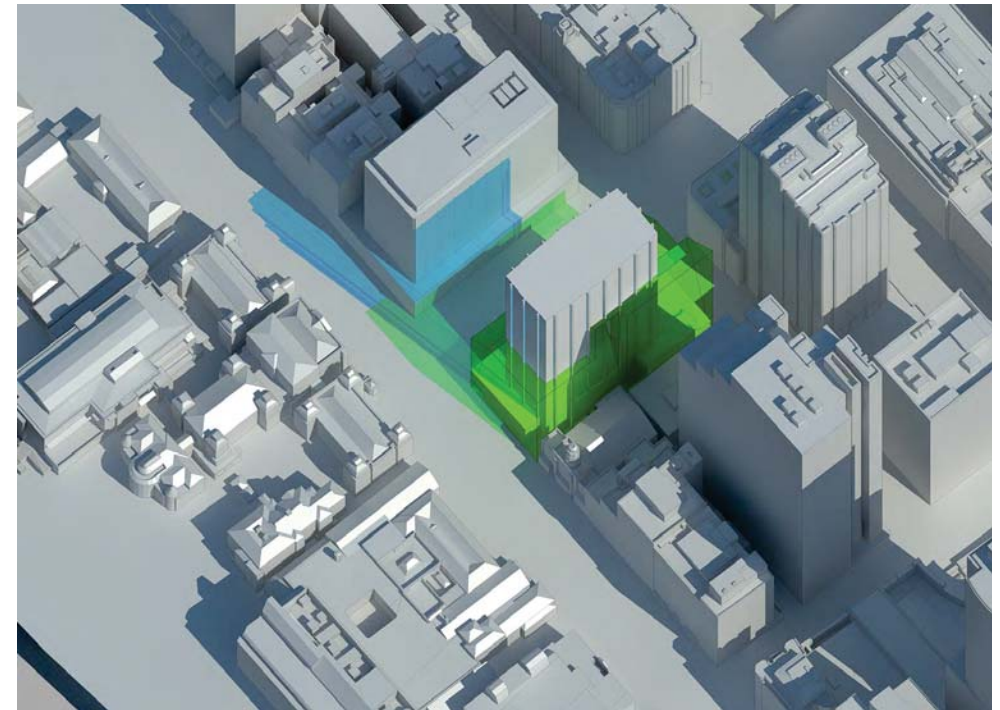


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

LEP Compliant Envelope

14 April 12.20pm

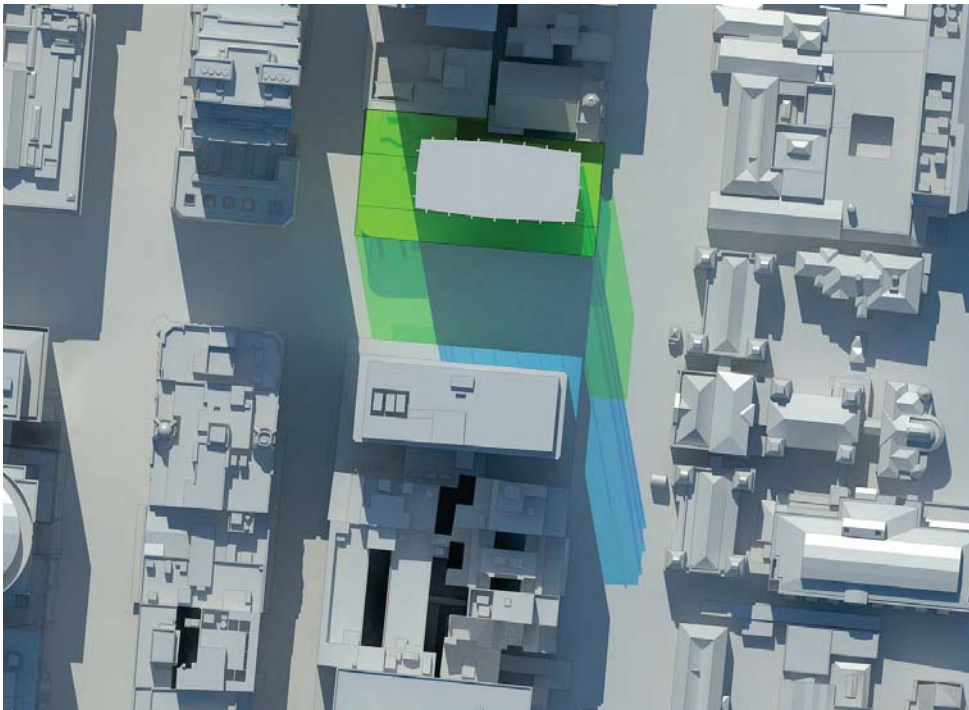


Figure 1_Plan view

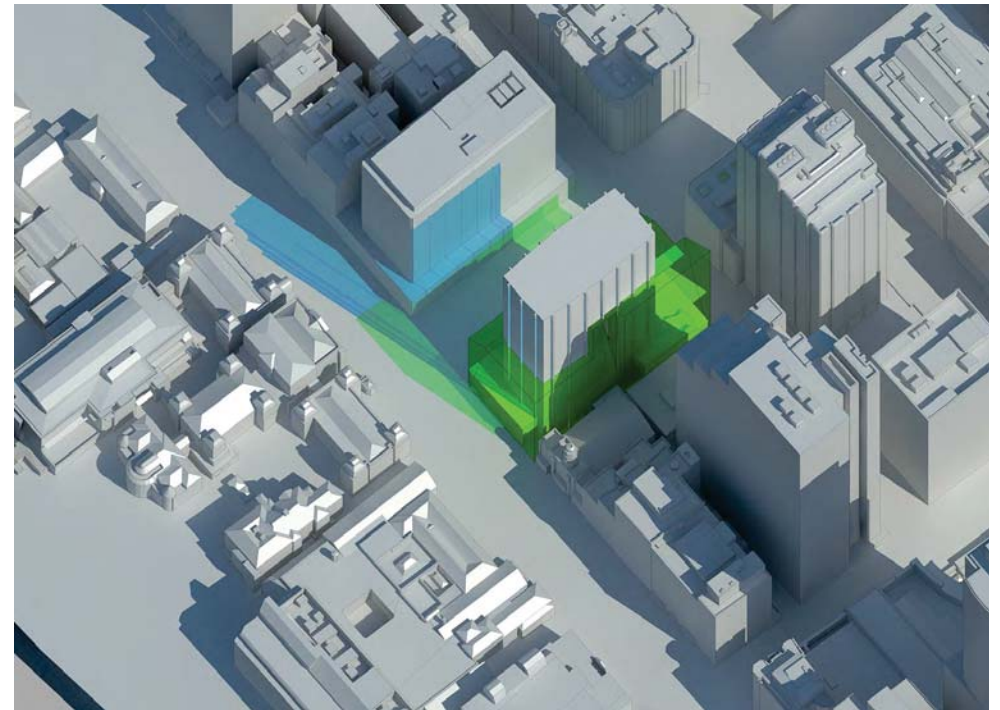


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

LEP Compliant Envelope

14 April 12.30pm

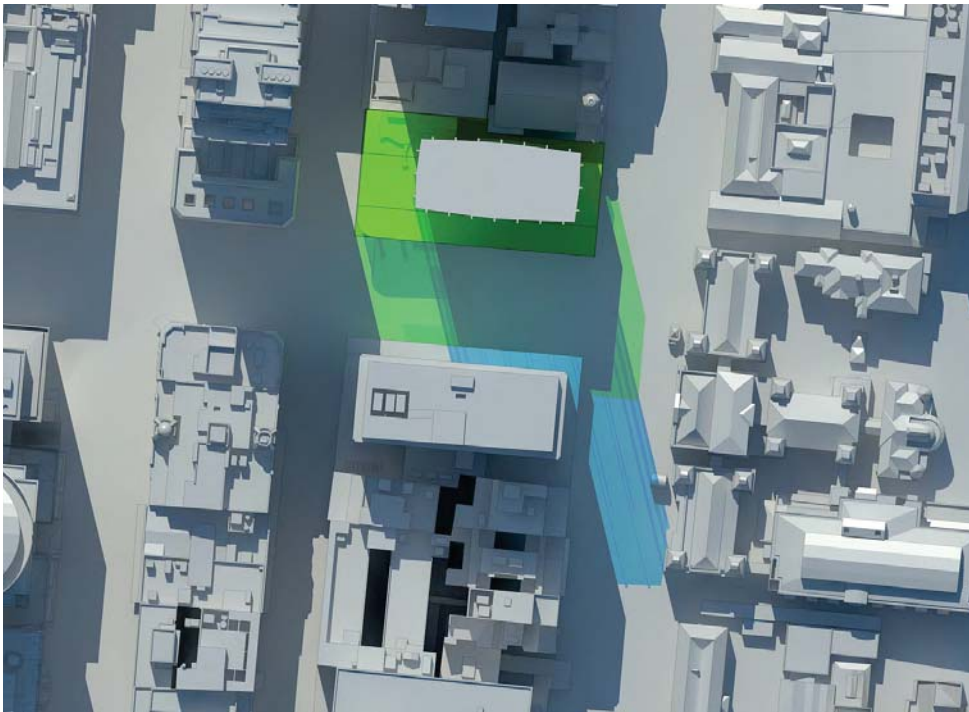


Figure 1_Plan view

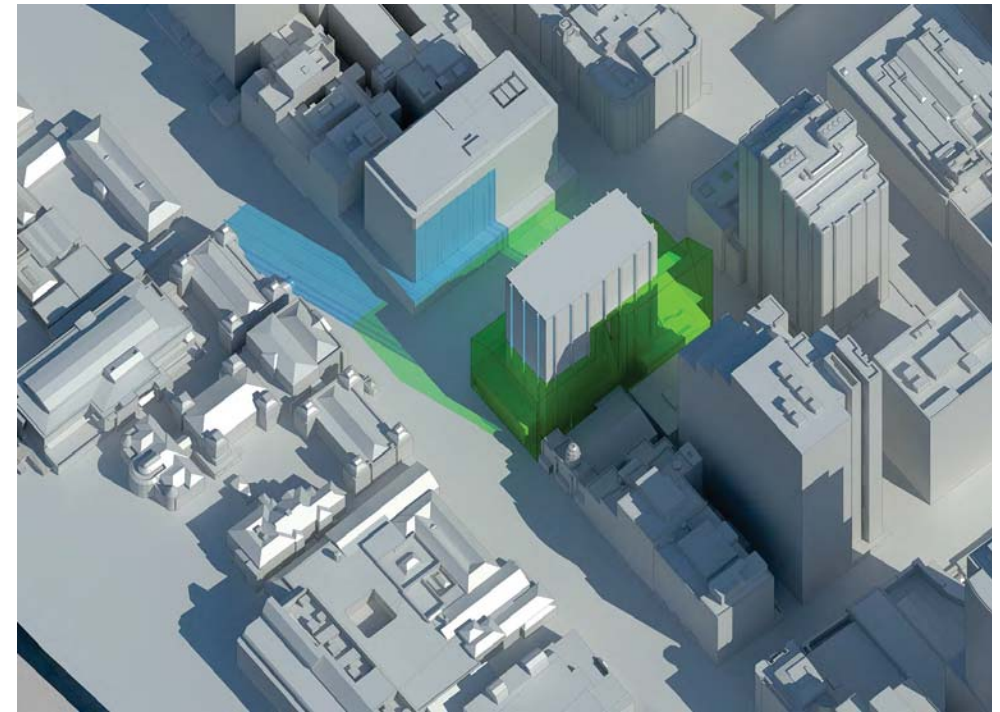


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

LEP Compliant Envelope

14 April 12.40pm

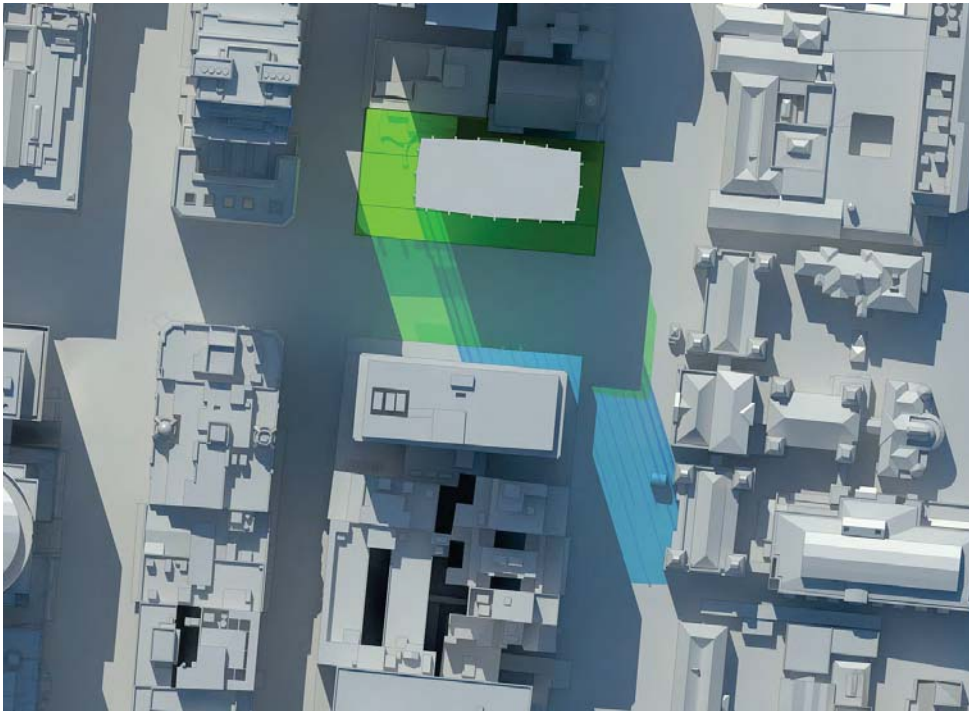


Figure 1_Plan view

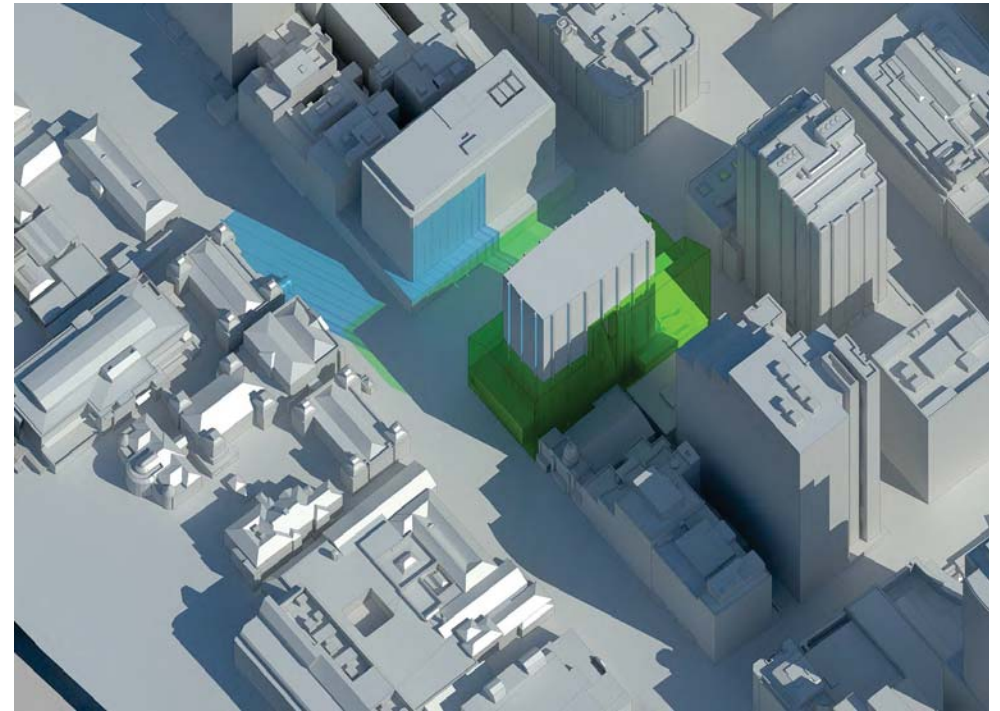


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

LEP Compliant Envelope

14 April 12.50pm

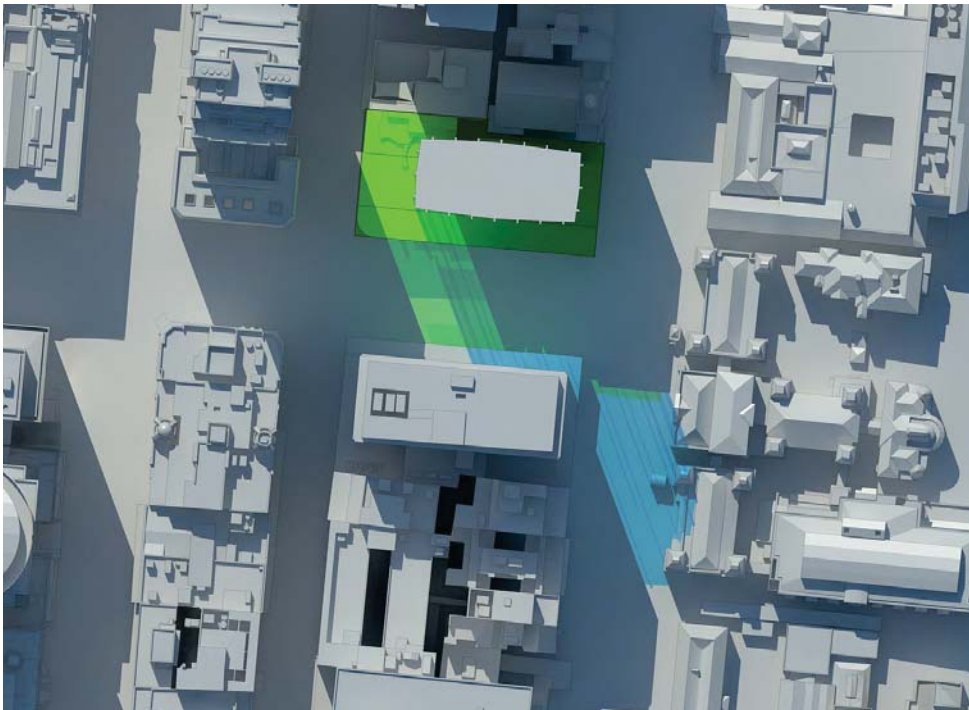


Figure 1_Plan view

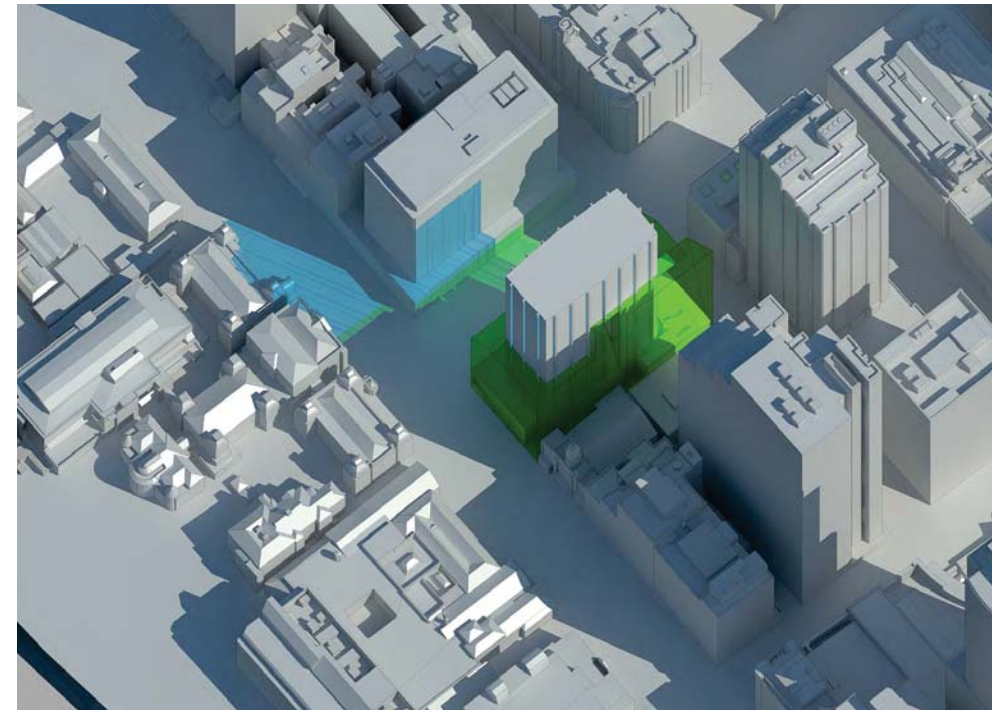


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

36

LEP Compliant Envelope

14 April 1.00pm

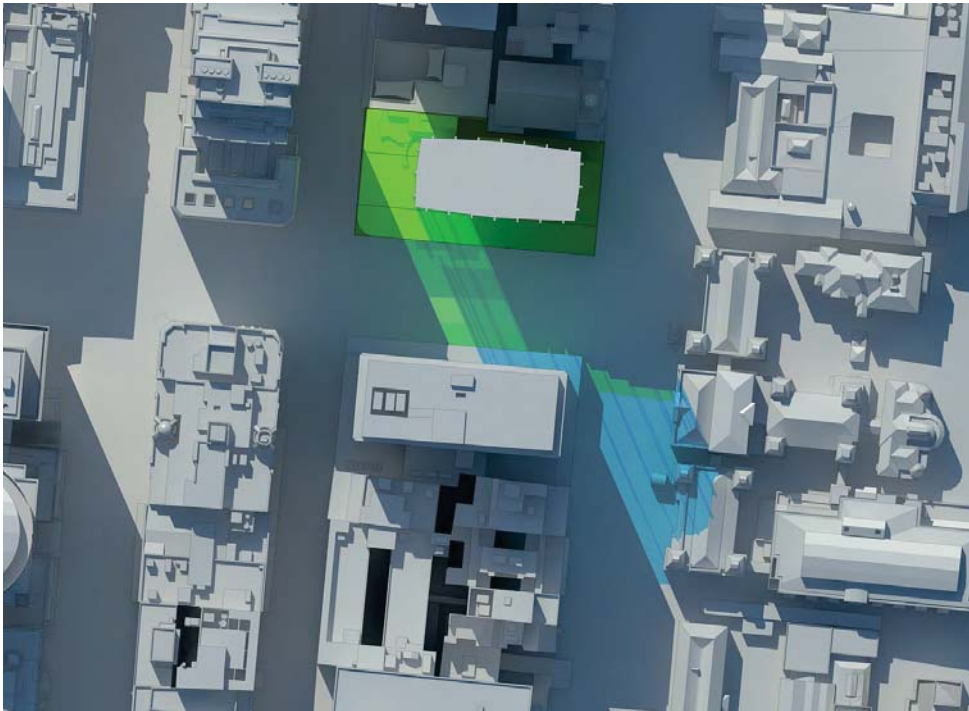


Figure 1_Plan view

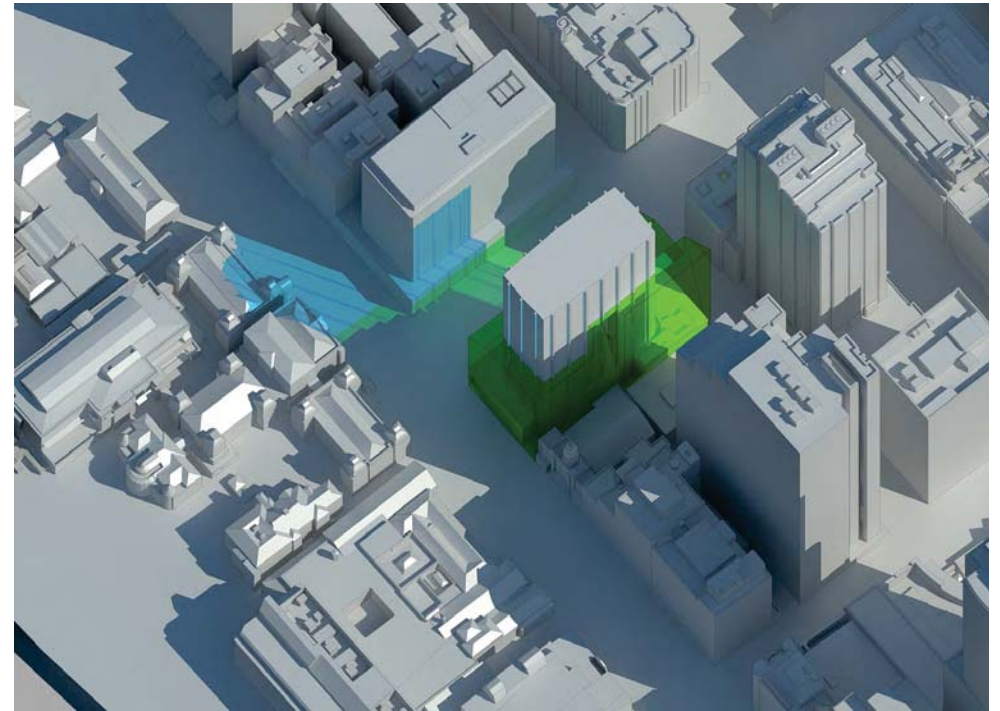


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

LEP Compliant Envelope

14 April 1.10pm

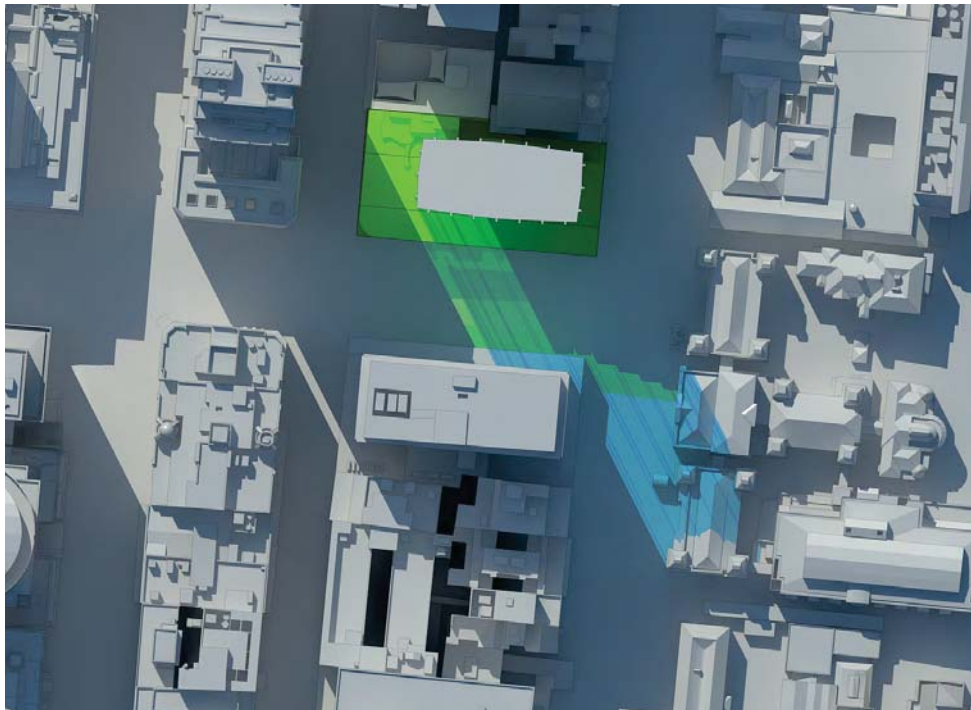


Figure 1_Plan view

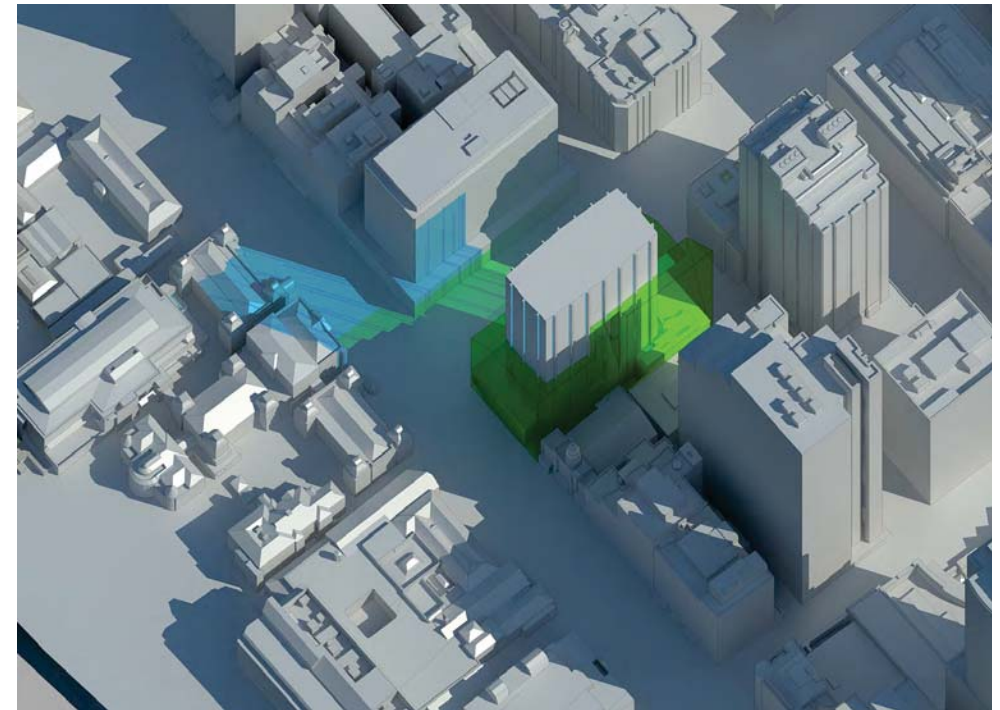


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

38

LEP Compliant Envelope

14 April 1.20pm

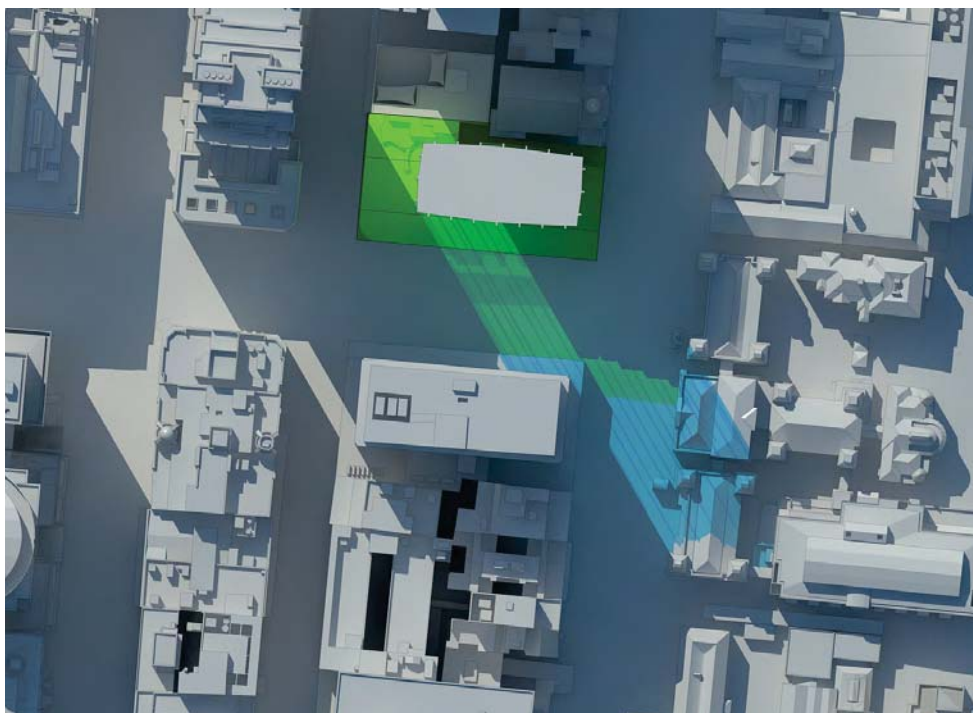


Figure 1_Plan view

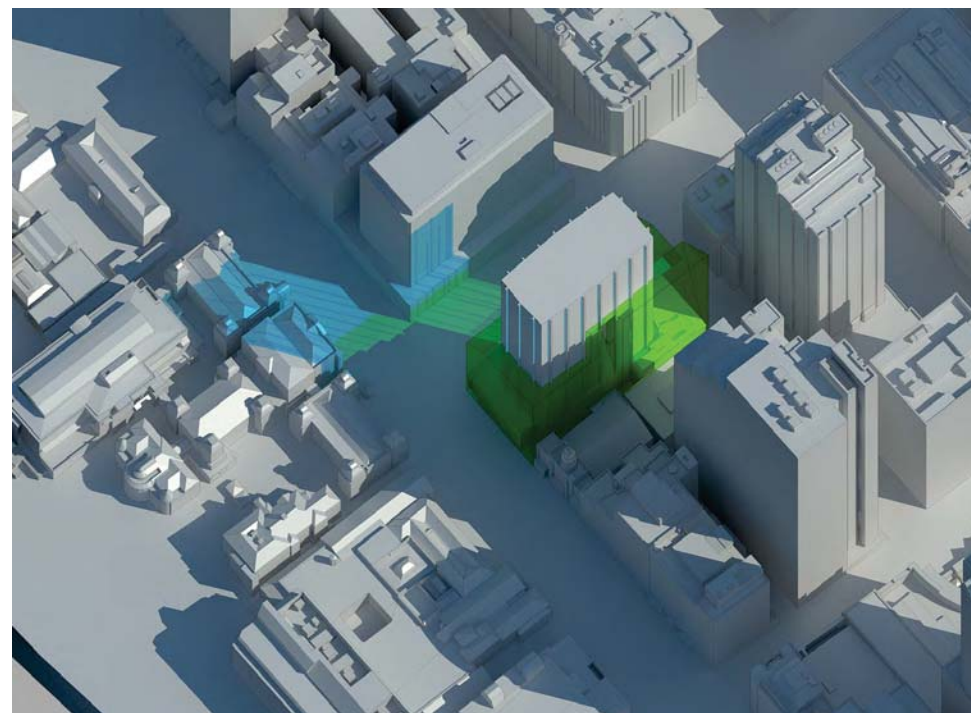


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun

03 Control Time

LEP Compliant Envelope

14 April 1.30pm

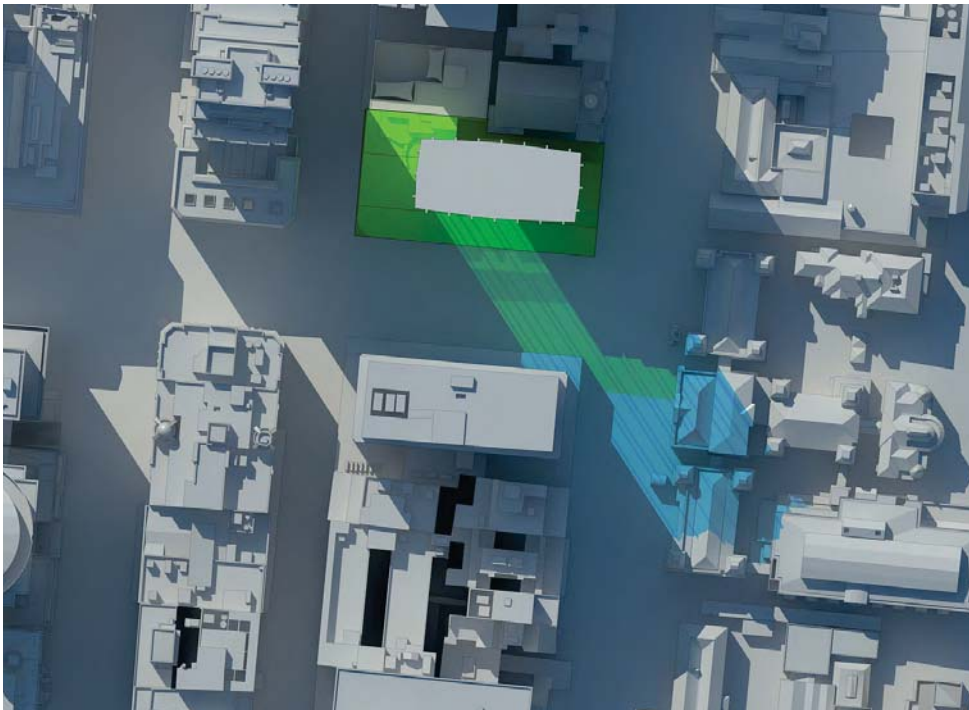


Figure 1_Plan view

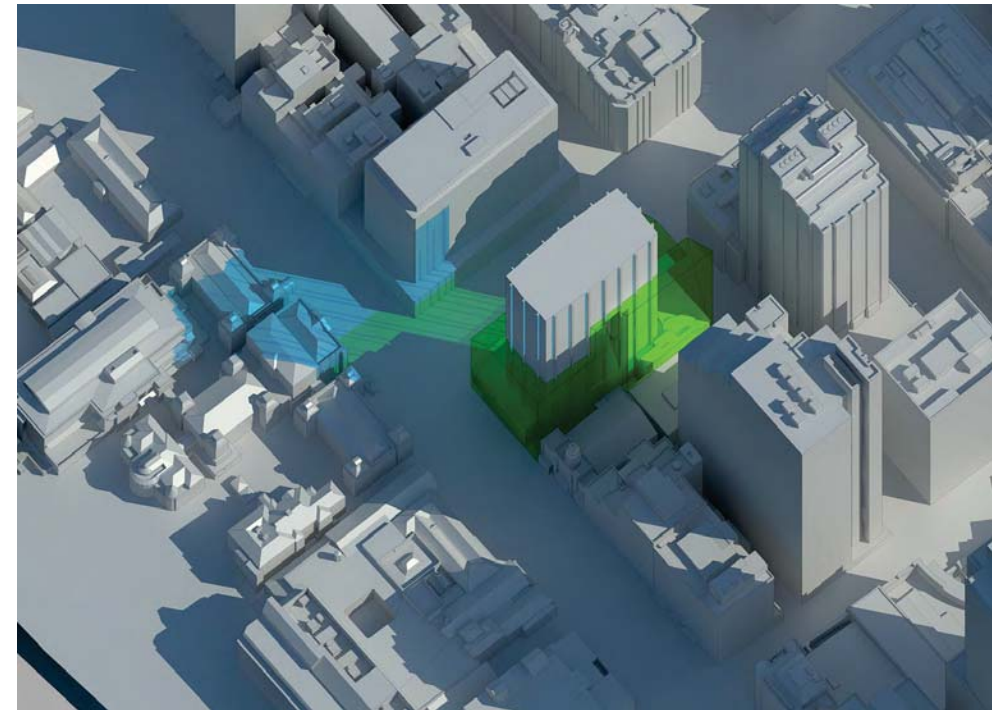


Figure 2_Orthogonal view

Legend

- Existing overshadowing
- Additional overshadowing
- Additional sun