

9.0 Building Massing and Form

9.1 Design Evolution

The proposed building design has been developed since the Design Competition by

- carefully addressed the Jury comments
- further amalgamation of the site and the resulting benefits to public domain and vehicle access
- more detailed analysis of the public domain
- a higher quality hotel relocated from Pitt Street to the Castlereagh Street Frontage

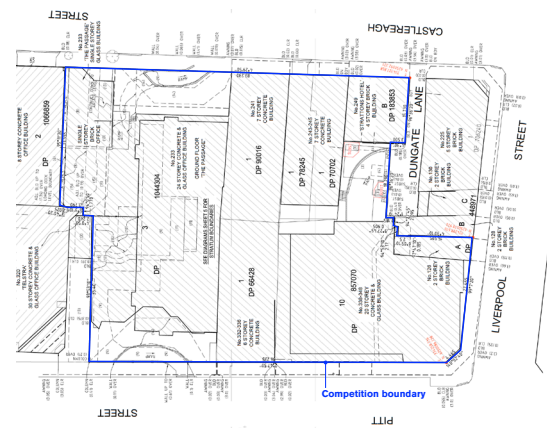
All of the above modifications have foremost considered the improvement of the public domain and the surrounding urban environment, including the neighboring public domain and pedestrian spaces

The above modifications have maintained and strengthened the design concept from the original Design Competition.

Site Consolidation

The proponent has acquired the properties at 128 & 130 Liverpool Street for inclusion into the site

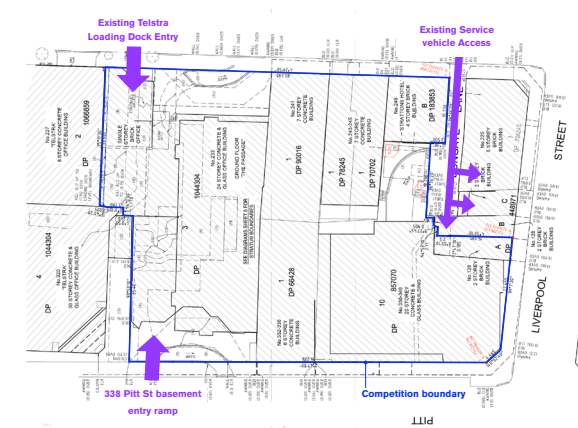
The resulting total site area is 6,090.7 m². An additional GFA resulting from this further amalgamation is approximately 2,450m².



Competition - Site boundary

Vehicle access

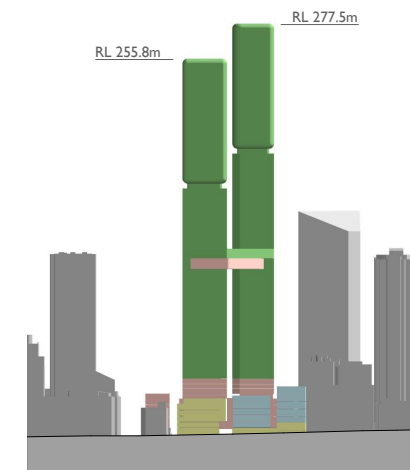
The proponent has agreed with the owner of 127 Castlereagh Street & 320 Pitt Street to consolidate the existing loading dock within 338 Pitt Street basement and also locate the shared basement access within 338 Pitt Street site. The right of footway is replaced by the proposed through site link immediately to the south within the proposed development maintaining pedestrian amenity whilst the number of vehicle access points has reduced from 5 to 2.



Competition - Vehicle access

Additional Height

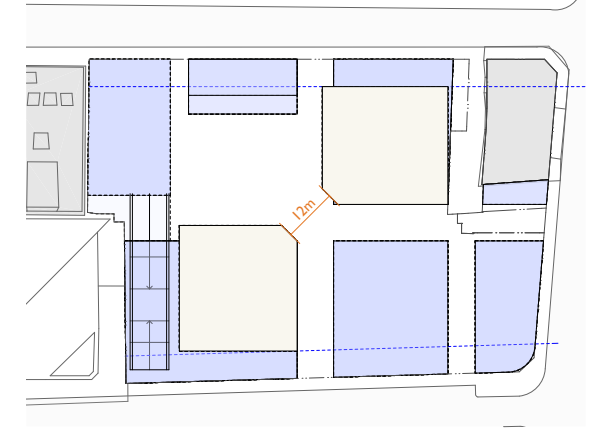
The result of the site consolidation, the location for additional GFA has been carefully examined. Locating the floor space at the top of the top of the south tower, within the approved building height has a lesser impact than reducing the slenderness of the towers or locating the GFA at low level which affects natural light and sky view from the public domain



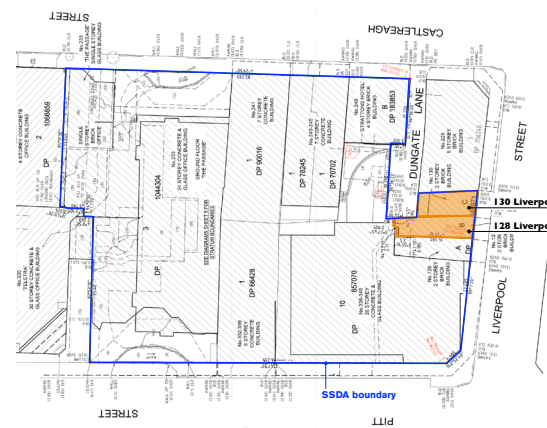
Competition - Tower height

Building Separation

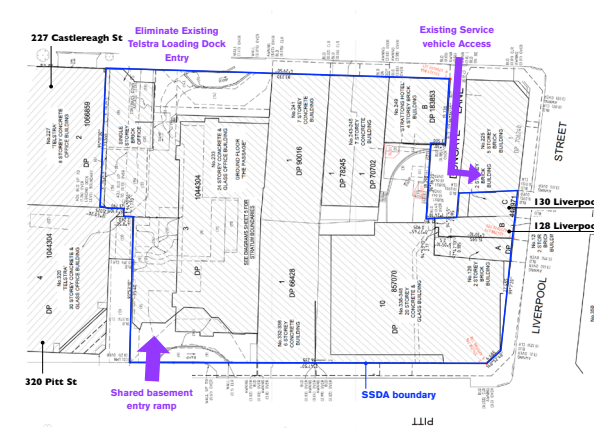
The Orthogonal corners of north and south towers are proposed. The proposal simplifies the tower form and the spaces within whilst complying with the visual privacy and building separation in Apartment Design Guide, not impacting sun access to the neighboring residential buildings or day light access to the surrounding public spaces.



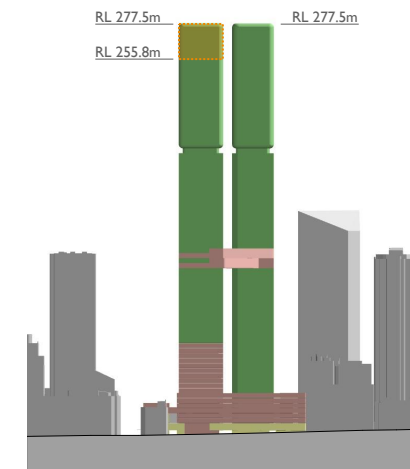
Competition - Building separation



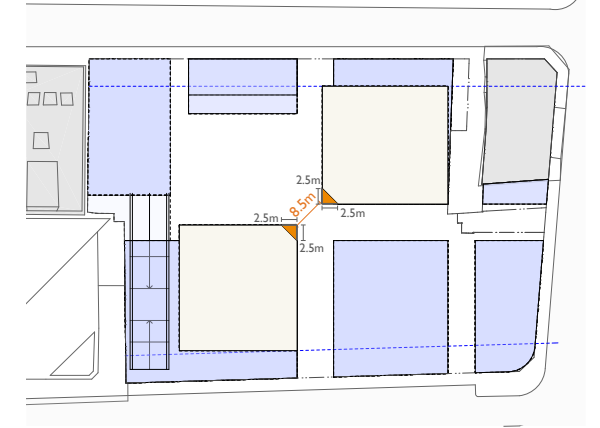
SSDA - Site boundary



SSDA - Vehicle access



SSDA - Tower height



SSDA - Building separation

Setbacks

The south tower is positioned towards the further south since which improves orthogonal tower separation and provides a larger courtyard space but avoiding negative environmental effects on Dungate Lane.

Public Domain

The proposed courtyard is expanded below the south-western podium building, which is proposed as an market place. This newly proposed public space provides multidirectional pedestrian network in addition to the originally proposed orthogonally permeable block fabric.

Use

A larger, higher quality hotel with improved facilities and larger room sizes has been located along the Castlereagh Street frontage. Hotel rooms are now located in the lower floors of the southern tower which improved residential privacy for that tower.

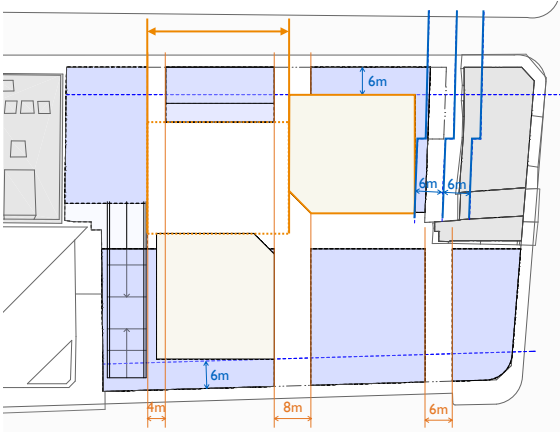
Retail focused on Ground and level 1 on the corner of Pitt Street and Liverpool Street and around the courtyard

Commercial uses are no longer proposed with the areas being redistributed between Hotel and Retail floor space

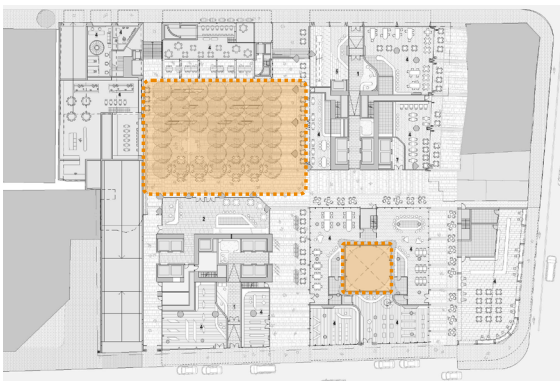
Building Allocations

Our collaborating architects buildings have been allocated as a group of independent but linked buildings associated with the Retail spaces on the corner of Pitt and Liverpool Streets.

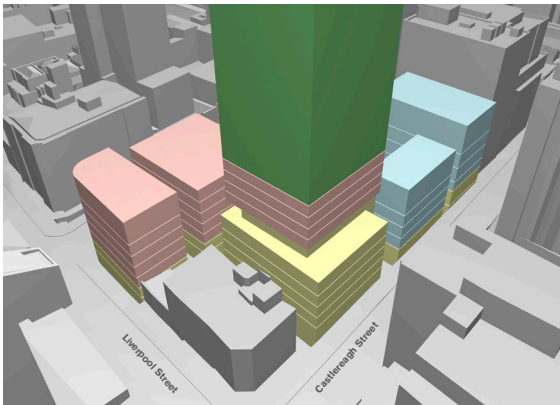
Individual but related designs support the fine grain and diverse approach to the streetscape and public domain.



Competition - Setbacks

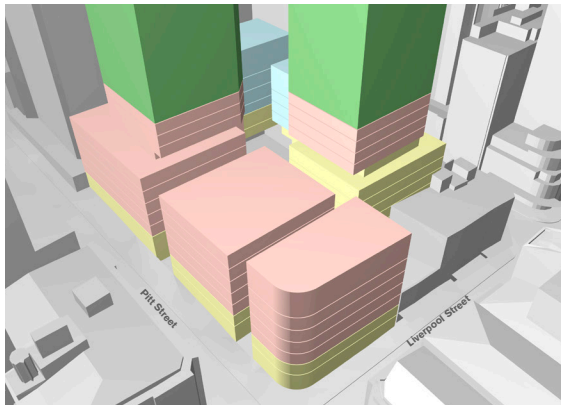


Competition - Proposed courtyard

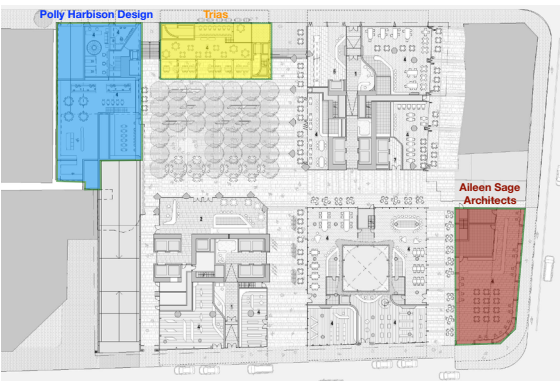


Competition - Use (Castlereagh Street)

- Residential
- Hotel
- Retail
- Commercial
- Plant

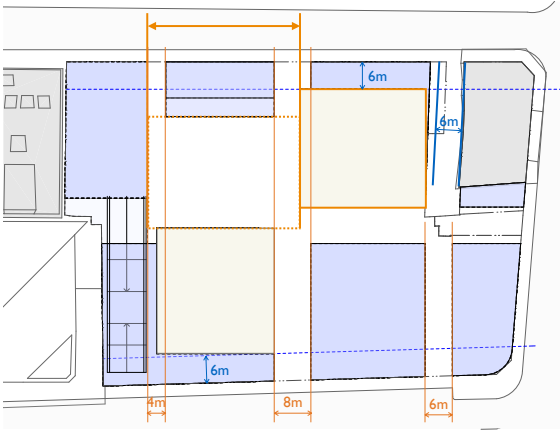


Competition - Use (Pitt Street)



Competition - Building Allocation

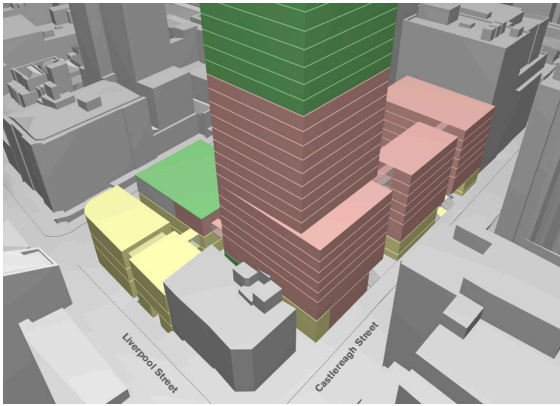
- Trias
- Polly Harbison
- Aileen Sage A



SSDA - Setback

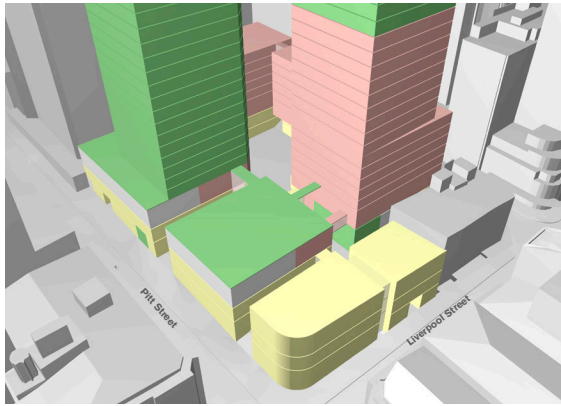


SSDA - Proposed courtyard

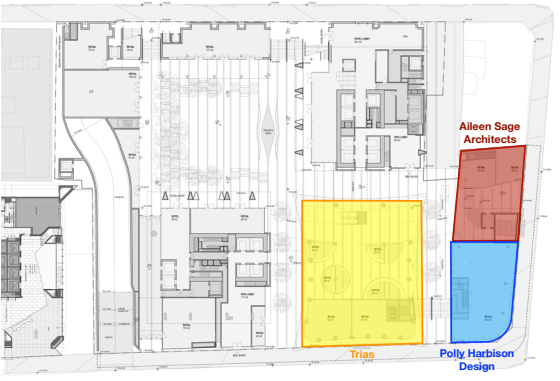


SSDA - Use (Castlereagh Street)

- Residential
- Hotel
- Retail
- Plant



SSDA - Use (Pitt Street)



SSDA - Building Allocation

- Trias
- Polly Harbison
- Aileen Sage A

9.2 Setbacks

Street Setbacks

SDCP 2012 5.1.2 Building setbacks

SDCP 2012 5.1.2.3 Setbacks for buildings adjoining lanes

Above street wall height, provide the following setbacks to the tower in accordance with the approved building envelope plans:

8 metres to Castlereagh Street (average weighted).

8 metres to Pitt Street (average weighted).

8 metres to Liverpool Street (average weighted).

The proposed setbacks to Castlereagh and Pitt Streets exceed the minimum 8m average weighted setback requirement whilst maintaining a minimum setback of 6m. Diagrams which illustrate the Average Weighted calculation are provided below.

Whilst the average weighted approach is consistent with the control, in order to obtain further comfort that the environmental impacts of the minimum 6m setbacks on Pitt and Castlereagh Streets do not have adverse effects when compared to the approved envelope we have examined the setback from a wind and daylight

impact on the public domain perspective, adopting the methodology described in Schedule 11 of the Draft SDCP 2016.

The wind advice indicates that the 6m setback is sufficient to manage downwash and ground level wind conditions.

The results of the daylight analysis indicate the proposal offers a 0.185732 % improvement in sky view factor over the approved Stage 1 DA envelope.

Boundary setback

SDCP 2012 5.1.2 Building setbacks

Note: that the tower envelope setbacks from the northern boundary has been set with regard to ADG separation requirements and are as follows:

12 metres to northern boundary.

For the northern proposed tower, the minimum compliant setbacks of 12m have been maintained to the northern boundary.

Dungate Lane

SDCP 2012 5.1.2.3 Setbacks for buildings adjoining or fronting lanes

(1) Where new development fronts a lane or right of way, it is to be built to the street alignment up to the required street frontage height, refer to Figure 5.10.

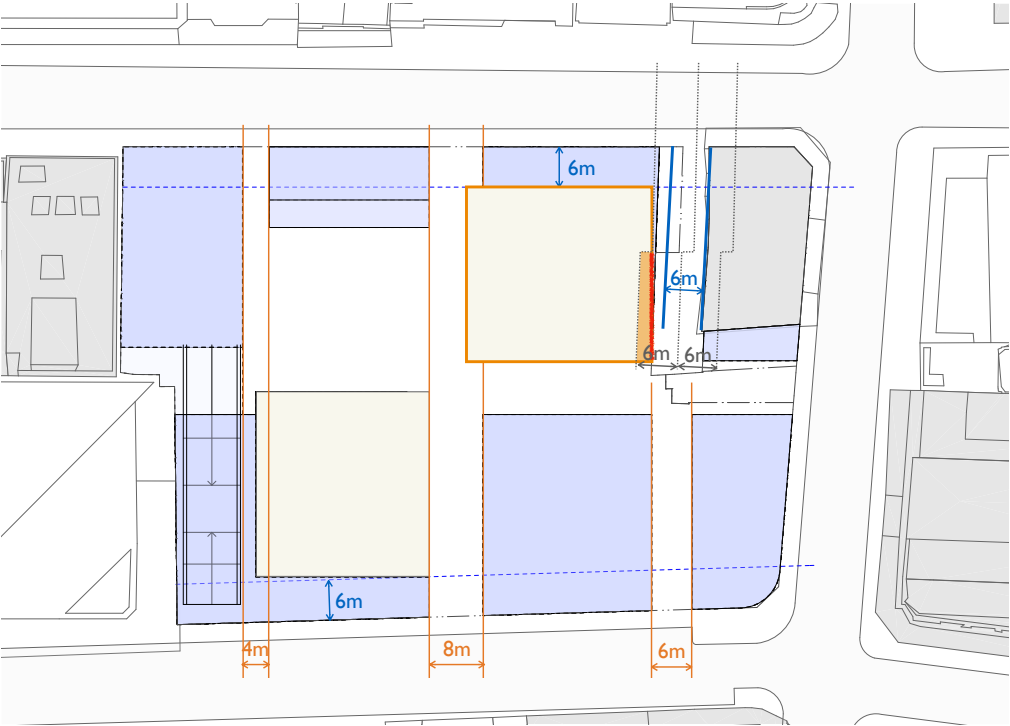
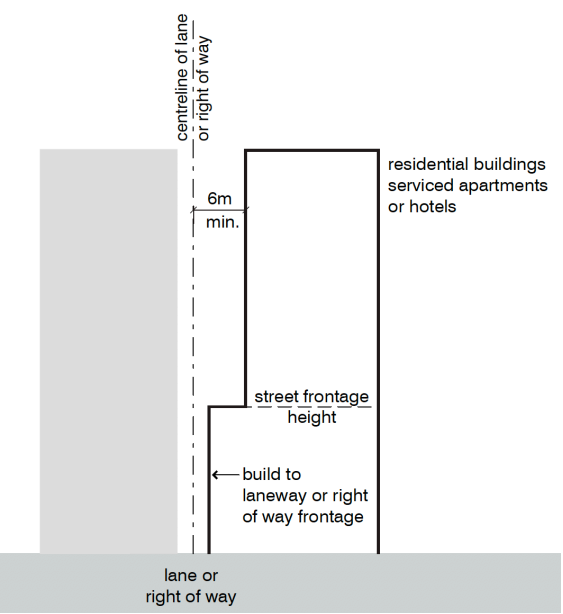
(2) Residential buildings, serviced apartments or hotels above the street frontage height are to have a minimum setback of 6m from the centre line of the lane or more if required, refer to Figure 5.10.

The proposed setbacks to Dungate Lane provides greater than the minimum DCP separation of 6m for hotel and commercial uses above 45m.

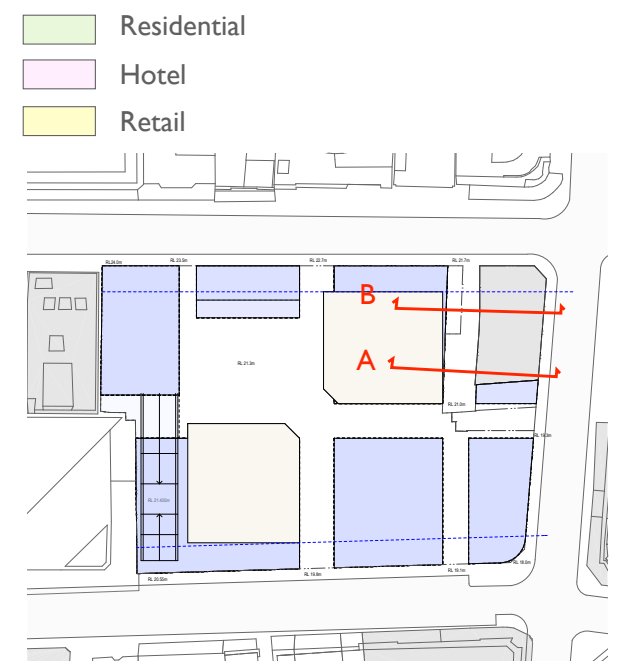
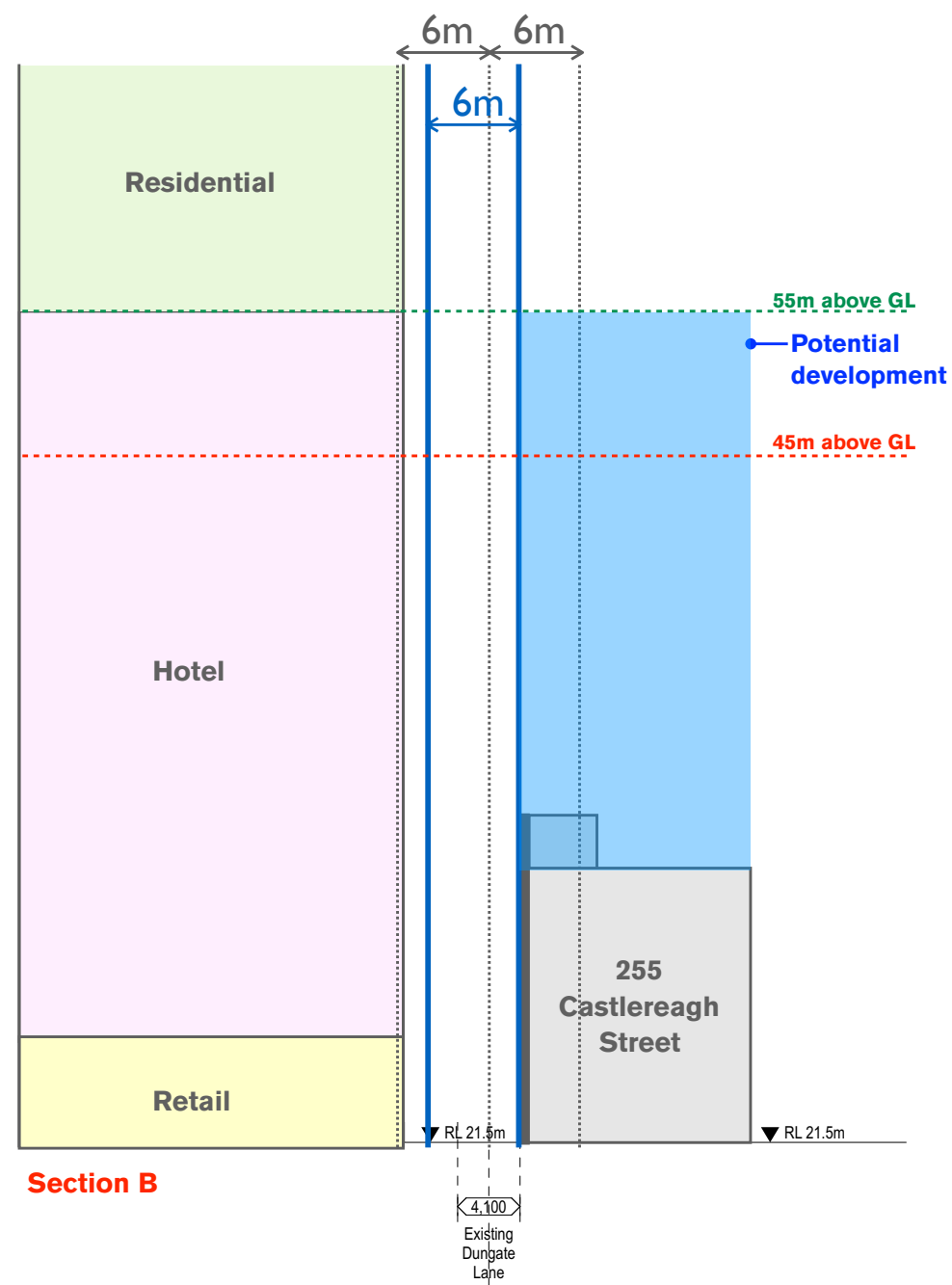
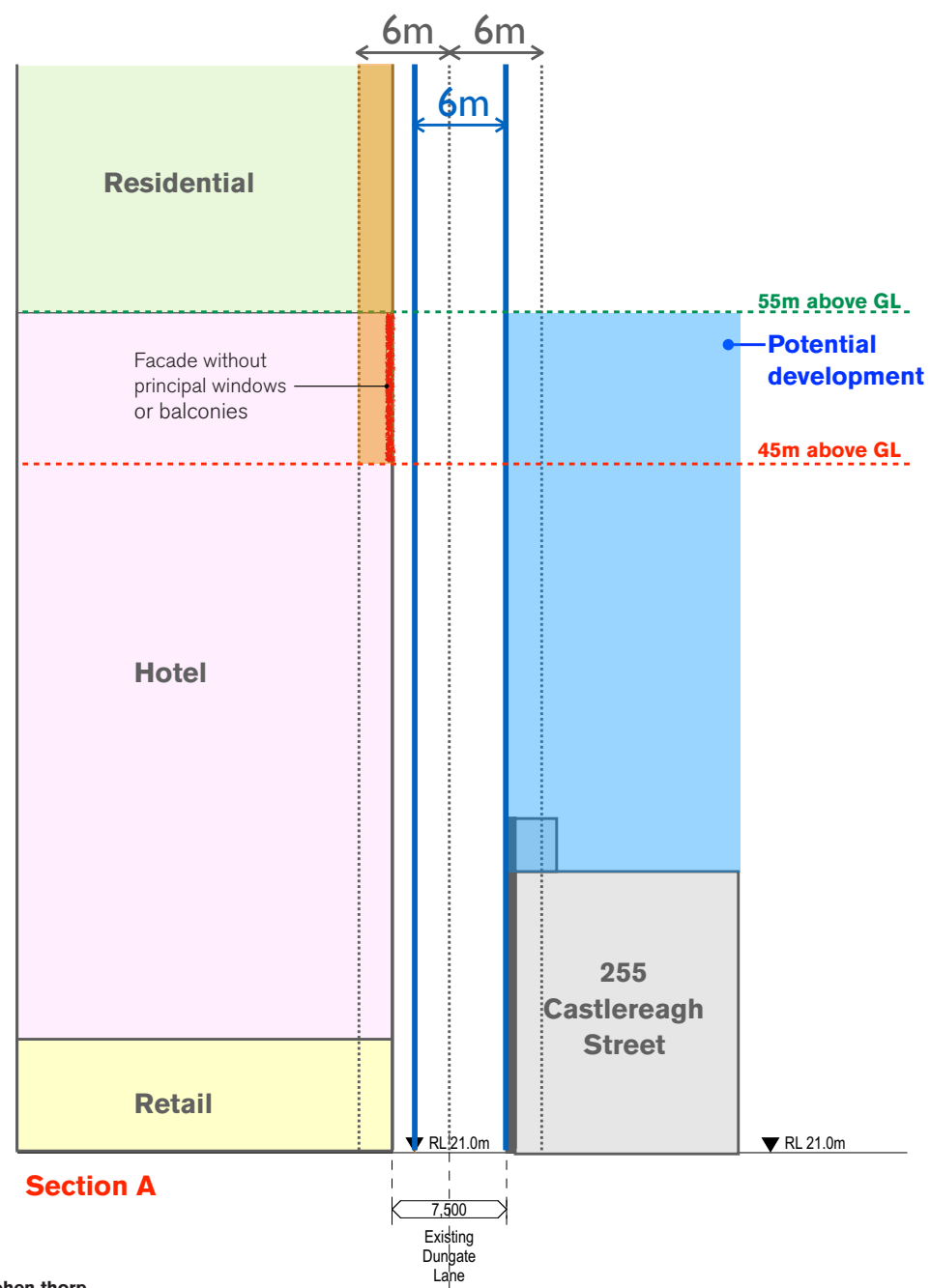
The buiding achieves a setback of 6m from the center line of the lane along only a portion of the dungate lane boundary..

Figure 5.10

This section shows the setback for principal windows or balconies of residential buildings, serviced apartments and hotels adjoining lanes.



Facade without principal windows or balconies



9.3 Sky view

Sky View Factor

Draft Sydney DCP 2012 - Central Sydney Planning Review Amendment - Schedule 11

The following analysis compares the impact on natural light levels in the public domain surrounding the site as a result of the test case envelopes against the base case as per CSPS.

This analysis follows the natural daylight analysis procedure set out in Procedure B, Schedule 11 of the Draft Sydney DCP 2012 - Central Sydney Planning Review Amendment.

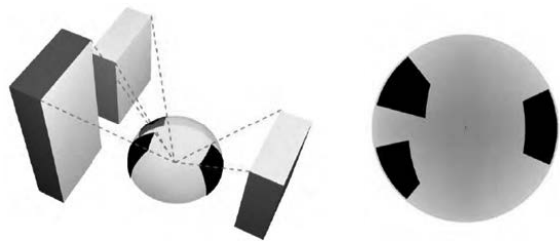
For wind comfort refer to the Wind report included with this submission.

Procedure B : Equivalent or improved daylight levels in adjacent Public Places

(5) the average annual daylight level (which may be approximated by the average Sky View Factor)

note: Sky View Factor (SVF) means the extent of sky observed above a point as a proportion of the total possible sky hemisphere above the point. SVF is calculated as the proportion of sky visible when viewed from the ground (as an abstract horizontal surface) up. SVF is a dimensionless value that ranges from 0 to 1. A SVF of 1 denotes that the sky is completely visible to the horizon in all directions; for example, in a flat terrain. When a locations has topography or buildings blocking view to any part of the sky, it will cause the SVF to decrease proportionally.

(7) Daylight levels or SVF must be measured within the existing city form (including developments under construction as if they were completed) and should exclude any elements within a Public Place e.g. trees and awnings.



Draft Sydney DCP 2012 - Central Sydney Planning Review Amendment - Schedule 11 - Figure 1.11: Sky View Factor means the extent of sky observed above a point as a proportion of the total possible sky hemisphere above the point.

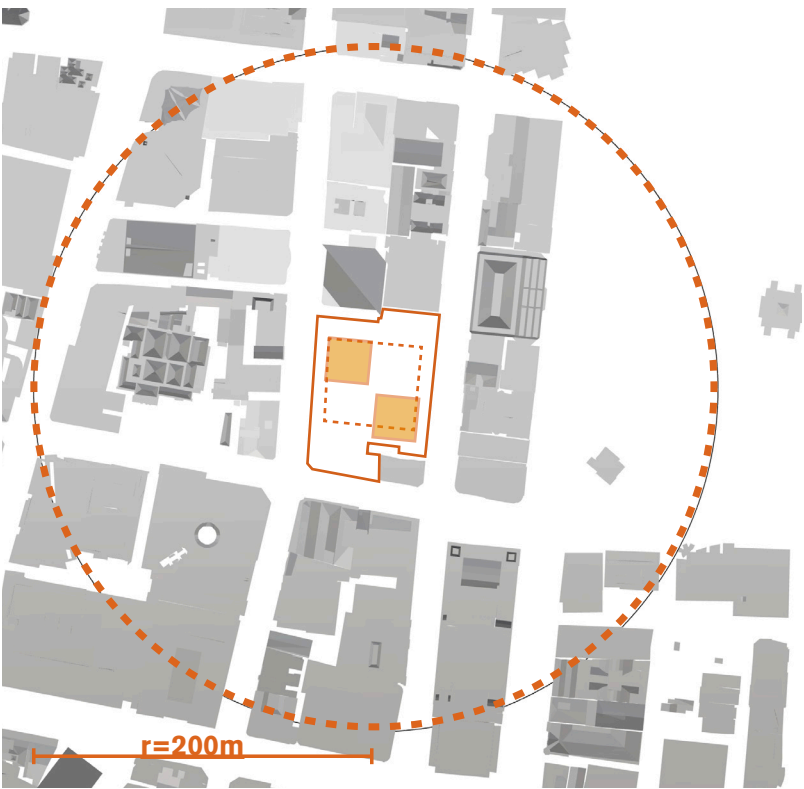
Methodology :

This study identifies the potential impact of the proposed building on daylight levels over a 1m grid along surrounding Public Places to a distance of 200m radius from the development site.

Study on Impact of Proposed Envelope.

Measure daylight levels of the approved DA stage 1 envelope and Proposed building.

Identify the difference of impacts between the approved DA stage 1 envelope and Proposed building.



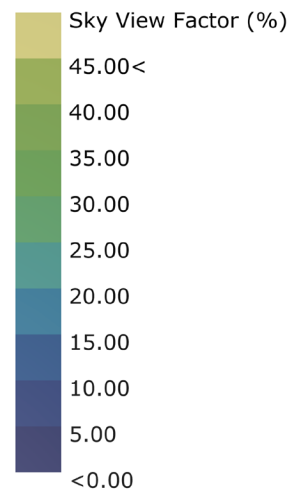
SVF study area

Results :

This study indicates that the Proposed building improves an average SVF in the surrounding public domain with in the study area when compared with the approved DA stage 1 envelope.

The improvement of the Proposed building is summarised in the below table.

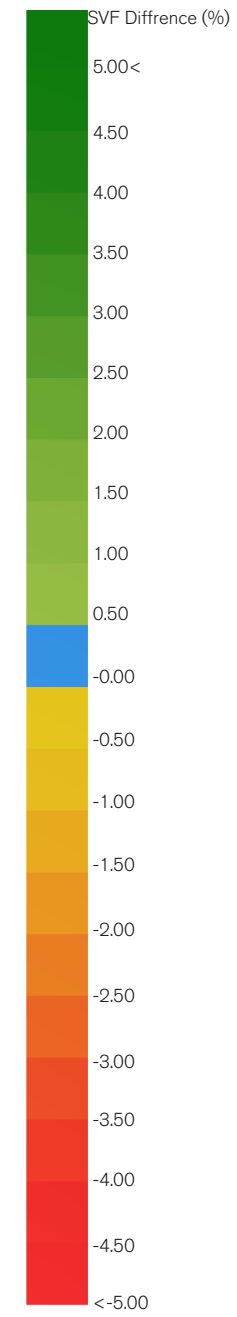
Day light / SVF		
Test Case	Average SVF	Improvement upon DA stage 1 envelope
DA stage 1 envelope	25.666524 %	
Proposed building	25.852256 %	+0.185732 %



Approved DA stage 1 concept envelope
Average SVF : 25.666524 %



Proposed building
Average SVF : 25.852256 %



Comparison
Average SVF difference : 0.185732 %

9.4 View impact

Public Domain View Impacts

Point 77 of the Stage 1 DA Assessment Report identifies the increased setback to Dungate Lane will “alleviate some environmental impacts including overshadowing of public open space, overshadowing of other residential dwellings, and reduce view losses from neighbouring residential apartments”.

Point 152 (b) goes on to state that “this reduction in the massing of the envelope will have little effect on the described view impacts relative to the impacts arising from the envelope that will remain” and point 153 states that “the expectation to retain these views is unrealistic. Nonetheless, conditions have been recommended for the competition brief to incorporate the requirement for view losses to be minimised”

The overall design strategy is to provide a proposal with reduced overshadowing and view loss and increased daylight levels and improved wind conditions in the public domain through two slender towers rather than one larger broader tower. This is manifested in the view studies by the space between the buildings which provides sky view access from Liverpool Street and Hyde Park through the centre of the site, breaking down the mass of a single tower.

Improvements in overshadowing and natural light at ground level are discussed in section 10.2 of this Design Report.



Original photograph



Photomontage indicating DA stage1 envelope



Photomontage indicating Proposed building



Original photograph



Photomontage indicating DA stage1 envelope



Photomontage indicating Proposed building



Original photograph



Photomontage indicating DA stage1 envelope



Photomontage indicating Proposed building

Private View Impacts

Requirements:

SDCP 2012 4.2.3.10 Outlook

(2) Views and outlooks from existing residential development should be considered in the site planning and massing of new development.

SDCP 2012 5.1.6 Building Exteriors

(7) The siting and configuration of buildings must consider the impact on surrounding development and public spaces in terms of amenity, shadowing, visual privacy and view sharing for residential buildings

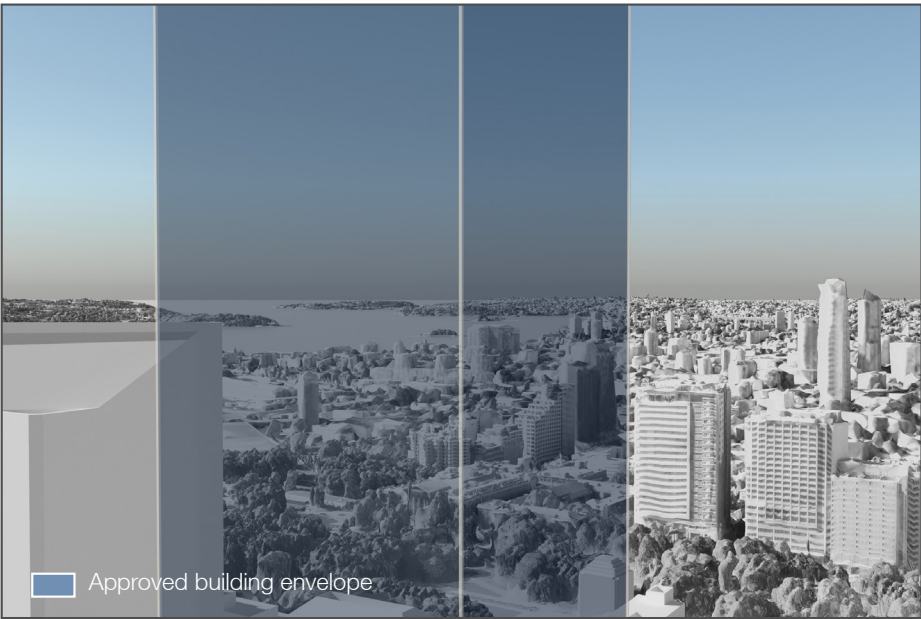
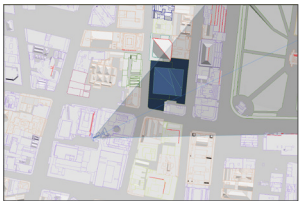
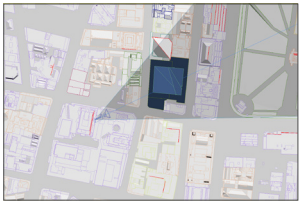
Point 153 of the Assessment Report for the Stage 1 DA states that “it is considered that the expectation to retain these (private) views is unrealistic. Nonetheless, conditions have been recommended for the competition brief to incorporate the requirement for view losses to be minimised.”

The overall design strategy is to provide a proposal with reduced overshadowing and view loss and increased daylight levels and improved wind conditions in the public domain through two slender towers rather than one larger broader tower. This is manifested in the view studies by the space between the buildings which provides view access from Hordern Towers and World Square through the centre of the site, breaking down the mass of a single tower.

Improvements in overshadowing and natural light at ground level are discussed elsewhere in this Design Statement.



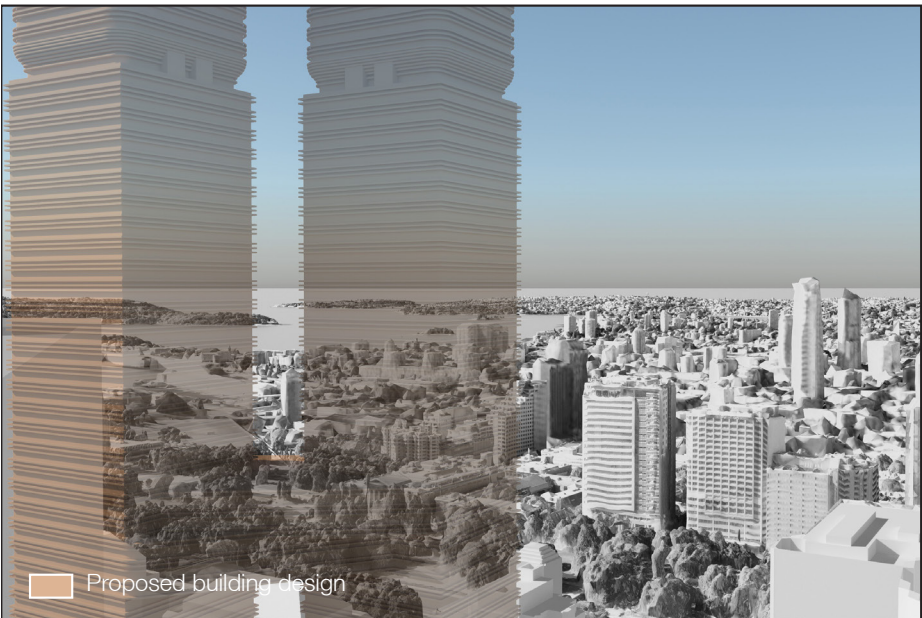
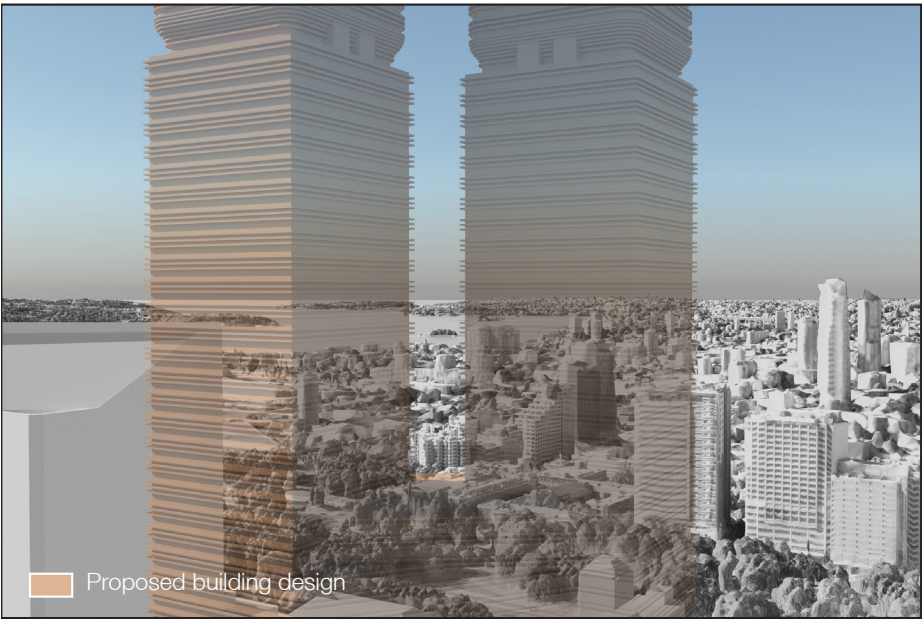
World Tower (91-95 Liverpool St)



World Tower: Northeastern apartment, Level 59



World Tower: Southeastern apartment, Level 59



9.5 Solar Access of Public Spaces

Overshadowing of Public Spaces

Stage 1 DA Conditions of Consent: (4) Design Modifications

(c) a portion of the eastern edge of the tower envelope must be deleted to ensure that the detailed design of a building contained within the modified envelope will not cause any additional overshadowing to Harmony Park between 10am and 2pm on 21 June, as annotated in red on the stamped approved plans;

Shadow Diagrams

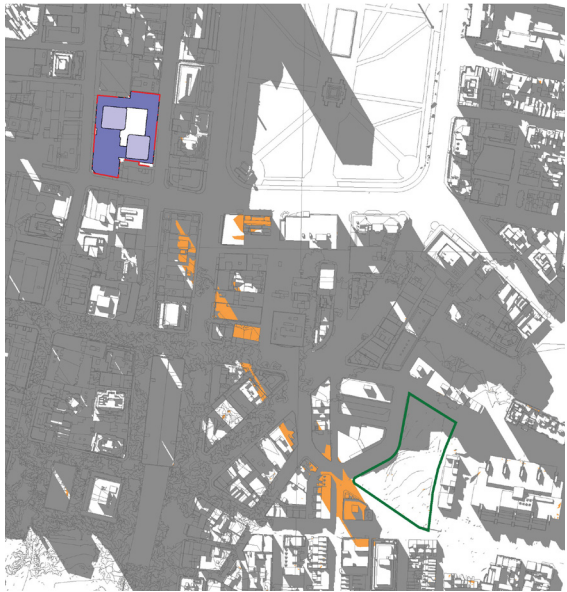
Shadow diagrams have been prepared at 1 minute intervals from 1:57am until 2:00pm on 21 June. These diagrams illustrate the areas of new shadow as a result the proosed development. Whilst the overall shadow from the proposal is significantly reduced when compared to the approved Stage 1 DA envelope, up to 2 minutes of overshadowing occur on the south western corner of the park at 2:00pm on 21 June.

The proposed scheme delivers an overall reduction in overshadowing of Harmony Park between 9:00am and 3:00pm on 21 June as illustrated on the following pages.

The overshadowing reduction benefits over the course of the day in Harmony park, outweigh this minor non-compliance with the 2:00pm 21 June consent condition.



1:57pm 21 June



Existing shadow Additional shadow



1:58pm 21 June



2:00pm 21 June

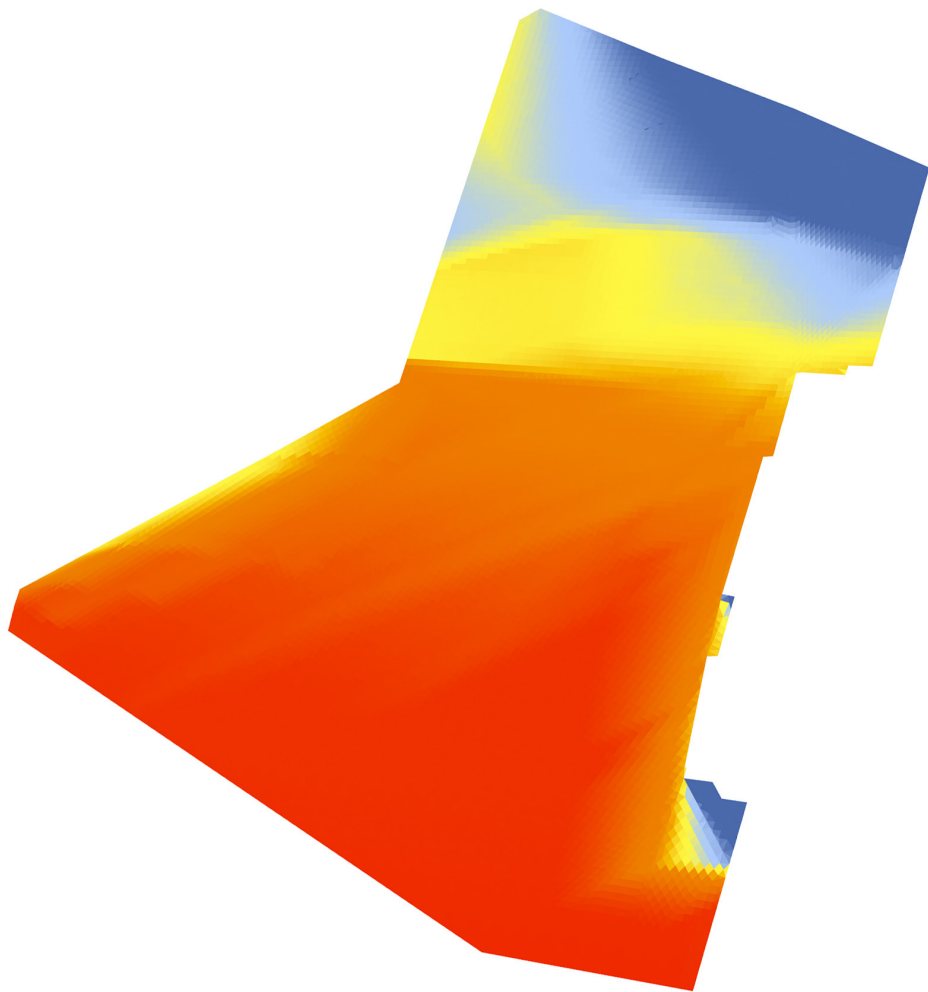


Harmony Park

SDCP 2012 Clause 3.1.4 Public open space

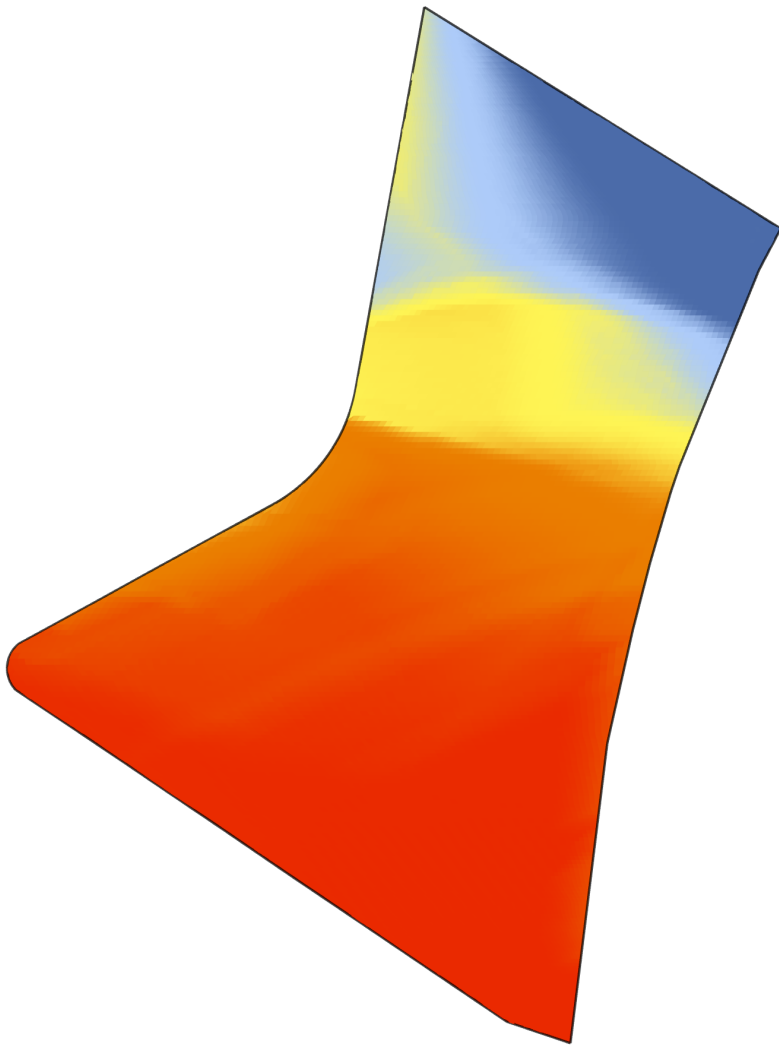
In relation to parks 50% of the total area is to receive sunlight for 4 hours from 9am to 3pm on 21 June;

Cumulative solar access studies have been prepared for the lodged DA envelope and the proposed design. Cumulative overshadowing of Harmony Park has been reduced on 21 June as a result of the proposed design when compared to the lodged Stage 1 DA envelope, which represents an overall improvement.



DA Stage 1 | Envelope Harmony Park Sun Access Study : 50.5% >= 4 hours

- Lodged in November 2017
- 258.5m height (including 10% design excellent height)
- Harmony Park Surface (outline and RLs) without Survey



DA Stage 2 Proposed Design | Harmony Park Sun Access Study : 60.6% >= 4 hours

- 257m height (including 10% design excellent height)
- Harmony Park Surface (outline and RLs) with Survey

9.6 Residential Overshadowing

ADG Objective 3B-2

Overshadowing of neighbouring properties is minimised during mid winter

The proposed two slender towers result in a reduced profile to the sun compared to the approved DA envelope between 9 am and 11am and between 1pm and 3pm, allowing additional sun through the gap in the towers and presenting a combined narrow profile to the afternoon sun.

The increased height of the towers is compensated for by the offset position of the northern tower so that the potential increased shadow falls largely within the shadow cast by the lower approved DA envelope.

The diagrams illustrate a net reduction in neighbouring apartment overshadowing when compared to the approved DA envelope which particularly benefits buildings with non ADG compliant sun access at 2-4 Cunningham street, 393 Pitt Street and 47& 49-53 Wentworth Avenue.

