

20 October 2020

Sydney Metro Design
Review Panel
Letter of Design Excellence Pitt
Street South Over Station
Development

Pitt Street North Over Station Development – Design Excellence

On 18 August 2020, the Department of Planning and Environment requested the Government Architect NSW (GANSW) provide commentary on the outcome of the design excellence process for the Pitt Street North Over Station Development.

Design Review Panel

We note that as part of the design excellence process the proposal has been subject to the Sydney Metro Design Review Panel (DRP) which is chaired by GANSW. The panel members are:

- Abbie Galvin GANSW FRAIA (Chair)
- Kim Crestani
- Tony Caro
- Bob Nation AM
- Peter Phillips
- Yvonne von Hartel AM
- Graham Jahn AM

The design development of the Pitt Street North Over Station Development has been presented to the Sydney Metro Design Review on the following occasions:

- DRP 1 – 15 October 2019
- DRP 2 – 19 November 2019
- DRP 3 – 17 December 2019
- DRP 4 – 21 January 2020
- DRP 5 – 18 February 2020
- DRP 6 – 17 March 2020
- DRP 7 – 31 March 2020
- DRP 8 – 21 April 2020
- DRP 9 – 5 May 2020
- DRP 10 – 19 May 2020
- DRP 11 – 15 June 2020
- DRP 12 – 18 August 2020
- DRP 13 – 15 September 2020
- DRP 14 – 20 October 2020

The DRP comments and design team responses are recorded in the SSD DA application, Appendix EE: Design Integrity Report. The purpose of this document is to;

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- Provide an expert, independent and objective assessment on the design quality of the proposed design,
- Document the stand-out elements that contribute to design quality and achieving design excellence that must be retained to ensure design integrity,
- Identify elements that require further refinement.

Key Findings

The Panel confirms that the design meets the design quality benchmark outlined in the Stage 1 OSD Design Guidelines and builds on the recommendations of the Design Excellence Evaluation Panel's Report March 15 2019, reinforcing the positive aspects of the design and addressing the areas that required refinement.

The elements that contribute to the design being capable of achieving design excellence are summarised below:

- **Massing and expression of tower**
The overall massing of the tower and vertical expression as three individual elements with an appropriate contextual response to its neighbours and the city skyline. The wide block has been broken up to read as three towers from key views around the city. The tower façade slightly rotated to reduce visual impact.
- **Articulation of podium and response to context**
The podium design responds to the street wall conditions of Pitt Street, Park Street and Castlereagh Street, each adjusted to the scale and materiality of its neighbours. The massing has been articulated to emphasise the station and OSD entries. The podium design and tower are well integrated and parts of a unified whole.
- **Landscaped podium**
The landscape design to the podium is well considered and provides good amenity to occupants, provides visual connection to green spaces in the city for this in the building and looking on to it., and provides opportunities for biodiversity in the city.
- **Integration of structure and services**
The station and OSD structures are efficient and designed to maximise spans around the entries. The services of the station are well integrated into the podium façade and are sympathetic to the streetscape.
- **Materiality**
The use of bronze coloured metal cladding and sandstone cladding is appropriate to the context of Town Hall precinct. The application of sandstone at the ground plane and where people circulate is supported. The sandstone has been well detailed as a masonry element.
- **Commercial floor layouts**

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The floor plates have been efficiently designed and provide good amenity.

- **Environmental performance**
The façade has been designed to balance integral shading and daylight. The podium setbacks, tower shape, rounded corners and horizontal articulation help reduce the impact of wind.
- **Entries**
The Station and OSD entries are clearly defined and at an appropriate scale, each with their own separate address.
- **Public Space**
The new public space created on Park Street and the setback to the boundary provides a significant contribution to the city and has been appropriately detailed to enable activation and amenity for pedestrians. The additional trees offer shade and reinforce the character of Park Street.
- **Views of public art**
The connection of the OSD and station is enhanced by the quality and location of the striking station art work.

The elements of the design that need further work are listed as open comments in the Design Integrity Report and include the following:

- **Façade prototyping and materiality**
The detail and materiality of the facades, both bronze coloured metal cladding and sandstone cladding, needs to be developed through prototyping and further DRP review of samples.

Yours sincerely



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Sydney Metro Design Review Panel

Pitt Street ISD

Advice and Actions Record – 14-15 September 2020

Date:	15 September 2020
Venue:	Microsoft Teams
Panel:	Abbie Galvin (Chair), Kim Crestani, Tony Caro, Bob Nation AM, Peter Phillips, Yvonne von Hartel AM
Independent Secretariat:	Gabrielle Pelletier
Design Team Presenters:	[REDACTED]

Project status: Completed **Date of last presentation:** 18 August 2020

The Pitt Street ISD project team presented DRP presentation 13 which covered the responses to submissions to OSD North, and the facade depth of OSD South.

Design Integrity Tracker:

Please refer to the [DRP Pitt St Design Integrity Tracker](#) for the status of all actions past and present. [DRP actions and advice](#) are sorted via their geographic location first, and then via their theme:

Advice is sorted first by their geographic location:

- | | | | |
|---|-------------------------------|---|-------------------------------|
| - | ISD – General | - | Precinct/ Public Domain South |
| - | OSD North | - | Station |
| - | OSD South | - | Station Entry North |
| - | Precinct/ Public Domain North | - | Station Entry South |

Advice is then also sorted by its theme:

- Customer experience and wayfinding
- Sustainability
- Public art & heritage interpretation
- Station services
- Planning and passenger movement
- Access and Maintenance
- Built form
- Materials and finishes

OSD North

Built form

- The Panel notes the shadows cast over Hyde Park by the Pitt Street development remain within the footprint of shadow already cast by existing development at 201 Elizabeth Street and an alternative and smaller built form envelope proposed for 201 Elizabeth St (which is currently not intended to proceed).
- The Panel defers to DPIE for compliance decisions relating to overshadowing of surrounding residences.

Design Guidelines

- The Panel does not support updating the Design Guidelines to reflect changes made during design development, however recommends the design team provide a statement responding to these guidelines for review and endorsement by the Panel.

Materials and finishes

- The Panel supports the measures taken to minimise reflectivity to protect Powerful Owls and other birds from flying into the building facade glazing and balustrades.

[REDACTED]

[REDACTED]

I [REDACTED]

I [REDACTED]

I [REDACTED]

I [REDACTED]

ITEM #	GEOGRAPHIC LOCATION	THEME	RAISED ON	DOCUMENT REVIEWED	ACTION / ADVICE	TEAM TO RESPOND	DATE OF RESPONSE	RESPONSE	STATUS
1.00	ISD	General	15/10/2019	DRP 1 Presentation	The Panel supports the overall scheme as presented with recommendations: Items 1.01 to 1.03	Project Team	19/11/2019	The Panel notes and supports the general approach to landscape design as presented in DRP 2 Presentation, noting that it is in its early stages.	Closed
1.01	ISD	Materials and finishes	15/10/2019	DRP 1 Presentation	The Panel requests that the landscape designer present at a future meeting.	Project team	19/11/2019	The Panel notes and supports the landscape design at its current stage as presented in DRP 2 Presentation	Closed
1.02	OSD South	Planning and Passenger Movement	15/10/2019	DRP 1 Presentation	The Panel requests that the following be presented at the next meeting: - Demonstration that the proposed lifts will provide an appropriate level of service to service 227 apartments and other uses.	Project team	19/11/2019	The Panel supports the proposed lift numbers on the basis of the analysis presented – being 3 passenger and 1 service lift for 227 apartments.	Closed
1.03	OSD South	Access and maintenance	15/10/2019	DRP 1 Presentation	The Panel requests that the following be presented at the next meeting: Demonstration that the loading dock and service lifts will provide a sufficient level of service.	Project team	19/11/2019 17/12/2019	The Panel raised concerns about the level of service provided by the current arrangement of loading dock and service lift (that requires changing lift at the lobby level). The Panel requested to see alternative configurations bringing the residential service lift closer to the goods lift, or ideally a model that does not require lift change from loading to apartment floors, whilst noting that the client is confident that this model is workable. The Panel accepts the design change presented for loading and vertical transport which achieves direct access from the loading dock into a larger residential service lift at the entry level, avoiding the need to transfer between lifts at the upper level.	Closed
2.01	OSD North	Materials and finishes	19/11/2019	DRP 2 Presentation	The Panel recommends a wind study be undertaken to ascertain impact on trees located on Pitt St North Podium.	Project team	31/03/2020 21/04/2020 05/05/2020	Refer Item 7.06 for further actions. The Panel acknowledge that a wind study was presented on 31 March 2020 however the intention of this action item was to ascertain the impact the wind, and proposed mitigation measures, will have on trees on the podium and street, and their ability to grow. This item remains open until this has been addressed. The Panel support the presented tree species and locations proposed for the street and podium planting, and accept the information presented that they will grow in the anticipated wind conditions.	Closed
2.02	Precinct/ Public Domain North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	The Panel notes that the suitability of the bus shelter design and location is yet to be confirmed with City of Sydney.	Project Team	21/04/2020 05/05/2020	The Panel supports in principle the approach to remove the standard City bus shelter and rely on the building awnings for shelter, however the Panel requests a plan showing seating locations in relation to the awning to understand the available amenity. The Panel also recommends coordination with TfNSW. The Panel support the return of the bus shelter.	Closed
2.03	Precinct/ Public Domain North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	The Panel does not support the location of the bollards perpendicular to the station entry and recommends an alternate solution be sought with City of Sydney.	Sydney Metro	15/06/2020	The Panel has ongoing significant concern with the placement of bollards across the path of pedestrian movement on the footpath, and recommends consultation be undertaken with the City of Sydney to co-ordinate with their city wide HVM placement strategy.	Closed
2.04	Precinct/ Public Domain North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	The Panel requests further information regarding crowd studies and movement corridors at Pitt St North in order to establish the functionality of proposed seating and other elements along the footpath.	Project team	21/01/2020 21/04/2020	The Panel notes that the project team will review the proposed locations of street furniture and bus shelter to optimise pedestrian flows and movements based on the crowd studies presented. The Panel confirm this item can be closed out following the project team's presentation on 31 March 2020.	Closed
2.05	Station	Materials and finishes	19/11/2019	DRP 2 Presentation	The Panel recommends samples and final finishes of material selection be presented along with evidence of sign off by Sydney Metro on sealing and maintenance regimes.	Project team	31/03/2020	The Panel accepts the current finishes proposed but notes that physical samples could not be reviewed due to the current Covid 19 isolation requirements.	Closed
2.06	Station Entry North	Built Form	19/11/2019	DRP 2 Presentation	Retail Unit 3 Facade The panel seeks a review of Retail Unit 3 façade composition and recommends glazing be subservient to the strong wrapping of the sandstone wall into the entry, to maintain continuity of design with the original proposition.	Project team	17-Dec-19	The Panel accepts the updated design which minimises glazing to maintain the integrity of the curved form of the retail area adjoining Ashington Place.	Closed
2.07	OSD North	Materials and finishes	19/11/2019	DRP 2 Presentation	The Panel supports in principle the current material selection and recommends the future presentation of this selection also include direct reference to the SSD OSD-North Part A Design Parameters to enable support of these conditions. The Panel also recommends that samples and final finishes be presented along with evidence of sign off by Sydney Metro on sealing and maintenance regimes.	Project team	21/04/2020 05/05/2020	The Panel supports the approach to the development of an appropriate bronze finish to aluminium and requests that samples of the proposed finish on the variant façade forms, be available to view on site during the construction delivery phase. The Panel request further information about the durability and maintenance of the proposed bronze finish to aluminium where this finish is present at ground level. The Panel support the product warranty evidence to demonstrate durability and look forward to seeing samples of the proposed finish in all variant façade forms when available on site.	Closed
2.08	Station Entry North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	Pitt St Egress The Panel recommends the review of the narrowing egress corridor & stairwell as may conflict with legislative requirements.	Project team	17-Dec-19	The Panel accepts that the project fire engineer and BCA consultant have confirmed that the pinch point in the egress corridor does not present an unacceptable obstruction to people movement.	Closed

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2.09	Station Entry North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	Fire control room The Panel notes the relocation of the fire control room is yet to be confirmed with the fire brigade and therefore requires further development.	Project team	17-Dec-19	The Panel accepts the updated design to consolidate the fire control rooms on Park Street.	Closed
2.10	Station Entry North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	Schedule C4 - North entry toilet & lift configuration	Project team	19/11/2019 17/12/2019	The Panel supports the new configuration of toilet and lift access with the 2m setback of the toilet entry doors behind a privacy screen. The Panel accepts the proposed screen to the amenities to support separation of circulation between lift and amenities.	Closed
2.11	Station Entry North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	Schedule C4 - North entry metro touch point locations The Panel notes and supports the relocation of the metro touch points to inside of curtilage however requests the further development of the entry hall to ensure it remains a unified public room as presented in the original proposition, through consolidation of floor treatments, levels and balustrade lines.	Project team	17/12/2019	The Panel accepts that the proposed use of wall, floor and ceiling materials and finishes internally and externally as presented greatly improves the sense of a unified public room at the Park Street Metro entrance. The Panel accepts the proposed glazed screens separating the paid area behind the gate line from the footpath on Park Street.	Closed
2.12	Station Entry North	Built Form	19/11/2019	DRP 2 Presentation	Schedule C4 - North entry natural light access The Panel requests this item be addressed at the next scheduled meeting in order to close it out.	Project team	17/12/2019	The Panel accepts that the reduced concourse will let more lighting into the escalator switch back and void.	Closed
2.13	OSD South	Built Form	19/11/2019	DRP 2 Presentation	Princeton Apartment Interface – Ventilation design The Panel note that this proposal appears to meet the minimum requirements of the relevant contract design parameters however, the panel raised the following concerns with the presented solution: -Conflict between safety and cleaning -Conflict between access to ventilation and acoustic separation The Panel was advised that this solution has been presented to the City of Sydney (CoS), but no feedback from the CoS was provided. In addition to demonstration that the scheme addresses the above concerns, the Panel recommends that CoS support for this approach is secured.	Project Team	21/01/2020 18/02/2020 21/04/2020 19/05/2020	The Panel accepts removal of the vertical blade to the ventilation slot on the south façade (Princeton Apartment interface) noting further development of horizontal ledges to be provided. The Panel accept the articulation of horizontal ledges to the ventilation panel slots along the Princeton Apartment Interface. The Panel accept that investigation is underway regarding nesting prevention and recommend the project team liaise with Sydney Metro regarding their current solution testing. The Panel note the previous request to confirm there are no high-volume wind whistling issues arising from the bedroom ventilation panels located in the recessed slots with no horizontal ledges. The Panel confirm this item remains open due to concern raised over the potential for high-volume wind whistling issues arising from the recessed slots with no horizontal ledges. The Panel seeks confidence from the Pitt Street team that this issue won't arise. The Panel supports the presented material relating to the mitigation of high-volume wind whistling.	Closed
2.14	OSD South	Built Form	19/11/2019	DRP 2 Presentation	Princeton Apartment Interface – Visual privacy	Project Team	19/11/2019	The Panel supports that visual privacy is achieved through the noted vertical louvers to the apartment windows facing the Princeton Apartments.	Closed
2.15	OSD South	Materials and finishes	19/11/2019	DRP 2 Presentation	The Panel supports the material selection in principle, and recommends all materials are presented again with samples and final finishes, including evidence of sign off by Sydney Metro on sealing and maintenance regimes.	Project team	21/01/2020 18/02/2020	The Panel reiterates the need for material samples and prototypes prior to providing support. The Panel accept the samples provided in principle however recommend the production of multiple full-scale prototypes with a variety of options upon the engagement of the precast contractor to test the level of subtlety between colour and finishes from varying distances and light conditions, and to explore a greater level of texture to improve contrast in colour. It is recommended the Panel be invited to view these prototypes to ensure design excellence is carried through to project delivery and that enough time be allowed to test developed options for the prototypes if required.	Closed
2.16	Station Entry South	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	Schedule C4 - South entry sightline to lift waiting area	Project Team	19/11/2019	The Panel supports the improved sight lines to the lift waiting area through the increase in width from 2.5m to 3m.	Closed
2.17	Precinct/ Public Domain North	Planning and Passenger Movement	19/11/2019	DRP 2 Presentation	The Panel is concerned that the use of bollards as the only approach to managing security issues is leading to suboptimal public domain outcomes that will negatively impact on the urban design quality and useability of the Metro entry areas. Transport to provide a presentation on alternative approaches to security.	Transport for NSW / Project team	3/12/2019 15/06/2020	A presentation has been made regarding HVM devises, a strategy has not yet been proposed. The Panel accepts the proposed strategy for HVM device placement however further to Tracker Item 2.03, does not support the placement of bollards perpendicular to the path of travel.	Closed
2.15	General	General	19/11/2019	DRP 2 Presentation	The Panel noted that the CoS representative required as a member on this Panel has not yet been appointed.	Transport for NSW	18/02/2020	Graham Juan has been appointed as DRP Panel member for the City of Sydney.	Closed
3.01	OSD North	Integrated Art and Heritage Interpretation	17/11/2019	DRP 3 Presentation	The Panel accepts the modifications to the facades on Pitt and Castlereagh Streets to improve design relationships with adjoining heritage items and looks forward to the developed design of heritage interpretation panels.	Project Team	21/04/2020	The Panel note the importance of the integration of pre-colonial history into the heritage interpretation strategy (refer item 7.02) and understand this is forthcoming, therefore accept this item has been met and can be closed following the Pitt Street 31 March presentation.	Closed

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4.01	OSD South	Materials and finishes	21/01/2020	DRP 4 Presentation	Façade design The Panel recommends considering a different treatment to the precast façade panels at street level in order to provide a richer sense of detail.	Project Team	18/02/2020 17/03/2020	The Panel note that limited options were developed by the design team to introduce detail into the street level precast panels. The Panel acknowledge that mimicking the brick striations/banding is not a suitable response and recommend further investigation be undertaken to test texture and applied finishes to resolve a finer level of design detail, and that additional larger scale samples are developed and request the DRP are invited to review further proposals. The Panel accept the honed precast finish to the street level walls, with a higher visibility of aggregate then sample shown and promote further consideration be given to the skirting and corner details to ensure longevity of initial appearance.	Closed
4.02	OSD South	Materials and finishes	21/01/2020	DRP 4 Presentation	Façade design The Panel requests a plan diagram/s that establish the locations of colour changes, and confirmation that this is consistent with the agreed concept of the tower being a composition of four articulated slender forms.	Project Team	18/02/2020	The Panel accept the presented diagrams and 3D imagery explaining the locations of colour changes and evolution of design.	Closed
4.03	OSD South	Built Form	21/01/2020	DRP 4 Presentation	Façade design The Panel accepts the proposed rationale for façade openings between concrete panels applicable to the various internal room uses.	Noted			Closed
4.04	OSD South	Heritage Interpretation	21/01/2020	DRP 4 Presentation	Edinburgh Castle Hotel The Panel requests a detailed resolution of the return wall to the Edinburgh Castle Hotel.	Project Team	18/02/2020 17/03/2020	Concern was raised over the use of brick in the boundary wall to the Edinburgh Hotel. The Panel recommends that this wall be read as part of the new development whilst remaining sympathetic to the Hotel. The Panel promotes the use of materials already within the OSD building palette and recommends explorations into the use of painted steel. The Panel accepts the proposal for the bounding wall to the Edinburgh Hotel to be composed of recycled bricks with tone and texture similar to the bricks used in the Hotel.	Closed
4.05	OSD South	Built Form	21/01/2020	DRP 4 Presentation	Solar Analysis and Thermal Comfort The Panel notes there has been a reduction in solar access on June 21st due to the New Castle Residences development, which has recently commenced on site. The Panel notes the design teams advice that appropriate solar analysis testing to minimise this impact has been undertaken, which demonstrates that the current façade design remains as an appropriate solution along with relocation of upper level 3-bedroom apartments to the lower levels.	Noted			Closed
4.06	OSD South	Built Form	21/01/2020	DRP 4 Presentation	Envelope compliance The Panel accepts the presented envelope non-compliances as having very minor impacts and therefore reasonable.	Noted			Closed
4.07	General	General	21/01/2020	DRP 4 Presentation	Design Excellence The Panel requests that future presentations include commentary on compliance with design excellence strategies including design guidelines.	Project Team	18/02/2020	The Panel note that the project team are currently in conversation with DPIE	Closed
4.08	OSD North	Built Form	21/01/2020	DRP 4 Presentation	Setbacks to lightwells The Panel accepts and supports updates to the presented lightwell setbacks to the existing NSW Masonic Club and Ashington Place developments, following the survey study undertaken of these buildings.	Noted			Closed
4.09	OSD North	Materials and finishes	21/01/2020	DRP 4 Presentation	Ashington Place lightwells The Panel suggests looking at opportunities for improving outlook from the Ashington Place development across the lightwell to the proposed solid boundary wall.	Project Team	17/03/2020	The Panel supports the materials to the Ashington Place lightwells and looks forward to viewing samples when available.	Closed
4.10	OSD North	Built Form	21/01/2020	DRP 4 Presentation	Ashington Place lightwells The Panel suggests consideration of introducing natural light from the Ashington Place lightwell to benefit the commercial spaces within.	Project Team	17/03/2020	The Panel supports the materials to the Ashington Place lightwells and looks forward to viewing samples when available.	Closed
6.01	OSD South	Materials and finishes	17/03/2020	DRP 6 Presentation	Ground floor windows The Panel request further information provided regarding bird roosting mitigation measures at horizontal window heads that sit below the awning.	Project Team	19/05/2020	The Panel supports the detailed coordination of the various joints and look forward to a presentation of the proposed design.	Closed
6.02	OSD South	General	17/03/2020	DRP 6 Presentation	Design Excellence The Panel accepts that Pitt Street South OSD meets design excellence parameters and is ready for submission to DPIE.	Noted			Closed

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6.03	Station Entry North	Planning and Passenger Movement	17/03/2020	DRP 6 Presentation	Ticketing & information re-entrant areas The Panel continues to be concerned regarding the quality of public domain provided by re-entrant ticketing and information spaces on either side of the station entry gates, and request Sydney Metro and the design team investigate this area further.	Project Team & Sydney Metro	21/04/2020 19/05/2020	The Panel support the presented design amendments but encourage further reducing the re-entrant depth further by setting the station gates & signage portal back whilst still proud of the column, understanding this will require access dispensation for escalator run-off The Panel accepts the station gate line cannot move closer to the escalator.	Closed
6.04	Station Entry North	Materials and finishes	17/03/2020	DRP 6 Presentation	Escalator landing materiality The Panel looks forward to the presentation of the artwork on the escalator landing and suggests reconsideration of the use of two materials on east and west flanking walls.	Project Team	21/04/2020 05/05/2020 19/05/2020 23/06/2020	The Panel remain concerned about the potential clinical outcome of the white flanking walls to this station entry, and encourage the project team to review their finish in context of the integrated public artwork. The Panel supports the use of sandstone from the escalator switch back landing to the foundation datum, and seek further information on how the door located at this landing will be integrated into this finish. The Panel apologises for the lack of clarity in the advice given following the previous presentation and would like to clarify that in the context of the integrated artwork, a unified finish on walls perpendicular to the artworks is encouraged to enable the artwork to read as strongly as possible. The Panel supports the use of white textured colour back glass in lieu of sandstone at the base of the wall and request the project team review the details at the service datum line to investigate whether a continuous material is possible. The Panel supports the use of sandstone on the basis of the out of session material provided on 15 June 2020. The Panel notes that concealing appearance of the service door into the wall through material use, careful detailing and minimising door hardware is critical to the effective reading of the artwork and the surrounding wall as a simple plane.	Closed
6.05	Station Entry North	Materials and finishes	17/03/2020	DRP 6 Presentation	Colour back glass The Panel suggests considering a slight texture be provided on the low-iron colour-back glass to minimise visibility of smears and fingerprints (such as the glass used by Foster & Partners in the Deutsche Bank Place lift cars).	Project Team	31/03/2020	The Panel supports the inclusion of a textured finish to the white colour-back glass	Closed
6.06	Station	Built Form	17/03/2020	DRP 6 Presentation	The Panel recommends review of the discordant interface between the two geometries at the station concourse south escalator exit.	Project Team	31/03/2020	The Panel accepts the revised design at the interface of the 2 geometries which proposes 400mm depth of wall below the services plenum.	Closed
7.01	General	Integrated Art and Heritage Interpretation	31/03/2020	DRP 7 Presentation	Post Colonial Heritage The Panel commended the depth and rigour of the historical research (post-colonisation) and its opportunity for heritage interpretation and display.	Noted	N/A	N/A	Closed
7.02	General	Integrated Art and Heritage Interpretation	31/03/2020	DRP 7 Presentation	Indigenous Heritage The Panel was disappointed by the lack of engagement with indigenous heritage and recommend further engagement be undertaken. The Panel notes that George and Pitt Streets in particular, follow indigenous tracks and routes, as well as the Tank Stream.	Project Team	5/05/2020 15/06/2020	The Panel supports the indigenous narrative presented and the importance of its representation. The Panel understands the intended presentation is via displays boxes, however encourages alternative approaches to ensure the work communicates a sense of permanence and respect. The Panel look forward to future presentations on the project teams' approach to integration. The Panel supports the integration of site-related interpretive elements for this site.	Closed
7.03	Precinct/ Public Domain North	Planning and Passenger Movement	31/03/2020	DRP 7 Presentation	Traffic Signals The Panel notes that adjustment of traffic signals to preference pedestrian priority at the intersection would be the desired outcome and support this occurring. The Panel acknowledge there is planned to be a whole of city review in the upcoming years of timing of signalisation and pedestrian flows.	Noted	N/A	N/A	Closed
7.04	Station Entry North	Integrated Art and Heritage Interpretation	31/03/2020	DRP 7 Presentation	Foundation course The Panel is concerned that the re-used foundation course of the wall as a datum at the station entry seems tokenistic and lacks co-ordination with the larger adjacent artwork and seeks clarity regarding the interaction of these two elements.	Project Team	19/05/2020	The Panel supports the removal of the re-used foundation course as the datum along the flanking walls, as noted in item 6.04, this will detract from the artwork.	Closed
7.05	OSD North	Built Form	31/03/2020	DRP 7 Presentation	Building Envelope The Panel accepts the building envelope as presented with the exception of the 1.8m high balustrades on the top of the podium.	Project Team	21/04/2020 05/05/2020	This item seeks review of the proposed 1.8m glass balustrade solution The Panel supports the glass balustrade and efforts made to reduce its perceived height internally and externally.	Closed
7.06	OSD North	Built Form	31/03/2020	DRP 7 Presentation	Further Wind Study The Panel is concerned that screening the podium setback on the corner with 1.8m glass balustrade in order to moderate the impact of wind for podium users, will in turn negatively impact the wind conditions on the street that the setback has been designed to mitigate. The panel recommends further wind studies be undertaken to assess this. Refer Item 2.01 for further action.	Project Team	21/04/2020 05/05/2020	This item seeks further wind studies to understand the impacts the increased balustrade height will have on the broader development (i.e.: the podium setback is created to mitigate wind impacts on the public domain through the mitigation of downdraft, yet the high balustrade seeks to provide amenity on the podium roof during windy conditions – what impact will the provision of this balustrade have, if any on the wind at street level?) The Panel accept the wind consultant's opinion that the balustrade will not impact street wind conditions.	Closed

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7.07	OSD North	Built Form	31/03/2020	DRP 7 Presentation	Planter Balustrade The Panel notes that a code compliant balustrade would be required on the outside edge of any planter to prevent falls, and seeks regarding the interface of the landscape and the balustrade edge.	Project Team	5/05/2020	The Panel supports the presented solutions for balustrades to the outside edges of planters.	Closed
7.08	General	General	31/03/2020	DRP 7 Presentation	OSD Design Parameters The Panel noted the status update provided on the OSD design parameters and that ongoing discussions are occurring between the Sydney Metro and the Pitt St Project Team to close these out progressively. The Panel accepts this has been achieved and will close this item in the design integrity tracker.	Noted	N/A	N/A	Closed
7.09	General	General	31/03/2020	DRP 7 Presentation	Design Excellence Guidelines The Panel noted the suggested process to be followed to close out and satisfy compliance with the design excellence guidelines and notes the detail on this process is to be agreed with DPIE, Sydney Metro and the developer.	Noted	N/A	N/A	Closed
8.01	OSD North	Planning and Passenger Movement	21/04/2020	DRP 8 Presentation	OSD Use & Retail offering The Panel accept that the planning requirements have been met relating to the proposed extent of commercial and retail use.	N/A	N/A	N/A	Closed
9.01	OSD North	General	5/05/2020	DRP 9 Presentation	Design Excellence The Panel endorses that design excellence has been achieved on OSD North, and the design is ready for submission to DPIE.	N/A	N/A	N/A	Closed
9.02	General	Integrated Art and Heritage Interpretation	5/05/2020	DRP 9 Presentation	Integrated Art The Panel strongly support the presented integrated art and commend the team on a bold and exciting approach. The Panel raise concern over the visible impact of expressed joints arising from the proposed installation of pre-finished panels. The Panel recommend the type and location of joints, along with production of a full scale prototype be carefully developed in conjunction with the artist, and suggest further investigation of an in-situ installation.	Project Team	19/05/2020 03/08/2020	The Panel supports the detailed coordination of the various joints and look forward to a presentation of the proposed design. The Panel strongly recommends that the artist and architect are involved in the development and approval of the final joint set out. The Panel requests that a prototype be developed prior to site works for inspection and approval by the architect and artist, and review by the Panel.	Closed
10.01	General	Integrated Art and Heritage Interpretation	19/05/2020	DRP 10 Presentation	Lighting Specialist The Panel encourages the project team to consult a lighting specialist in conjunction with the artist, to undertake a lighting study to ensure the ambient light is both sufficient and will not cause undue light scalloping on the wall.	Project Team	23/06/2020	The Panel accept the reply provided by the Contractor, that consultation will occur between their lighting specialist and the artist to provide appropriate light levels and type.	Closed
10.02	OSD South	Built Form	19/05/2020	DRP 10 Presentation	South Façade Window Cleaning The Panel seeks clarification from the design team on how the windows behind the fixed louvres on the south façade are to be cleaned.	Project Team	18/08/2020	The Panel accepts the maintenance strategy presented for the South Façade.	Closed
11.01	OSD South	Built Form	18/08/2020	DRP 12 Presentation	Varied setback from Pitt Street boundary The Panel notes the project team did not address the impact of the proposed varied setback on solar access to the Princeton Apartments which DPIE had noted was the intention of this condition.	Project Team	15/09/2020	The Panel defers to DPIE for compliance decisions relating to overshadowing of Princeton apartments.	Closed
11.02	OSD South	Built Form	18/08/2020	DRP 12 Presentation	View retention from Century Tower The Panel accepts that a reasonable attempt has been made to increase the number of Century Tower apartments retaining views of St Mary's cathedral through articulation of the roof form within the approved planning envelope	N/A			Closed

ITEM #	GEOGRAPHIC LOCATION	THEME	RAISED ON	DOCUMENT REVIEWED	ACTION / ADVICE	TEAM TO RESPOND	DATE OF RESPONSE	RESPONSE	STATUS
11.04	OSD South	Built Form	18/08/2020	DRP 12 Presentation	SE Coner Apartment Design The Panel does not support the reduction in area to the SE corner apartments, and suggests the removal of the second bathroom to align the area with the Apartment Design Guidelines. However, the Panel supports the reduction in balcony area to improve privacy	Project Team	15/09/2020	The Panel supports the improved amenity afforded to the SE corner apartments due to indenting the balcony, and the resultant reduction of balcony size.	Closed
11.05	OSD South	Planning and Passenger Movement	18/08/2020	DRP 12 Presentation	Privacy and amenity to Princeton Apartments The Panel supports the Level 6 terrace use as landscape only, and encourages the maximisation of soft landscaping through reducing extent of proposed paved area. The Panel does not support the inclusion of internal communal space, including the pool area, within the total communal open space calculation.	Project Team	15/09/2020	The Panel supports the updated landscape design however defers to DPIE on compliance decisions relating to the calculation of communal open space.	Closed
11.06	OSD South	Built Form	18/08/2020	DRP 12 Presentation	Maximising solar access The Panel notes that in selecting a residential use for the site solar access amenity was known to be limited. The Panel accepts that the project team have maximised solar access and amenity to apartments in the context of the challenges presented by this particular site.	N/A			Closed
12.01	OSD North	Built Form	15/09/2020	DRP 13 Presenation	Hyde Park solar access The Panel notes the shadows cast over Hyde park by the Pitt Street development remain within the footprint of shadow already cast by existing development at 201 Elizabeth street and an alternative and smaller built form envelope proposed for 201 Elizabeth St (which is currently not intended to proceed).	N/A			Closed
12.02	OSD North	Built Form	15/09/2020	DRP 13 Presenation	Neighbouring apartment solar access The Panel defers to DPIE for compliance decisions relating to overshadowing of surrounding residences.	N/A			Closed
12.03	OSD North	Design Guidelines	15/09/2020	DRP 13 Presenation	Design Guidelines The Panel does not support updating the Design Guidelines to reflect changes made during design development, however recommends the design team provide a statement responding to these guidelines for review and endorsement by the Panel.	Project Team			Open
12.04	OSD North	Materials and finishes	15/09/2020	DRP 13 Presenation	Bird protection The Panel supports the measures taken to minimise reflectivity to protect Powerful Owls and other birds from flying into the building facade glazing and balustrades.	N/A			Closed

Pitt Street Integrated Station Development



Contents

		<u>Finish</u>	<u>Presenter</u>
NORTH OSD RTS			
1. Presentation by DPIE	for information	9.10	Annie Leung
2. Developer introduction	seeking Support	9.15	Chris Carolan
3. Design presentation - North	seeking Support	9.40	Lotte (Lieselot) Baert
a. Maximise solar access to Hyde Park			
b. Minimise overshadowing to Park Regis residential			
c. Revisions to Design Guidelines			
d. Design implications from Powerful Owl preservation			
█ [REDACTED]		█	[REDACTED]
█ [REDACTED]			
5. Clarifications by the Panel	Q&A	10.00	

1. Presentation by DPIE

2. Developer Introduction

North OSD – Response to Submissions (RTS)

Background

Exhibition period for the North OSD has closed.

Submissions reviewed and DPIE require Oxford Properties to:

- provide a response to the issues raised in those submissions.
- provide a response to the issues outlined by DPIE as a result of those submissions.

Accordingly, our approach in macro terms is as follows:

- DPIE to brief the Panel on the outcome of public exhibition and the information they are requesting from Oxford.
- Oxford to articulate their expectations of the DRP in this context. **This will include a request for a letter confirming Design Excellence and the elements that represent this milestone.**
- F+P will present the response to the key issues outlined by both DPIE and CoS that have either triggered a potential design change or relate to a previous endorsement of the DRP.

North OSD – Response to Submissions (RTS)

Background (continued)

This is the only DRP for the RTS period for the North OSD.

The North OSD RTS is currently scheduled for submission to Metro for review on 8 October and lodged with DPIE on 6 November.

The following slides describe those issues that F + P will address as per the criteria nominated in the previous slide.

3. OSD North

Contents

1. Maximise solar access to Hyde Park
2. Minimise overshadowing to surrounding residences
3. Revision to Design Guidelines
4. Facade Changes resulting from 'Powerful Owl' measures

Maximise solar access to Hyde Park

Maximise solar access to Hyde Park

NSW Government, Planning, Industry & Environment – RTS feedback (26/08)

Review the distribution of floor space to minimise external impacts and satisfy the following Design Guidelines requirements:

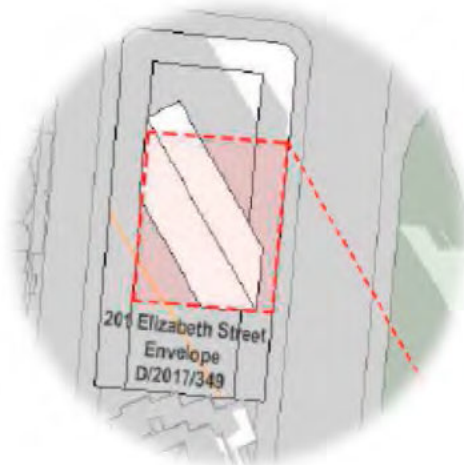
*(6.b) Maximise solar access to the public domain, through responding to the reduced shadow cast by the **redevelopment of 201 Elizabeth Street on Hyde Park on June 21st, between 12pm and 2pm** - Sydney Metro preliminary design work propose an angled offset of the north eastern corner of 4.1m to achieve this outcome.*

Maximise solar access to Hyde Park

- Additional Overshadowing from OSD
- Envelope Comparison to SEARs Envelope

The proposed envelopes overshadowing requirements are governed by the Hyde Park West 3 Sun Access Plane, subject to Clause 6.17 of the LEP2012 ensuring no additional overshadowing to Hyde Park.

During the solar & overshadowing analysis period however, the revised & approved Stage 01 Envelope for 201 Elizabeth Street has resulted in our original SEARS envelope creating additional overshadowing to Hyde Park between 1.30pm – 2.00pm, June 21st

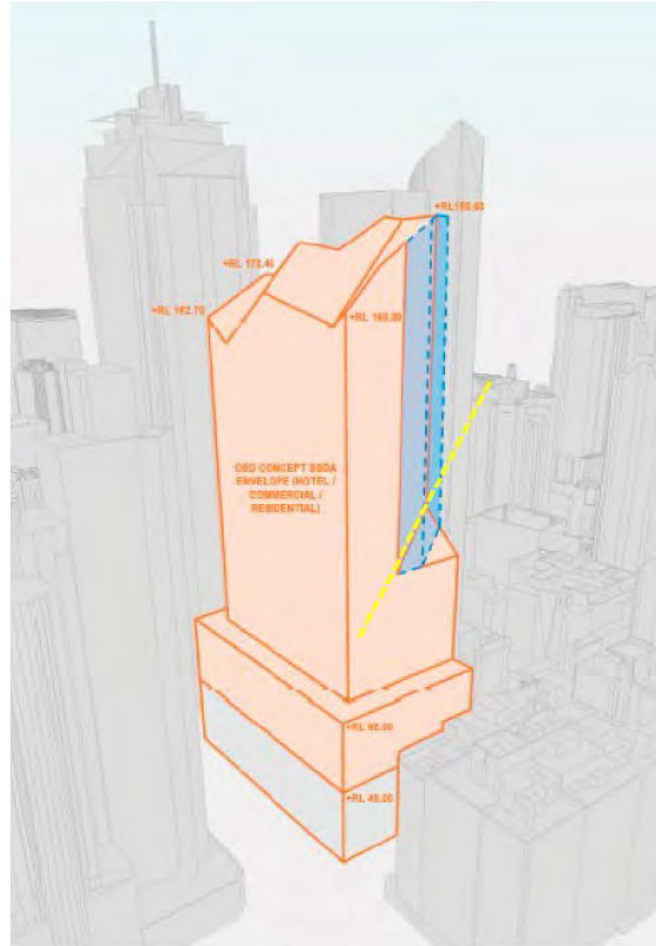


- Additional Overshadowing from OSD
- Additional Overshadowing Impact to Hyde Park



June 21 | 2.00pm

Maximise solar access to Hyde Park



3D Perspective showing Approved Stage 1 Envelope

The result impacts the north-eastern corner of the Pitt Street North envelope, requiring the angled corner to be offset 4.1m, removing 87sqm from the typical tower level envelope.

- Proposed Revised Envelope
- Envelope Comparison to SEARs Envelope

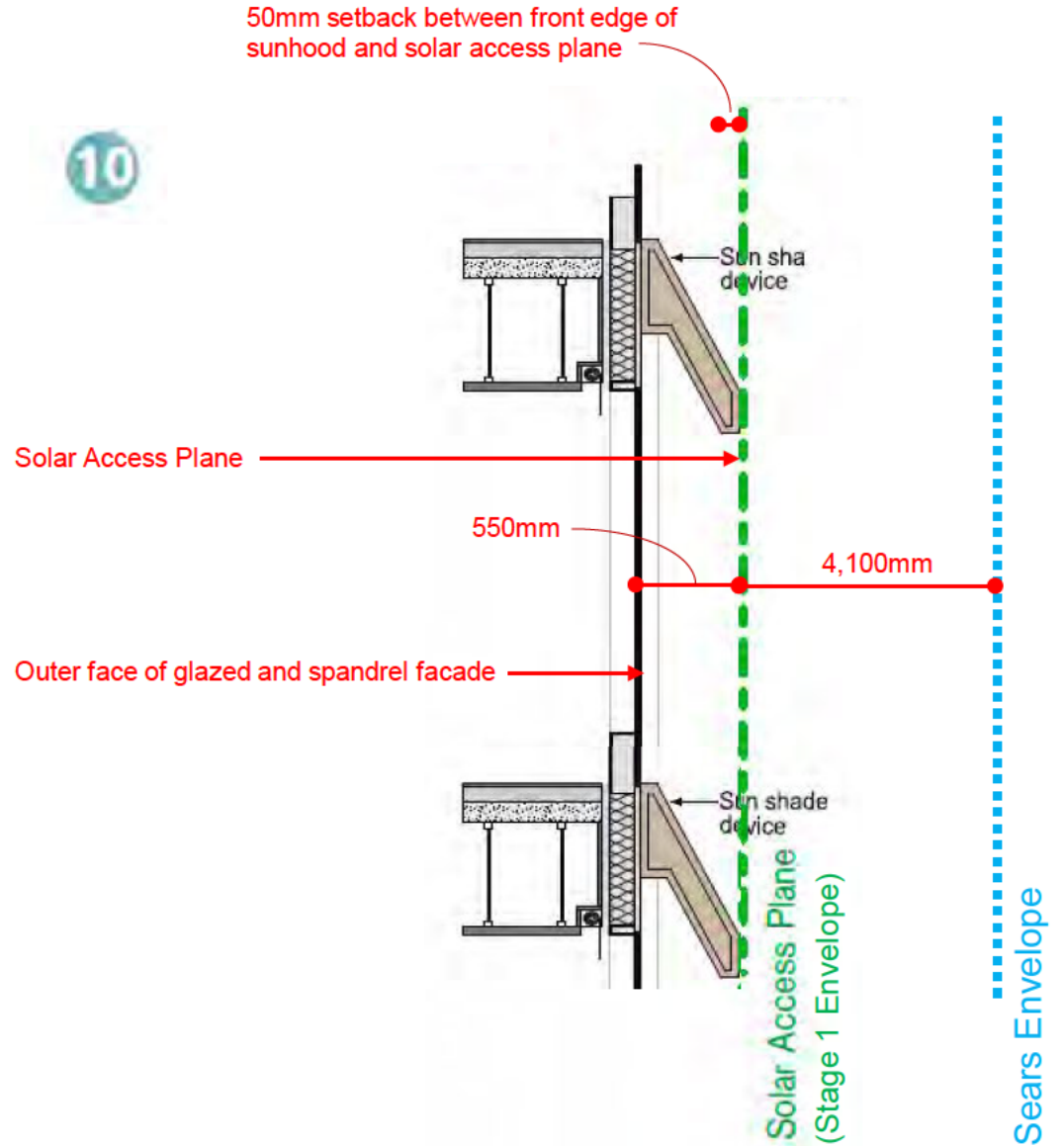


Plan Diagram showing Approved Stage 1 Envelope

Maximise solar access to Hyde Park

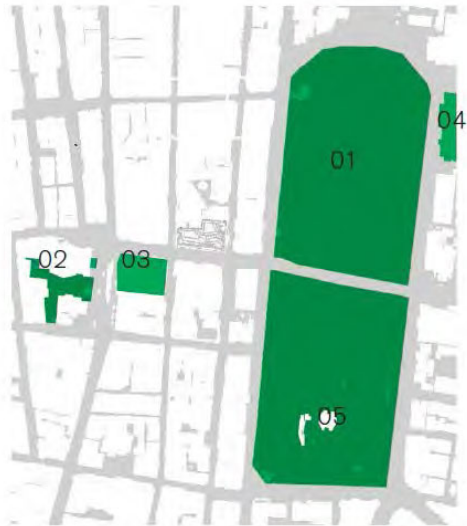
Key

- Site Boundary
- Building Envelope (6m setback line)
- Weighted Average Setback (8m setback line)
- Solar Access Plane



Maximise solar access to Hyde Park

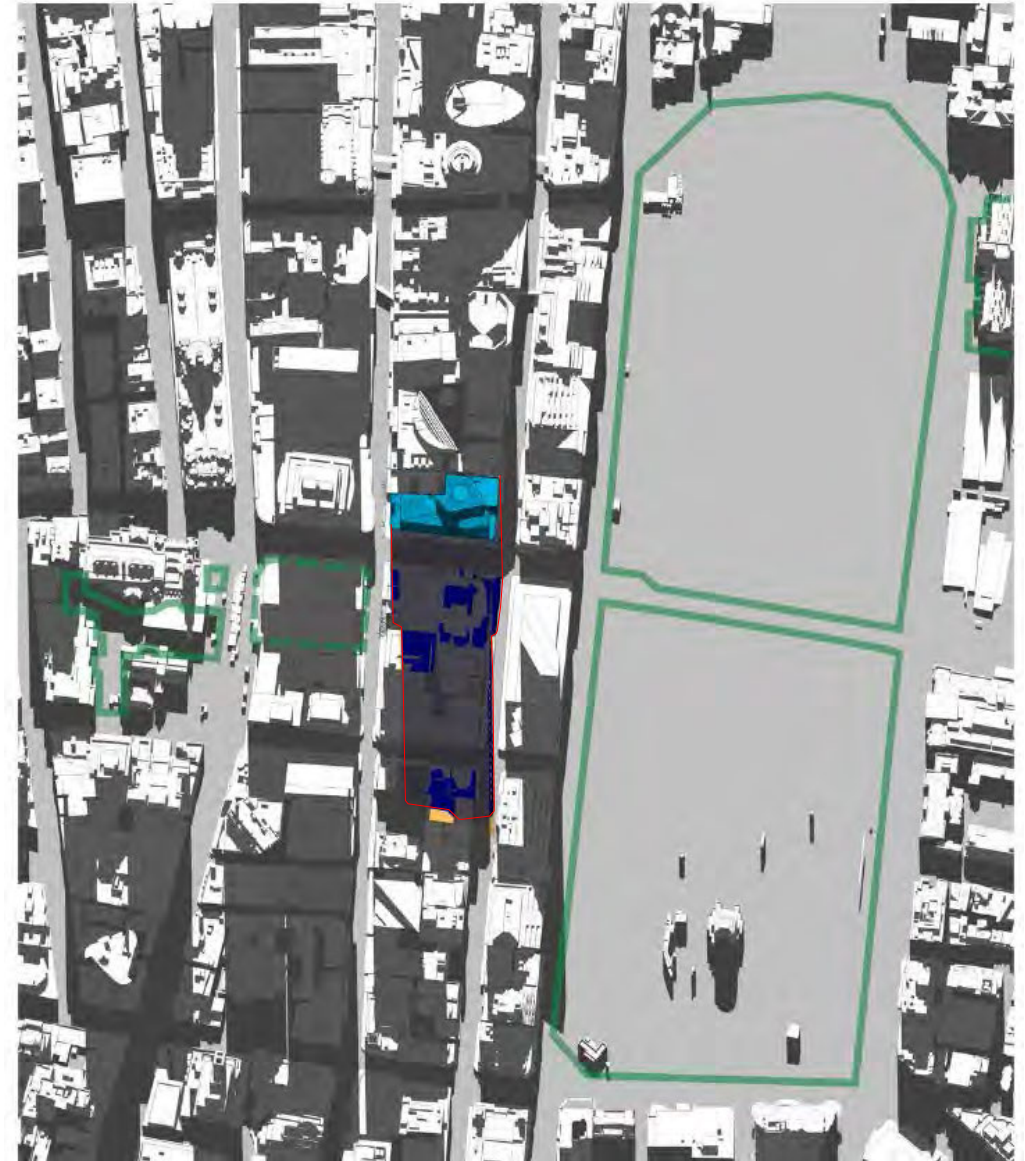
12:00



- 01 - Hyde Park
- 02 - Sydney Square /
Sydney Town Hall Steps
- 03 - Future Town Hall Square
- 04 - St Mary's Cathedral
- 05 - Anzac Memorial



- Public Space
- Building Envelope
Shadow
- Proposed Building
Shadow



Maximise solar access to Hyde Park

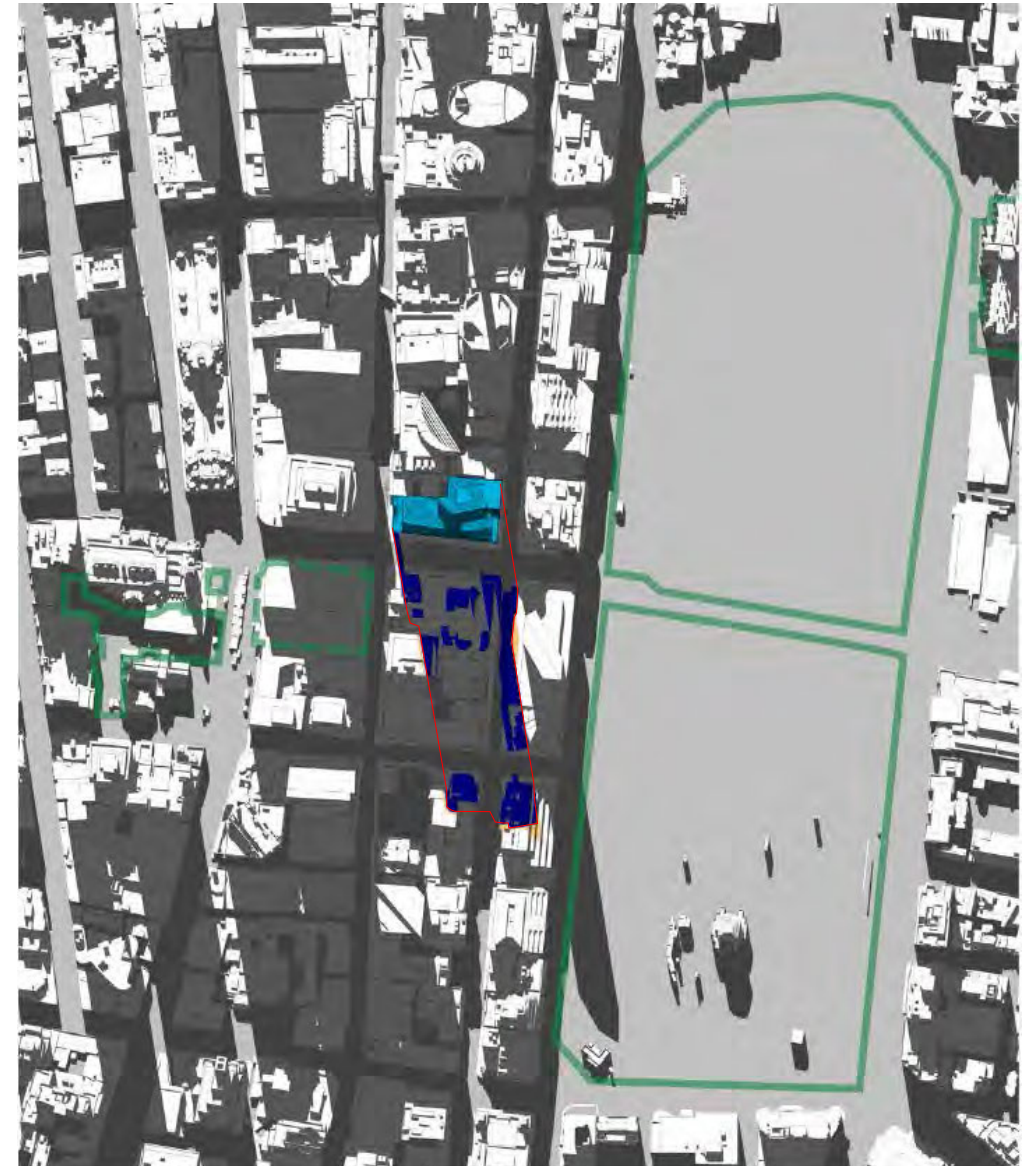
12:30



- 01 - Hyde Park
- 02 - Sydney Square /
Sydney Town Hall Steps
- 03 - Future Town Hall Square
- 04 - St Mary's Cathedral
- 05 - Anzac Memorial

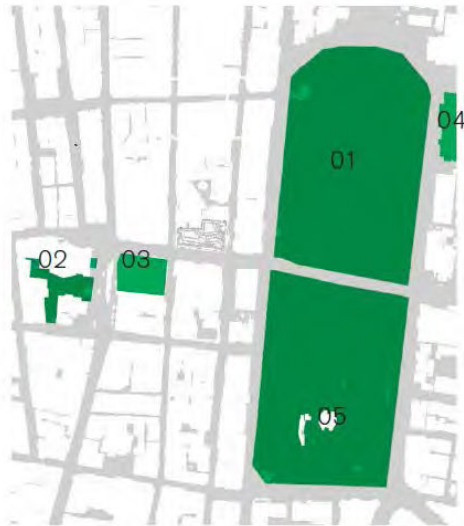


- Public Space
- Building Envelope
Shadow
- Proposed Building
Shadow



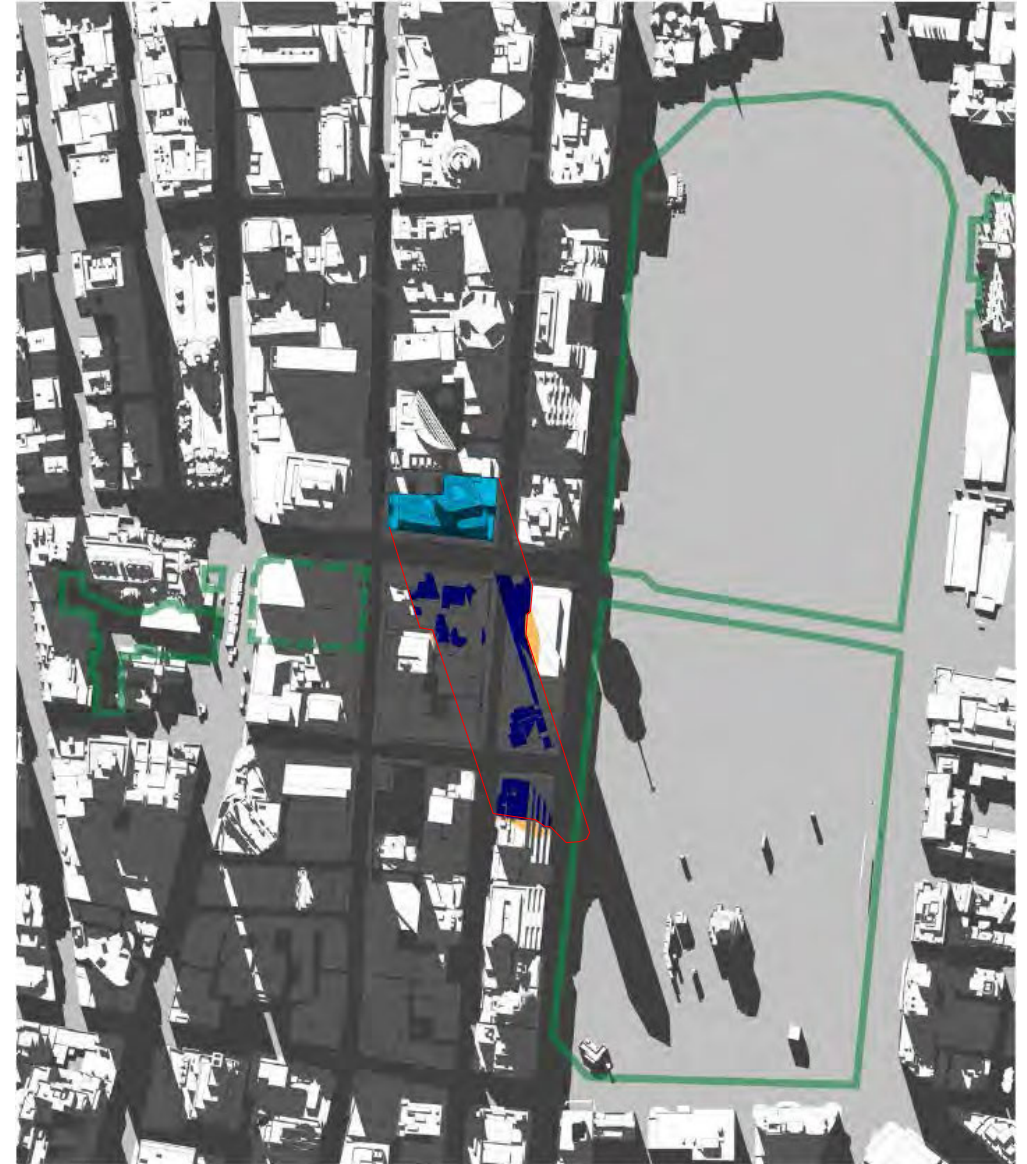
Maximise solar access to Hyde Park

13:00



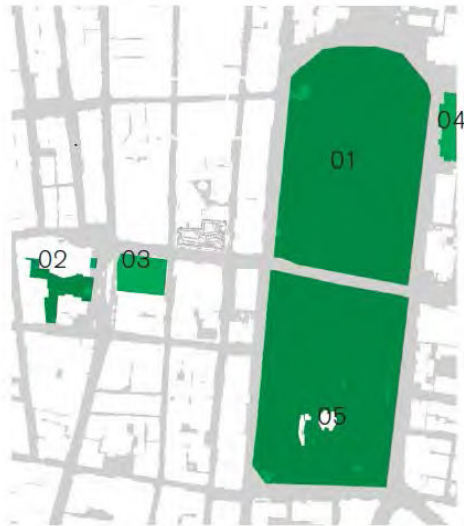
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-  - Public Space
-  - Building Envelope
Shadow
-  - Proposed Building
Shadow



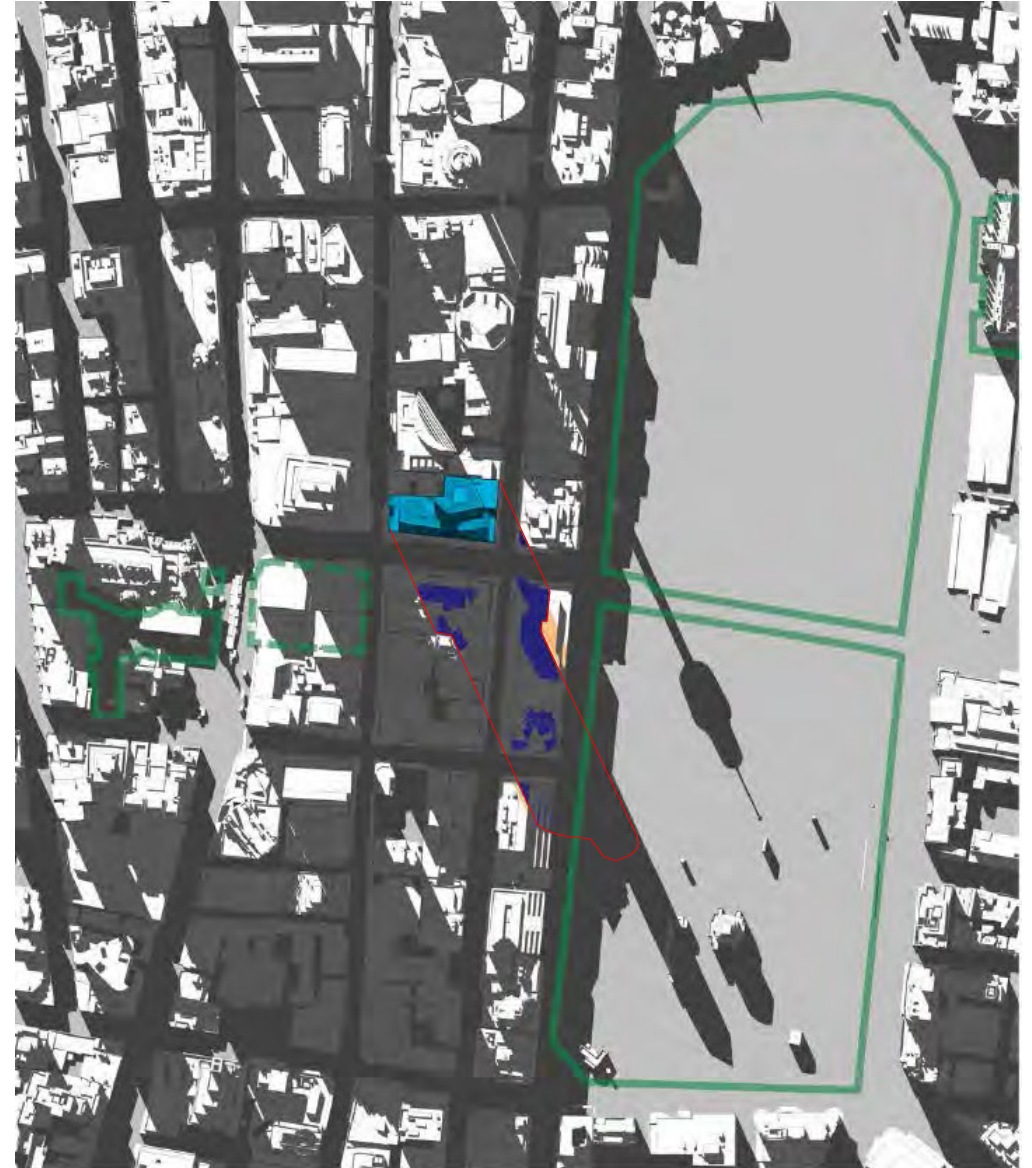
Maximise solar access to Hyde Park

13:30



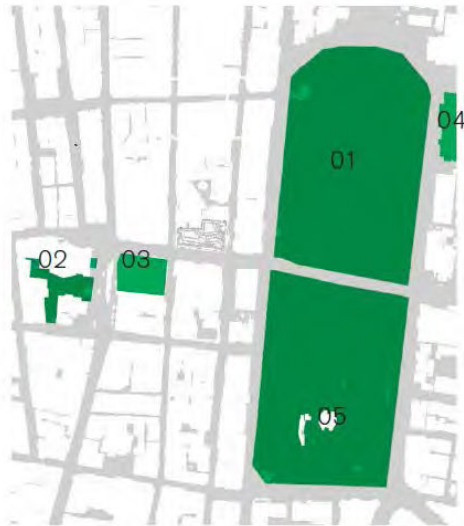
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Maximise solar access to Hyde Park

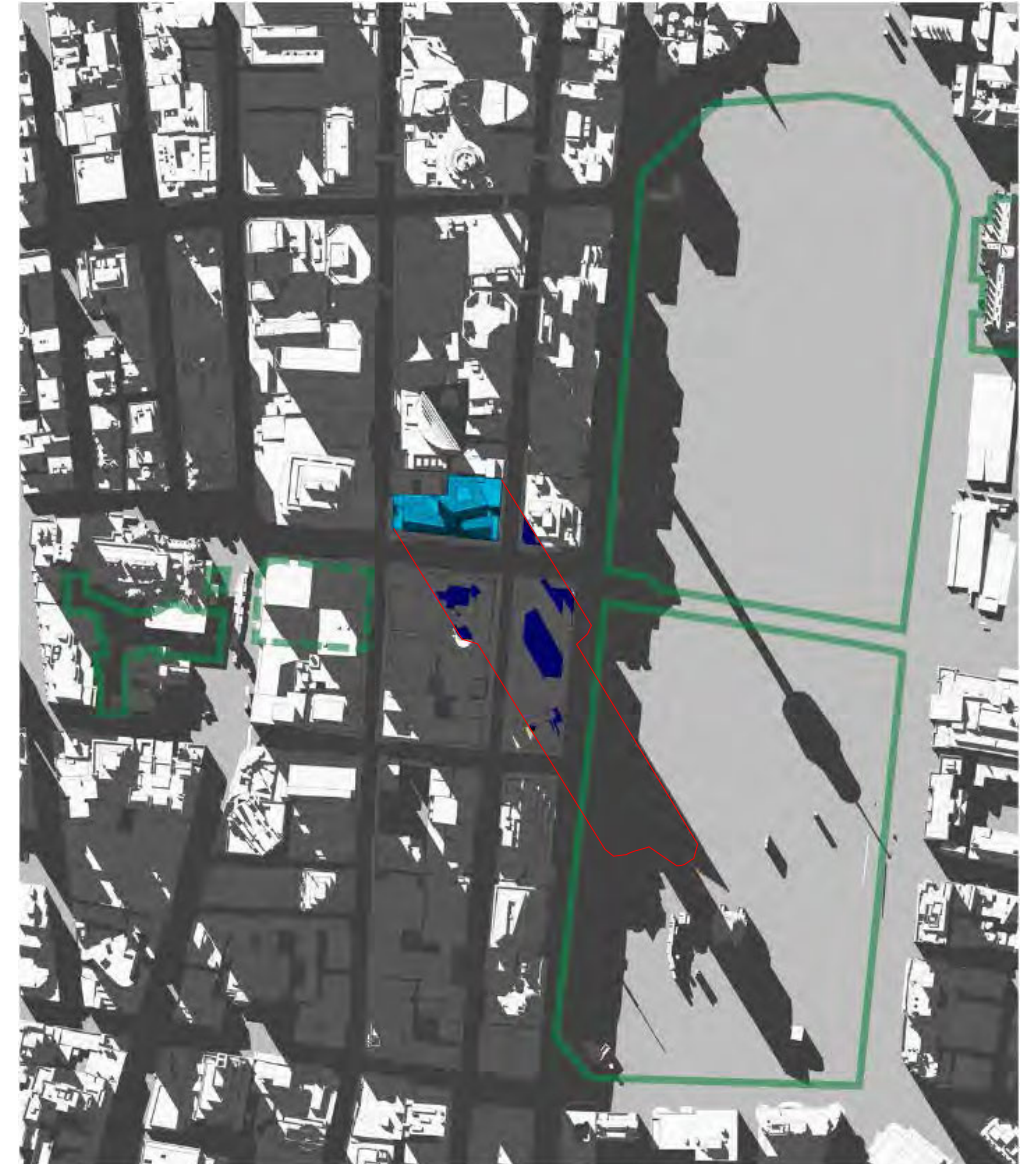
14:00



- 01 - Hyde Park
- 02 - Sydney Square /
Sydney Town Hall Steps
- 03 - Future Town Hall Square
- 04 - St Mary's Cathedral
- 05 - Anzac Memorial



- Public Space
- Building Envelope
Shadow
- Proposed Building
Shadow



Minimise overshadowing to surrounding residences

Minimise overshadowing to surrounding residences

NSW Government, Planning, Industry & Environment – RTS feedback (26/08)

Review the distribution of floor space to minimise external impacts and satisfy the following Design Guidelines requirements:

Achievement of SEPP65 and ADG requirements and must;

(9.c) Minimise overshadowing impacts to surrounding residences, including private residences at 27 Park Street (Park Regis).

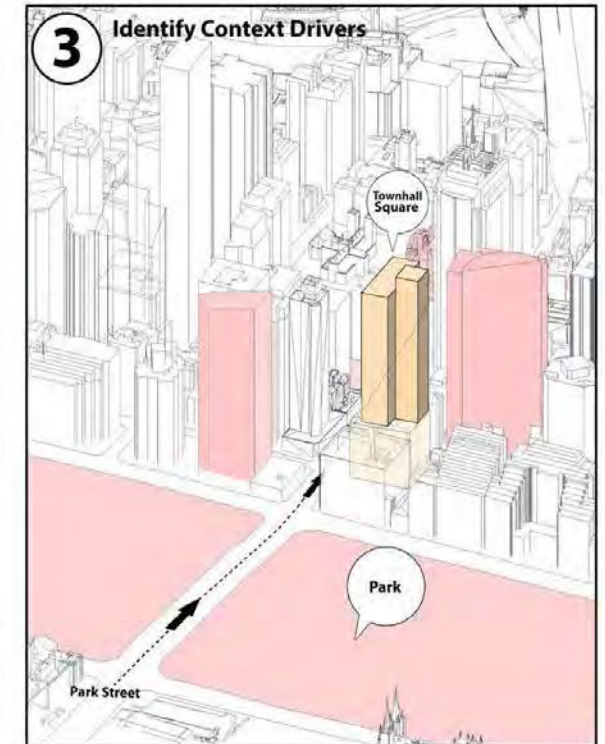
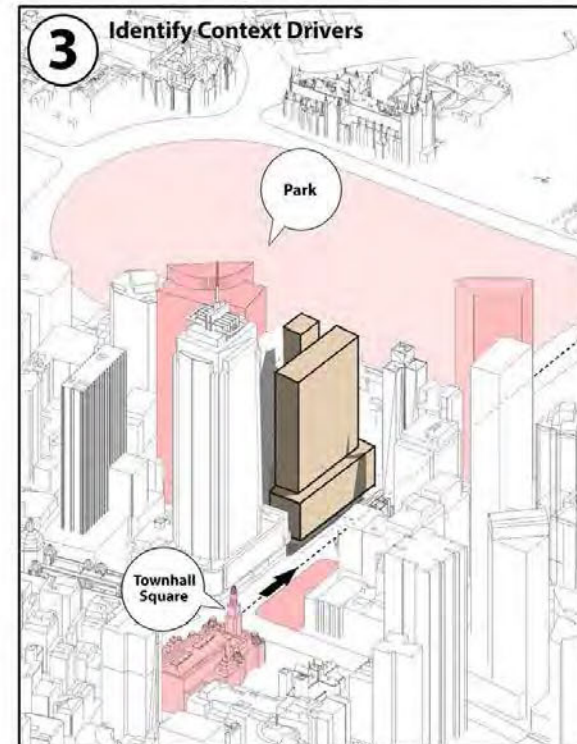
Minimise overshadowing to surrounding residences

- 1. Current Massing Principles & Design Guidelines**
- 2. Comparison overshadowing to Park Regis between approved Stage 1 envelope & Current massing**
- 3. Massing adjustment to minimise overshadowing?**

Current Massing Principles & Design Guidelines

Relevant Design Guidelines (massing related)

4. Modulation of the design to **minimise the overall scale of the development relative to ANZ/Liberty Place & CitiGroup**, considering tower crowding as perceived particularly from Hyde Park & Town Hall.
5. Avoiding the continuation of the diagonal **NW plane facade alignment** otherwise established by the proposed 201 Elizabeth Street & ANZ / Liberty Place.

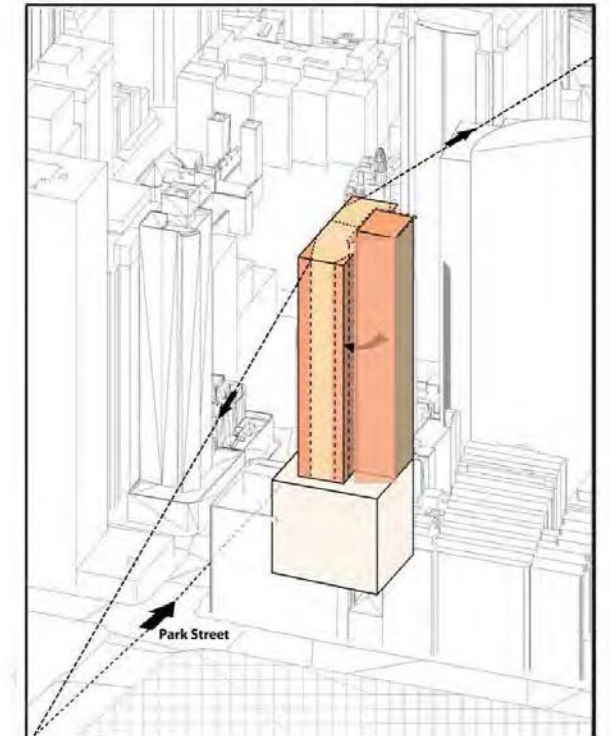
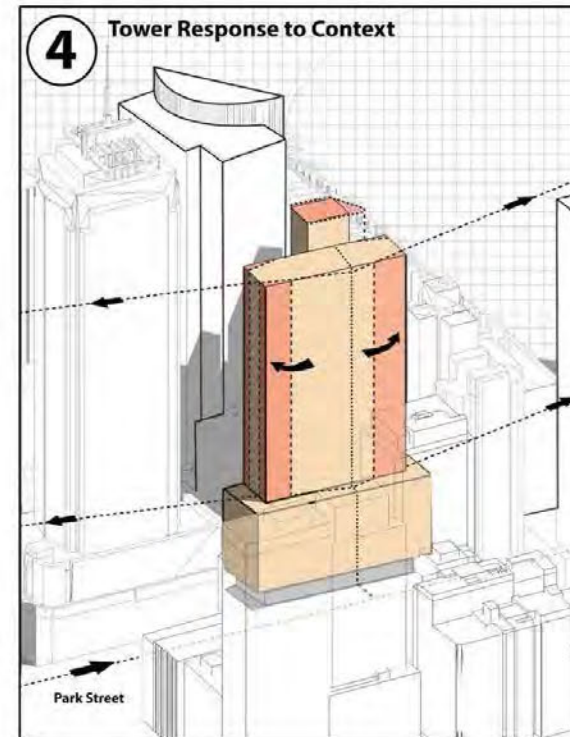


Current Massing Principles & Design Guidelines

Relevant Design Guidelines (massing related)

6. Maximise solar access to the public domain, through:

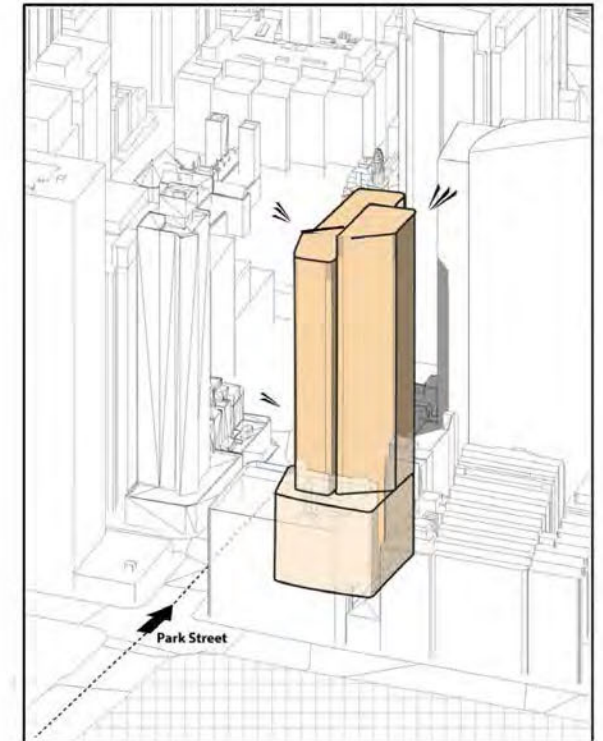
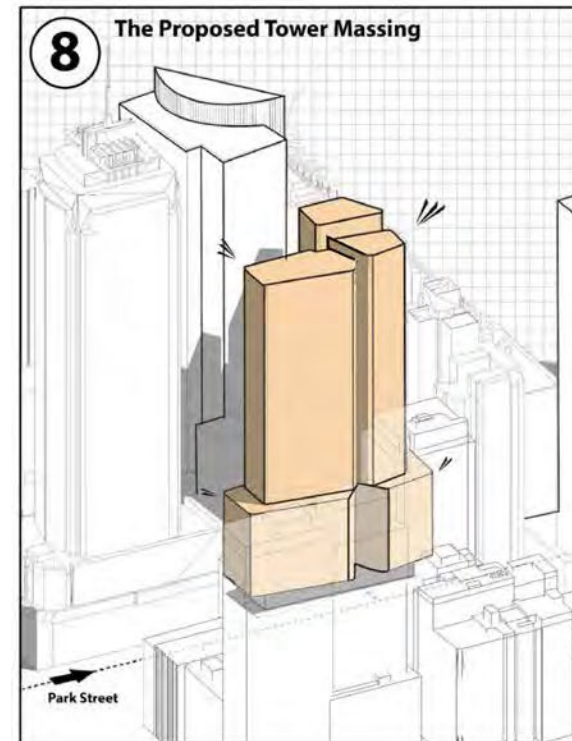
- Design and articulation to ensure no additional overshadowing to Hyde Park on June 21st, between 12pm and 2pm
- Responding to the reduced shadow cast by the redevelopment of 201 Elizabeth Street on Hyde Park on June 21st, between 12pm and 2pm
- Creation of opportunities to increase solar access to the proposed Town Hall Square.
- The design and articulation of roof forms to minimise additional shadow impacts to Hyde Park between 12 noon and 2pm throughout the year.



Current Massing Principles & Design Guidelines

Relevant Design Guidelines (massing related)

10. Provide articulation of the tower to **present as multiple forms**, when viewed from both Town Hall and Hyde Park, with **vertical expression along Park Street** incorporating continuous elements of relief for the **full height of the building** above the podium to reduce the mass and scale of the future built form and ensure the built form better responds to the massing and scale of surrounding buildings.
11. Incorporate **building articulations, building modulations** and facade treatments to provide **distinctive visual breaks** along the Park Street frontage of the site, respecting the surrounding subdivision and built forms patterns. The distinctive visual breaks shall be **proportional to the overall building height and length of the street frontage**.

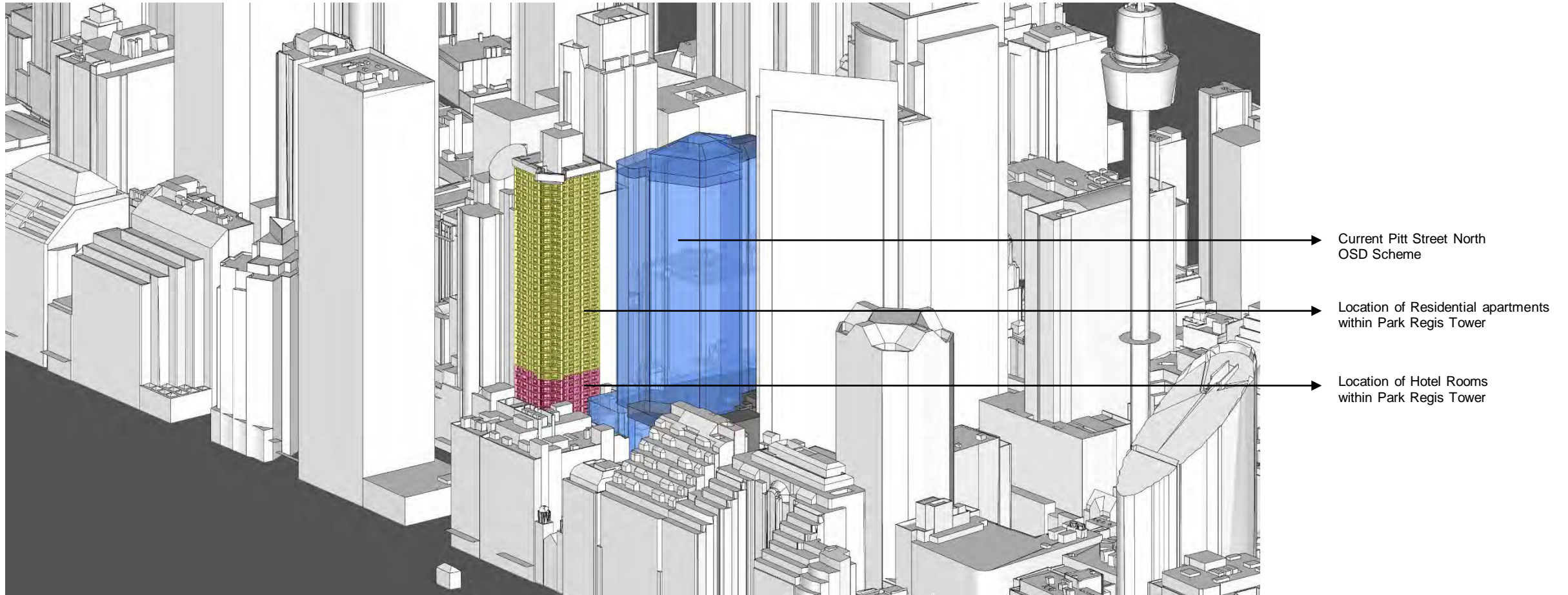










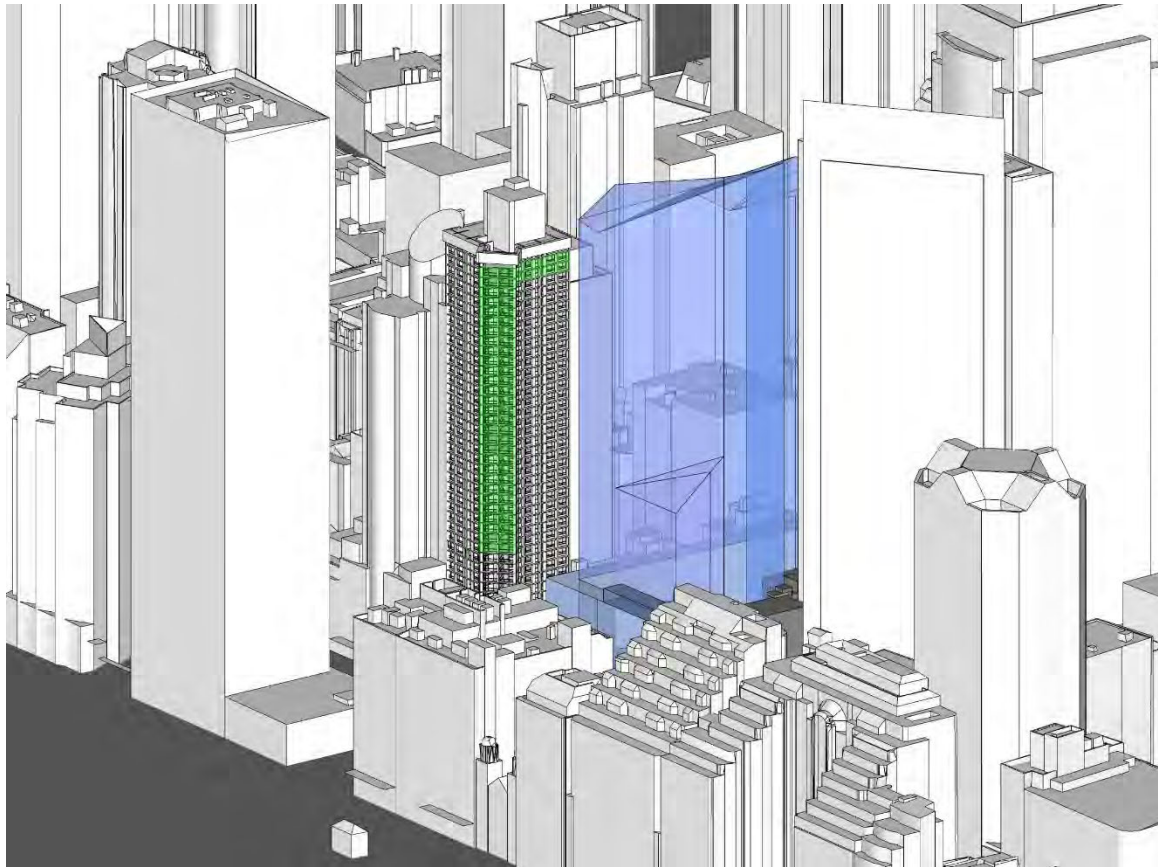
Comparison overshadowing to Park Regis Tower



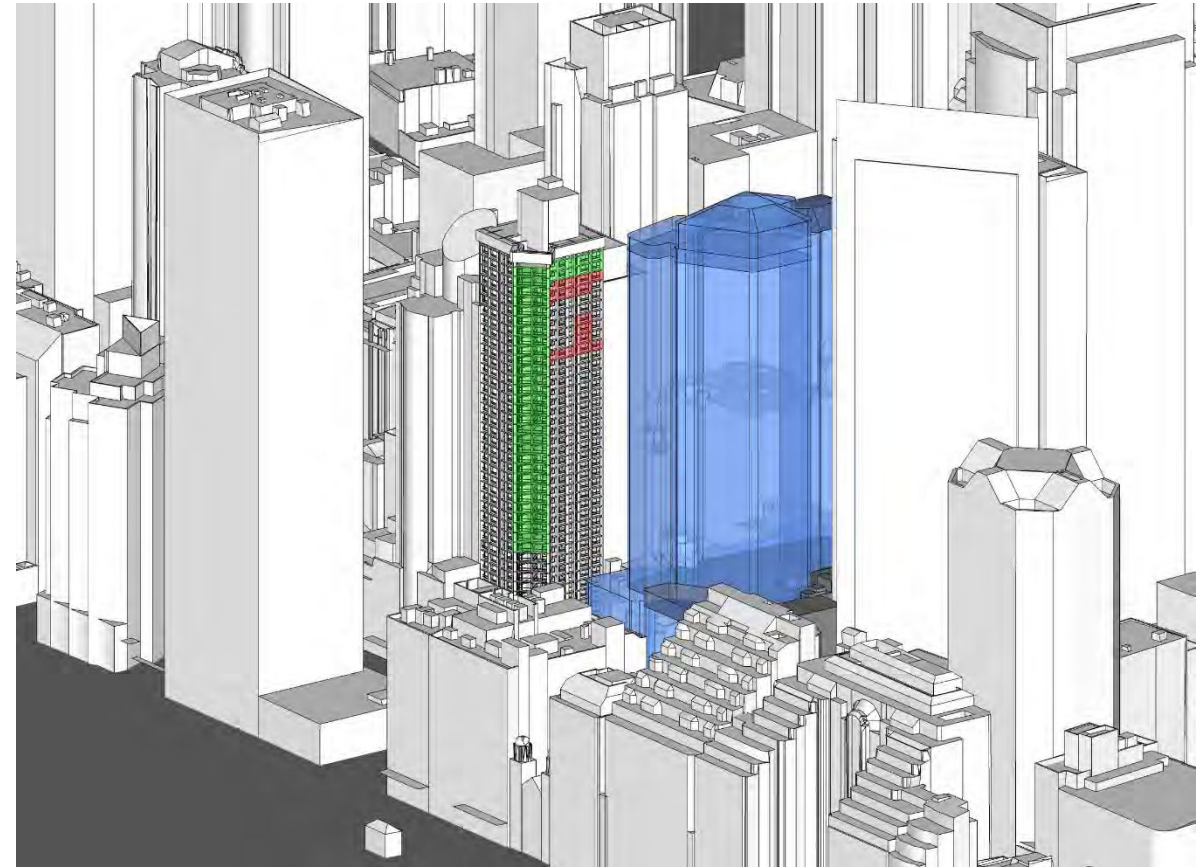
Comparison overshadowing to Park Regis Tower

9:00

-  Residential apartments within Park Regis Tower achieving 2 hours of direct sunlight on 21 June between 9AM-3PM (Stage 1)
-  **Additional** Residential apartments within Park Regis Tower achieving 2 hours of direct sunlight on 21 June between 9AM-3PM (SSDA Scheme)





Stage 1 Envelope

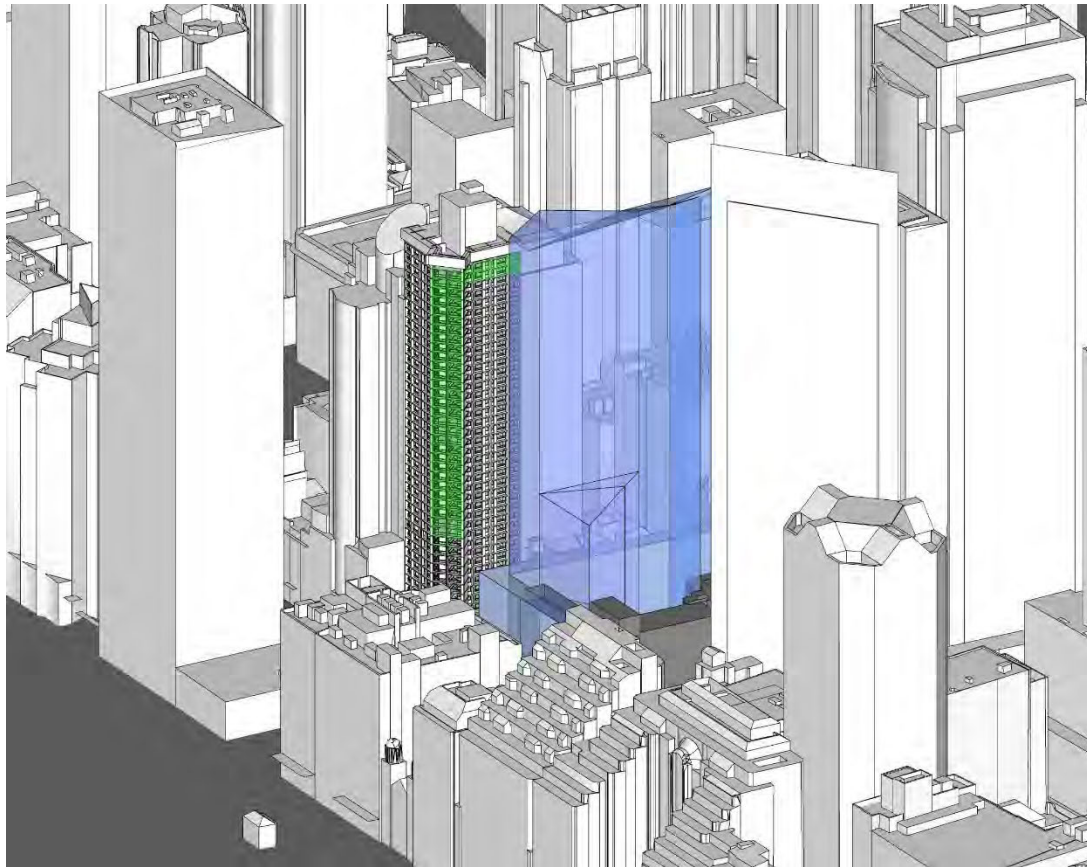


Current SSDA Scheme massing

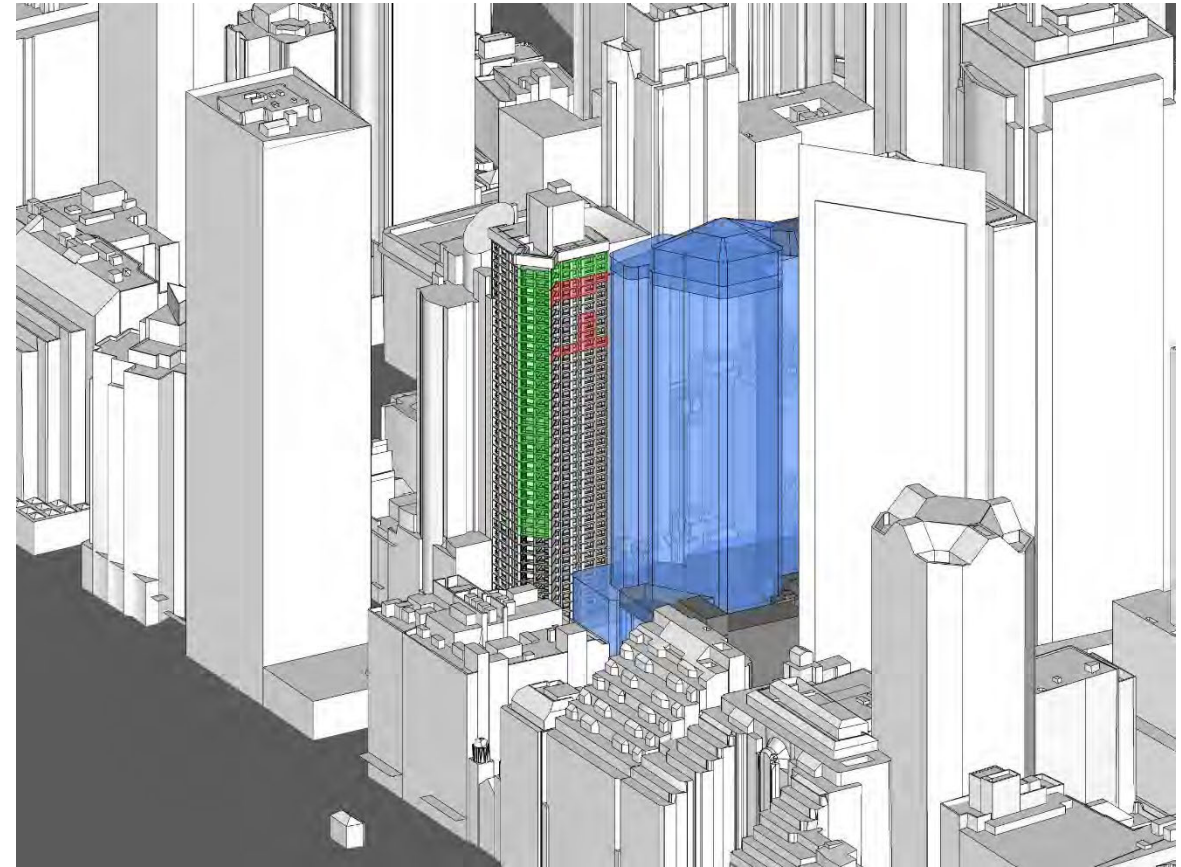
Comparison overshadowing to Park Regis Tower

9:30

-  Residential apartments within Park Regis Tower achieving 2 hours of direct sunlight on 21 June between 9AM-3PM (Stage 1)
-  **Additional** Residential apartments within Park Regis Tower achieving 2 hours of direct sunlight on 21 June between 9AM-3PM (SSDA Scheme)





Stage 1 Envelope

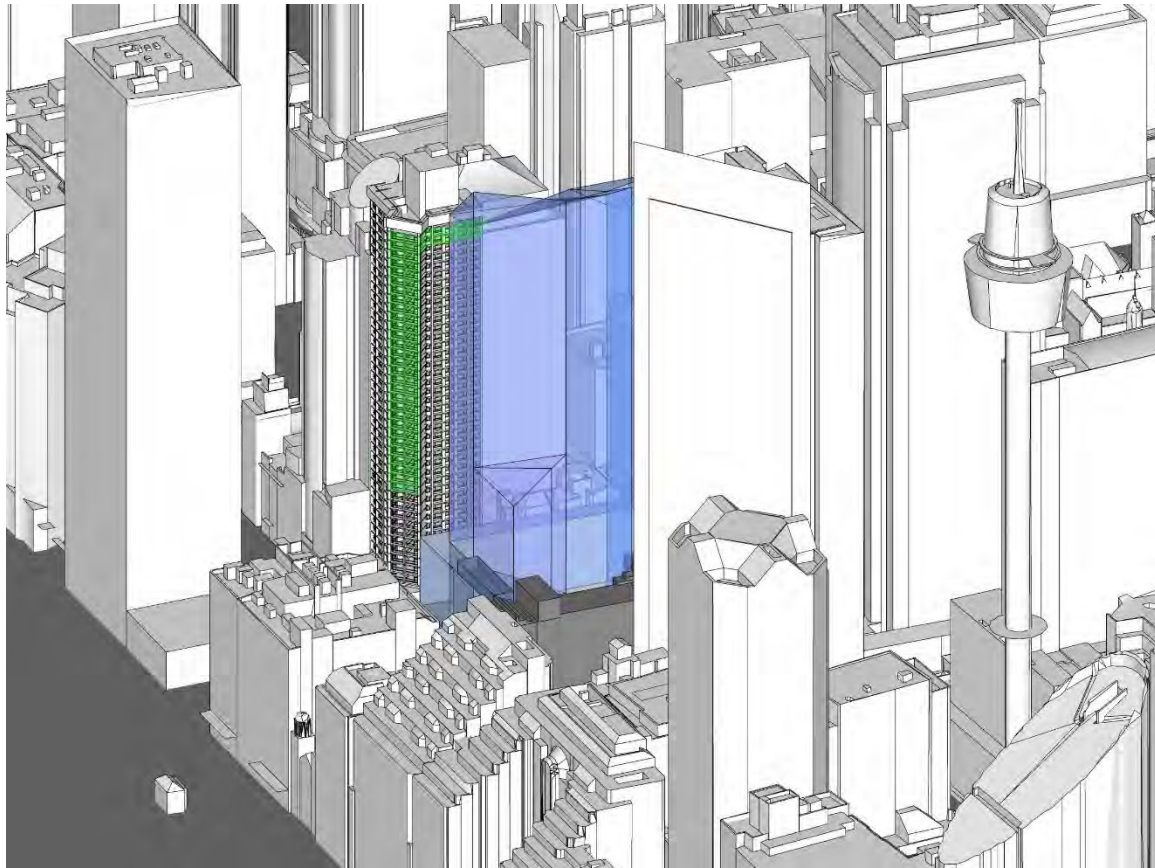


Current SSDA Scheme massing

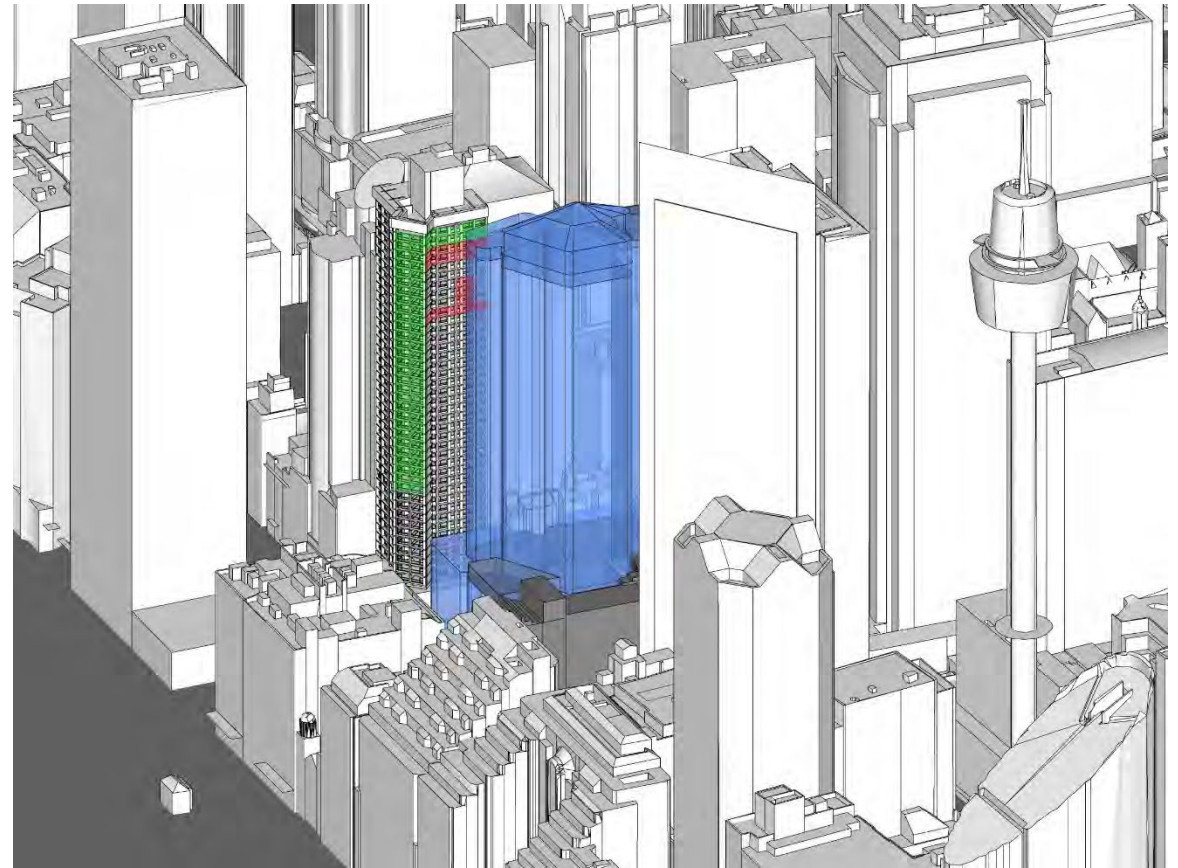
Comparison overshadowing to Park Regis Tower

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Stage 1 Envelope

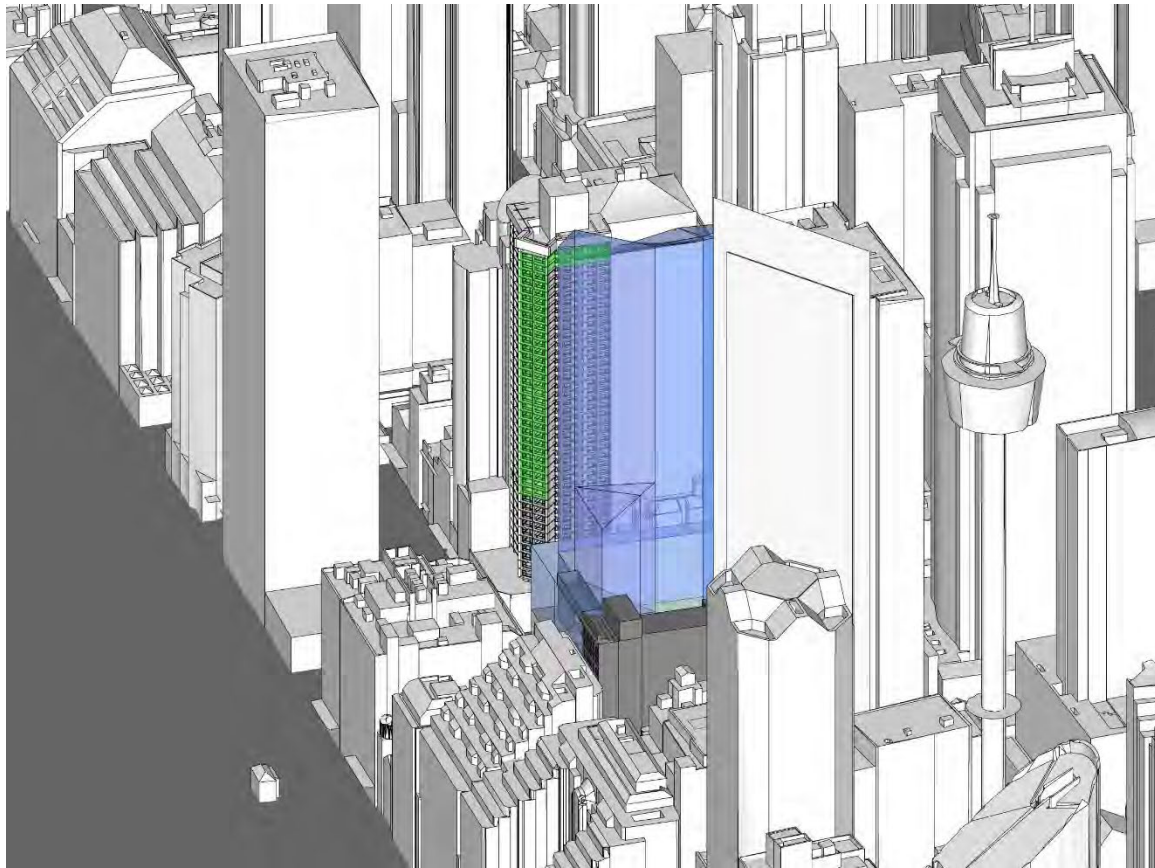


Current SSDA Scheme massing

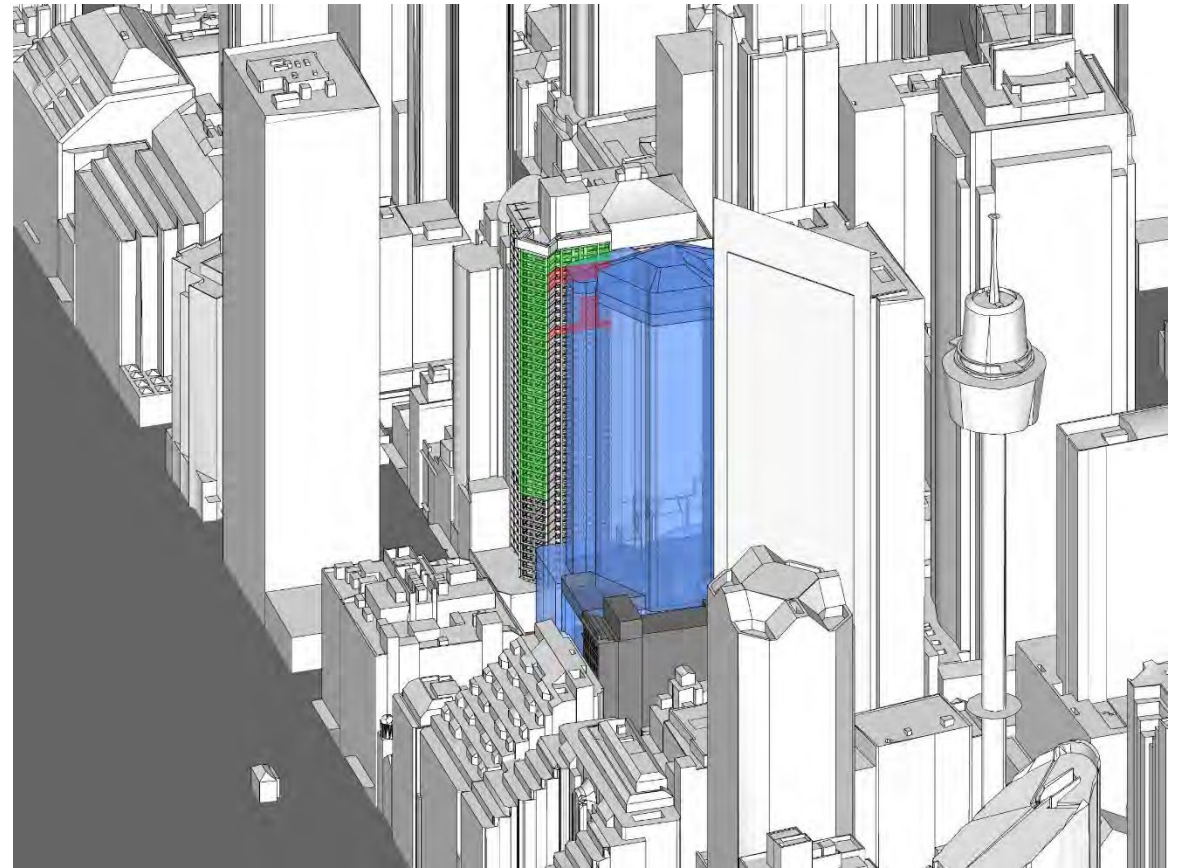
Comparison overshadowing to Park Regis Tower

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- Residential apartments within Park Regis Tower achieving 2 hours of direct sunlight on 21 June between 9AM-3PM (Stage 1)
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Stage 1 Envelope



Current SSDA Scheme massing

Comparison overshadowing to Park Regis Tower

11:00

- Residential apartments within Park Regis Tower achieving 2 hours of direct sunlight on 21 June between 9AM-3PM (Stage 1)
- **Additional** Residential apartments within Park Regis Tower achieving 2 hours of direct sunlight on 21 June between 9AM-3PM (SSDA Scheme)



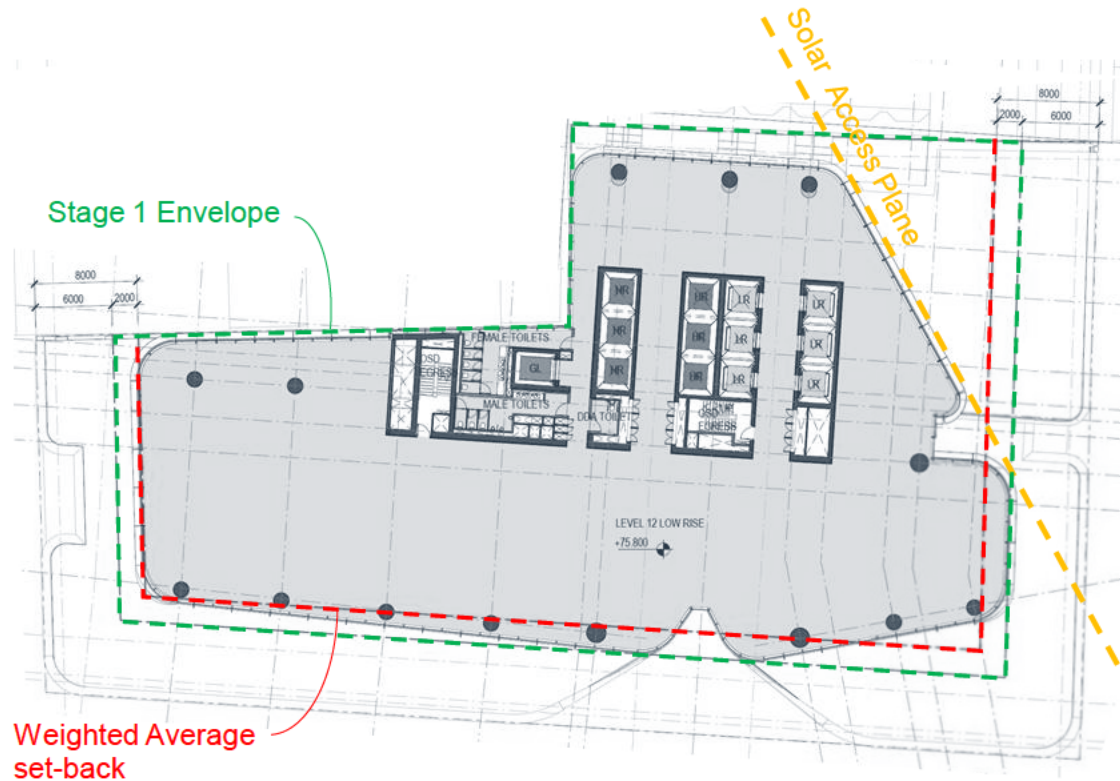
Stage 1 Envelope



Current SSDA Scheme massing

Comparison overshadowing to Park Regis

Current Scheme



	APPROVED STAGE 1 ENVELOPE	CURRENT SSDA SCHEME	% improvement FROM STAGE 1 ENVELOPE	Unit compliance increase FROM STAGE 1 ENVELOPE
>2 hrs 9AM-3PM Living	54 / 182 = 29.7%	61 / 182 = 33.5%	+13%	+7
>2 hrs 8AM-4PM Living *	129 / 182 = 70.9%	154 / 182 = 84.6%	+ 19.4%	+25

* judgment by Brown C. in the matter of Botany Development Pty Ltd v Botany Council LEC 10360 of 2013, at paras. 79 through 87 where extended hours could be implemented for certain sites.

Option explored

Building setback onto the weighted-average set-back line on the East (~i.e. 2m)

Observations:

- **No improvement** to solar access compliance figures within Park Regis Tower (achieving 2 hours of direct sunlight on 21 June between 9AM-3PM)
- **Reduced expression** / articulation of the 3 distinct tower volumes, with particular impact from NE/E/SE view points (design guideline 10/11)
- **Reduced building slot depth** on the east (design guideline 10/11)
- Negatively impacting the carefully considered moves to **break the massing alignments between ANZ and the new 201 Elizabeth Envelope**. (design guideline 4/5)

Revision to Design Guidelines

Revision to Design Guidelines

NSW Government, Planning, Industry & Environment feedback (26/08)

Clarify how the proposal addressed with the following Design Guidelines and any proposed modifications:

*a. 1.a) Treatment of the podium/street wall to incorporate a ~~high proportion~~ **combination** of masonry ~~compared to~~ **and** window glazing, strong visual depth, a high degree of architectural modelling, articulation and detail (**including expressed vertical fins**), and high-quality materials that reflect the building composition of heritage items in the vicinity. ~~Window glazing to be deeply recessed.~~*

Revision to Design Guidelines

NSW Government, Planning, Industry & Environment feedback (26/08)

Clarify how the proposal addressed with the following Design Guidelines and any proposed modifications:

*b. 2. Compliance with City of Sydney ~~LEP~~ **DCP** 2012 **with the potential to provide an average-weighted** street setbacks of 8m to Pitt, Castlereagh and Park Street **collectively**. ~~with potential to provide an averaged setback along Park Street to align with the station structure.~~*

Revision to Design Guidelines

NSW Government, Planning, Industry & Environment feedback (26/08)

Clarify how the proposal addressed with the following Design Guidelines and any proposed modifications:

*c. 2.b) Providing space for customers in a busy pedestrian environment by recessing station entries to widen the pavement and provision of uncluttered movement corridors, including minimum footpath width requirements from the building line to the back of kerb line of 3.3m on Pitt Street and Castlereagh Street, and **at least an average of 11.0m** ~~10.5m~~ on Park Street.*

Facade changes resulting from Powerful Owl measures

Facade Changes resulting from 'Powerful Owl' measures

City of Sydney feedback – Urban Ecology (18/08)

It should be noted that the City's Ecologist has identified the increasing instance of birds striking buildings around the City, particularly owls. Additionally, knowledge of the vulnerable Powerful Owls occupying and breeding at the Royal Botanic Gardens and Centennial Parks, and therefore in close proximity to this site, raises concerns regarding the glazing of the building.

On this basis, a localised treatment to the glazed screen should be considered.

The City requests the applicant provide details of a localised translucent glazing treatment that will ensure the glazed screen is visible to birds, particularly any threatened or vulnerable species and species of local conservation significance (refer to the City's Urban Ecology Strategic Action Plan).

Facade Changes resulting from 'Powerful Owl' measures



*the Powerful Owl is Australia's largest owl with a wingspan of up to **1.4m**. Despite being classified as threatened throughout its range, the Powerful Owl can and does, **survive within cities**.*

*That said, the urban landscape is a risky place, **with car and (building) glass strikes being the leading causes of mortality** for these birds...*

- *Estimates in Sydney 12% of the total population dying each year this way*
- *75% of the adult Powerful Owl mortality rate in 2019 due to bird strike.*

Source: Birdlife Australia



Facade Changes resulting from 'Powerful Owl' measures

About the Bird Strike Project

BirdLife Australia's Birds in Backyard Program is investigating the **scale of the bird-strike problem in Australia**, including both window and car collisions. Research is being conducted to guide solutions and best practice guidelines so that we can begin to understand this issue and how it is affecting Australian birds.

The aims are to:

- Determine the **scale** of bird strikes and eventually map **potential hotspots** and;
- Collate **international research and management** solutions that may be applied to Australia

Source: Birdlife Australia



Facade Changes resulting from 'Powerful Owl' measures



Is your home or workplace a strike risk?

Use this checklist to identify areas of your home or workplace that could cause a bird-window collision.

Windows and Glass Surfaces

- ☒ Standing on the outside, are there any transparent windows?
- ☒ Can you see through to the other side of the building from any of the windows?
- ☒ Do any of the windows reflect the sky or surrounding vegetation?
- ☒ Are there any large glass surfaces? (i.e. patio or bifold doors)
- ☒ Are any corners of the building made entirely of glass?
- ☒ Is there any glass fencing on the property? (i.e. pool or balcony fencing)

The Surrounding Landscape

- ☒ Are there any indoor plants visible from the outside?
- ☒ Are there bird friendly plants or habitat near any of the windows?
- ☒ Are there nectar-rich or fruit-bearing trees close to any of the windows?
- ☒ Is there a birdfeeder or birdbath over half a metre away from any of the windows?



Does the facade have 80-100% glass coverage AND is it 60 or more square metres (646 sq ft) in area? *

☐ Yes ☒ No

Can you see a subtle to distinct reflection of the surrounding environment in the window? *

☒ Yes ☐ No

Is there patchy to abundant landscaped and/or natural green space within 100 metres (330 ft) of the façade? *

☒ Yes ☐ No

Is patchy to abundant interior greenery visible from exterior? *

☐ Yes ☒ No

Can you see through the façade to an adjacent side of the building? *

☐ Yes ☒ No

Acknowledgement: BirdSafe® self-assessment, Dr. Daniel Klem, Jr., Professor of Ornithology and Conservation Biology, Muhlenberg College, Pennsylvania, U.S.A.

Facade Changes resulting from 'Powerful Owl' measures

Bird Strikes Summary

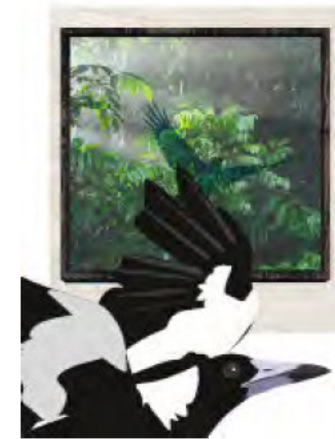
The birds?

- Species who exhibit fast, agile and direct flying patterns are more susceptible to window collisions
- Solitary bird species – opposed to flocking birds - are more likely to collide with windows.
- From Spotted Pardalotes to the majestic Powerful Owl, all species are at risk of bird strike.

The buildings & at-risk areas?

- Large areas of uninterrupted glass
- Transparent glazing which would allow clear views through to the other side of building
- Glazing and/or surfaces that reflect sky or vegetation may appear as an available flight path or habitat could confuse birds, resulting in a collision.
- Landscaping features such as resource-rich trees, plants and water features bring birds closer to windows and increase the risk of a collision. (~i.e. landscaped rooftops)
- Buildings close to urban greenspaces with complex vegetation are hotspots for window collisions

Facade Changes resulting from 'Powerful Owl' measures



Reflective and transparent glass Windows, glass balconies and pool fences that reflect the sky or vegetation create the illusion of an available flight path. Transparent glass is invisible to birds, especially when there is a line of sight through to the other side of the building. Birds will collide with it rather than safely fly through.

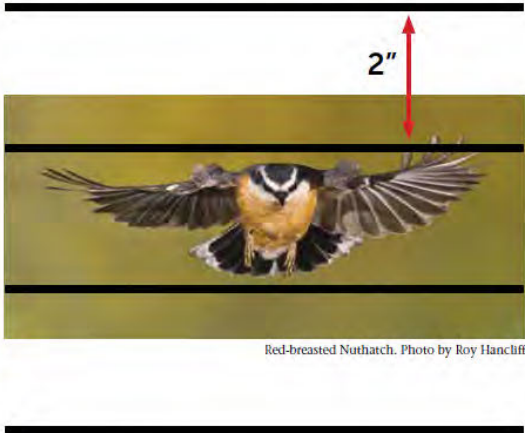


Facade Changes resulting from ‘Powerful Owl’ measures

Effective Glazing & Facade treatments

- STREET AWNINGS AND OVERHANGS (reduce reflections)
- SUNHOODS and VERTICAL FINS (obstruct reflections)
- 20-40 degree ANGLED SURFACES (reflects sky or ground)
- SCREENS / NETTING / SHUTTERS / GRILLES
- OPAQUE and TRANSLUCENT GLASS
- GLAZING TREATMENTS / DECALS and COATINGS

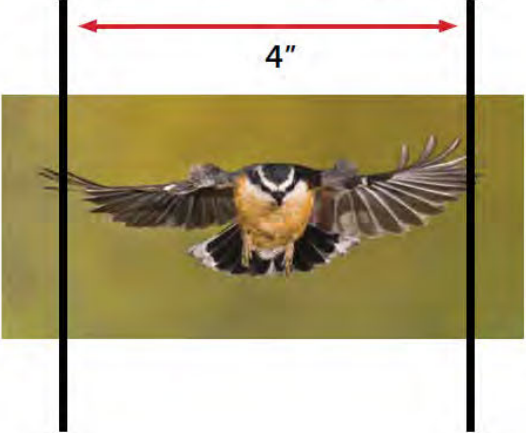
Horizontal lines with a maximum spacing of 2 inches



2"

Red-breasted Nuthatch. Photo by Roy Hanchiff

Vertical lines with a maximum spacing of 4 inches



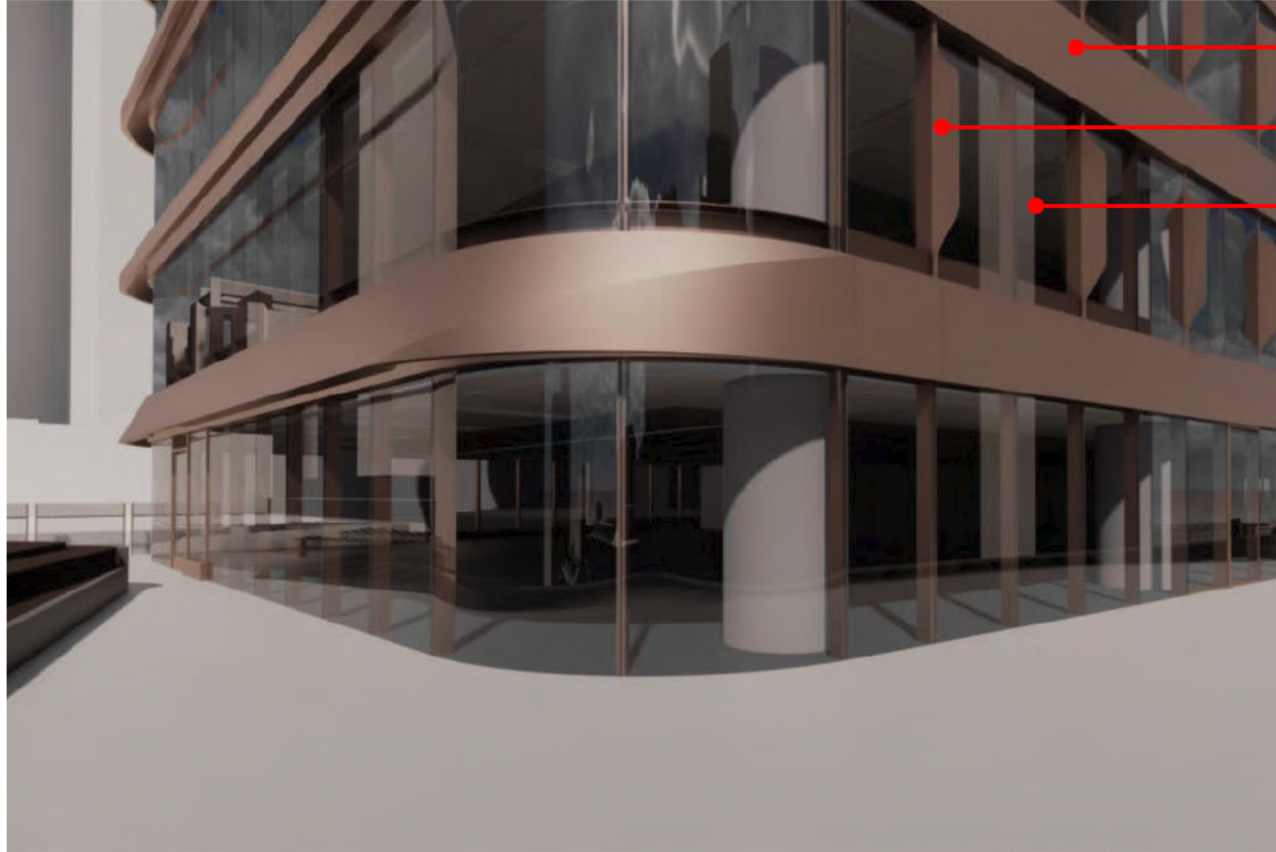
4"

The 2 x 4 Rule

Research on songbirds, the most numerous victims of collisions, has shown that horizontal lines must be two or fewer inches apart to deter the majority of birds. Vertical spaces must be four or fewer inches apart. This difference presumably has to do with the shape of a flying bird. (Narrower spacing is required to deter collisions by hummingbirds.) Schiffner *et al.* (2014) showed that budgies have a very precise understanding of their own physical dimensions. Trained to fly in a tunnel, the birds were then challenged to pass through ever narrowing gaps. They were able to assess the

width of the gaps relative to their body size and adjust their flight behavior accordingly. It seems likely that this is a general avian trait, useful for navigating complex environments at flight speed. Bhagavatula *et al.* (2011) used the same tunnel setup to investigate how optical flow cues guide flight. It appears that birds balance the speeds of images perceived by both eyes, in this case, images to the birds' sides. This reinforces the suggestion of Martin (2011) that humans experience the world as something ahead of them, while for birds in flight, what is ahead of them is not necessarily their primary focus.

Facade Changes resulting from 'Powerful Owl' measures



L10/11 Tower Facade impression – SW corner

Solid spandrels and expressed sunhoods
(reduction overall glass surface to less than 70%)

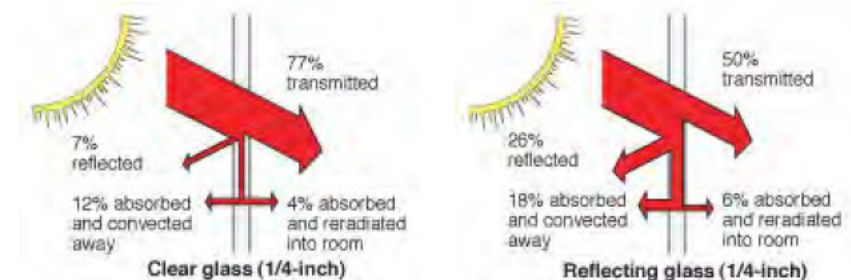
Vertical fins on the Southern facade (obstruct reflections)

Reflectance of remaining **glazing** is governed by

- the type of glazing,
- the quality / flatness of the glass surface,
- the presence of coatings and body-tints
- the angle of incidence of light

Proposed Pitt Street glazing is

- un-coated / un-tinted glazing
- Has a reflectivity of approximately 8% only resulting in very subtle reflections of podium trees & sky
- The northern glazing has an incident angle of >80 degrees, but no trees has been proposed on this side of the building



Facade Changes resulting from 'Powerful Owl' measures



5. Clarifications by the Panel

Thank you.

