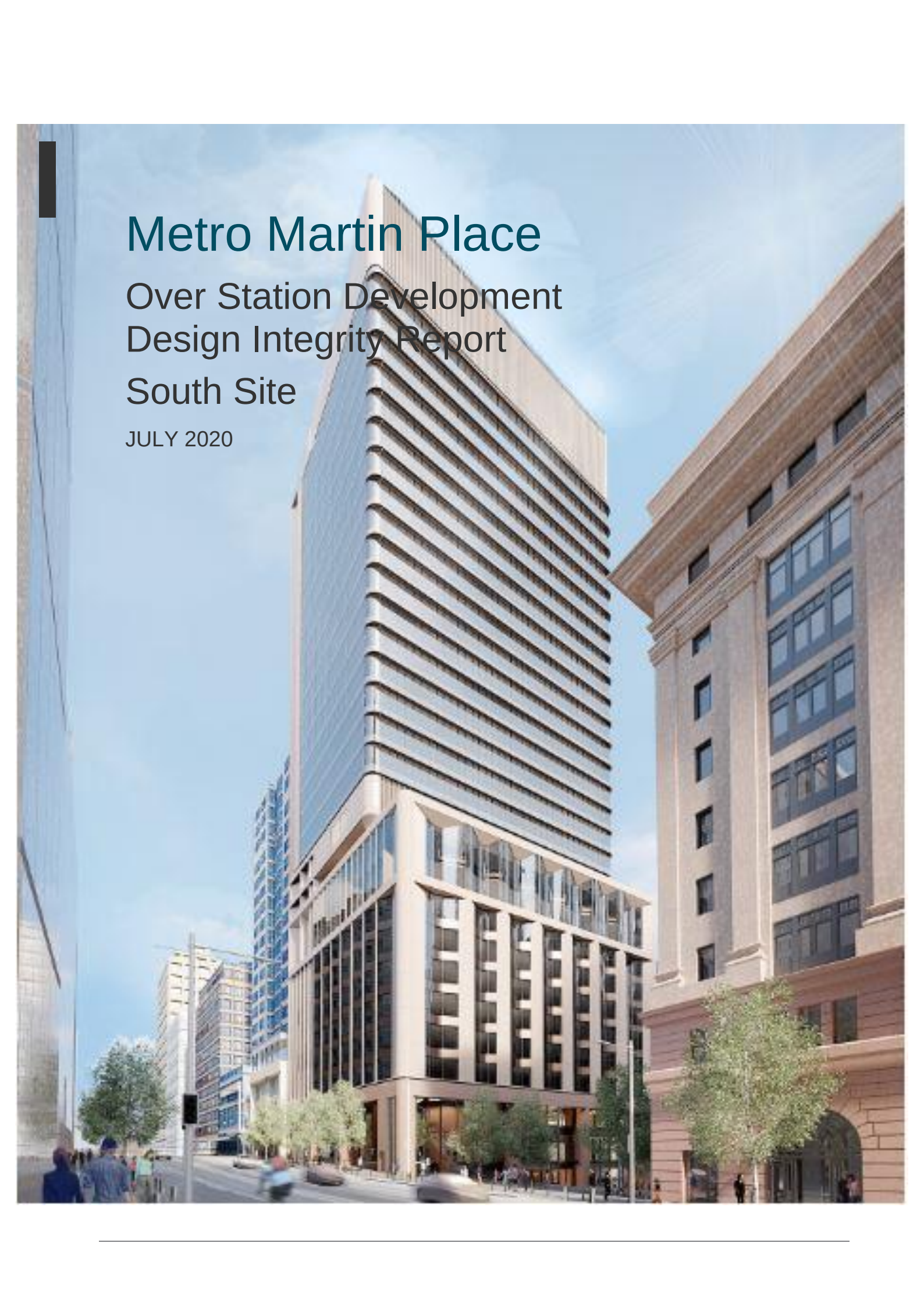


An architectural rendering of a tall, modern skyscraper with a glass and metal facade, featuring a series of horizontal fins. The building is situated in an urban environment with other buildings and trees visible in the background. The sky is blue with light clouds. The text is overlaid on the left side of the image.

Metro Martin Place

Over Station Development Design Integrity Report South Site

JULY 2020

Purpose of this document

The purpose of this document is to support a Section 4.55 modification application to the Stage 2 State Significant Development (SSD) Development Application (DA) 9326 in the Martin Place Metro Station Precinct for the South Site. The document has been prepared to specifically satisfy Condition B8 of SSD 9326 which requires the preparation of a Design Integrity Report to be prepared and submitted to the Planning Secretary prior to the lodgement of the Section 4.55 Modification Application.

This document may be publicly exhibited as part of the Section 4.55 modification.

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- Appendix 2 OSD DRP Advice

1. Introduction

This Design Integrity Report (DIR) summarises the design modifications proposed by Macquarie to the South Site Over Station Development (OSD) State Significant Development. The DIR summarises the design team's engagement with the OSD Design Review Panel and demonstrates that the proposed modifications continue to ensure design excellence is achieved. This DIR should be read in conjunction with the following documentation:

- Section 4.55 modification prepared by Ethos Urban dated July, 2020; and
- Architectural drawings prepared by Grimshaw (overseen by Tzannes) dated 16 April 2020, 2020;
- Shadowing analysis prepared by Virtual Ideas dated 30 June 2020; and
- The minutes issued by the OSD Design Review Panel for the meeting dated 16 December 2019.

1.1. Background

The Minister for Planning and Public Spaces approved the Stage 2 State Significant Development (SSD) Development Application (DA) 9326 on 13 August 2019 for the construction and use of a 28-storey commercial tower at 39-49 Martin Place (South Site), above the southern entrance of the new Martin Place Metro Station.

Since receiving development consent, Macquarie together with its appointed contractor Lendlease and the design team (Grimshaw, Tzannes and Lendlease Integrated Solutions) have continued the design development process. During the design development process, the design team identified:

- the eastern façade of the building would be offset approximately 600mm from the boundary at the south-eastern corner of the site, effectively resulting in a misalignment of the building with the boundary and prevailing street wall; and
- a variety of minor internal changes throughout multiple floors from Level 7 and above, including structural wall thickening, amendments to riser configurations, amendments to service doors, amendments to doors and plant access, addition of handrails, minor reconfigurations of stairs, doors, plant room layouts, amongst other elements.

Macquarie met with the Department of Planning, Industry and Environment (DPIE) on several occasions in late 2019 to discuss the proposed façade realignment and consequently presented the matter to the OSD Design Review Panel on 16 December 2019. The internal changes have also been the subject of discussions with the DPIE in the first half of 2020.

During the 2019 and 2020 discussions, DPIE confirmed Macquarie would need to submit a Section 4.55 modification to SSD 9326 to facilitate the proposed façade realignment and design refinements. A scoping document was submitted to the DPIE on 26 June 2020 (attached at Appendix 1). In accordance with Conditions B5 – B7 of SSD 9326, Macquarie wrote to the DPIE in June 2020 seeking the Planning Secretary's confirmation that the proposed refinements are minor and do not require consideration by the OSD DRP for the reasons outlined in Section 2.2 of this DIR.

1.2. Purpose of this Design Integrity Report

This DIR has been prepared specifically to respond to Condition B8 of SSD 9326 which provides:

If a DRP is reconvened for the review of any relevant design changes, a Design Integrity Report is to be prepared and submitted to the Planning Secretary prior to issue of the relevant Construction Certificate or the lodgement of the Section 4.55 Modification Application. The DIR shall include a summary of feedback provided by the DRP and responses by the Applicant to this advice.

The DIR accordingly outlines the process undertaken to date, feedback received from the OSD DRP and Macquarie's consideration and outcomes as a response to that feedback. This Report is structured as follows:

- Section 1.0 – Introduction

- Section 2.0 – Proposed modifications
- Section 3.0 – OSD DRP meeting and feedback
- Section 4.0 – Next steps and timing

2. Proposed Modifications

2.1. Façade realignment

A key principle of the Sydney Metro Martin Place Station Precinct Design Guidelines adopted for the project is the reinforcement of the Elizabeth Street street alignment.

During the Development Application (DA) process, a technical drafting error was documented on the DA plans, resulting in the eastern façade of the South Tower not aligning with the existing street wall of Elizabeth Street.

The design team has now rectified this error by realigning the eastern façade with the site boundary and the dominant street wall, which results in a change of approximately 600mm. The additional mass sits wholly within the approved Stage 1 DA envelope which was assessed and approved under SSD 8531 (as amended) and does not cause any additional overshadowing beyond what was approved under SSD 8531, consistent with the requirements of Condition B2 of SSD 8531. The Architectural Plans appended to the Section 4.55 (1A) modification illustrate the proposed realignment for each level of the building.

2.2. Level 7 – 28 design refinements

Level 7 – 28: Various minor design development changes, including structural wall thickening, amendments to riser configurations, amendments to service doors, amendments to doors and plant access, addition of handrails.

All proposed refinements are consistent with typical design development changes. The refinements are minor in nature, do not relate to approved design excellence qualities of the building and are not visible from the public domain. The proposed refinements are wholly internal and will not result in any changes to the exterior of the building. The approved form and mass and architectural expression as was deemed to achieve design excellence remains unchanged.

The proposed refinements have been clouded on the relevant plans and are appended to the Section 4.55(1A) modification.

3. OSD DRP Meeting and Feedback

3.1 OSD DRP Meeting

The OSD DRP was convened on 16 December 2019 to consider the proposed façade realignment. The OSD DRP comprised:

- Olivia Hyde, NSW Government Architect's Office (DRP Chair)
- Yvonne von Hartel, peckvonhartel (as nominee of Macquarie)
- Bob Nation, GHD (as nominee of Macquarie)
- Graham Jahn, City of Sydney Council representative

John Choi, CHROFI (as nominee of the consent authority) was an apology.

The material presented to the OSD DRP by Tzannes is provided at **Appendix 1**.

The OSD DRP was also attended by the following project team members and associated stakeholders:

- DPIE and GANSW
 - Russell Hand – Principal Planning Officer, DPIE
 - Emma Kirkman – Principal Design Review, GANSW
- Macquarie
 - Michael Silman – Executive Director, Project Director Metro Martin Place
 - Anthony Henry – Design Director Metro Martin Place
 - Steve Mouldsdale – Project Delivery Manager Metro Martin Place
 - Liz Matthews – Project Manager, South
- LendLease
 - Con Giannoulis – Project Director
 - Cass Golding – Project Manager
 - Martin Hills – Project Director
- Design Teams:
 - Alec Tzannes – Director, Tzannes
 - Ben Green – Director, Tzannes
- Savills (strategic planning advisor to Macquarie)
 - Stephanie Ballango – Director
- Ethos Urban (statutory planner)
 - Alexis Cella – Director

3.2 OSD DRP Feedback

The OSD DRP confirmed its unanimous support for the proposed realignment, noting the change reflects previous discussions around the importance of the street wall and sits within the approved building envelope. The OSD DRP's advice is provided at **Appendix 2**.

4. Next Steps, Timing and Conclusion

Macquarie has fully embraced the process and engaged honestly and proactively taken the OSD DRP's feedback and advice into consideration during the design development process for the South Site.

Macquarie in collaboration with Lendlease and the consultant team has prepared a Section 4.55 modification to amend SSD 9326. The Section 4.55 modification is supported by shadowing analysis that demonstrates no impact to Hyde Park.

The design excellence process has been, and will continue to be, an invaluable tool to test Macquarie's design intent and rationale.

Appendix 1

OSD DRP Presentation

Metro Martin Place South Tower

DRP 12

10 December 2019



-
- 1 Glare mitigation to the north facade
 - 2 East facade alignment with 60 Castlereagh Street
-

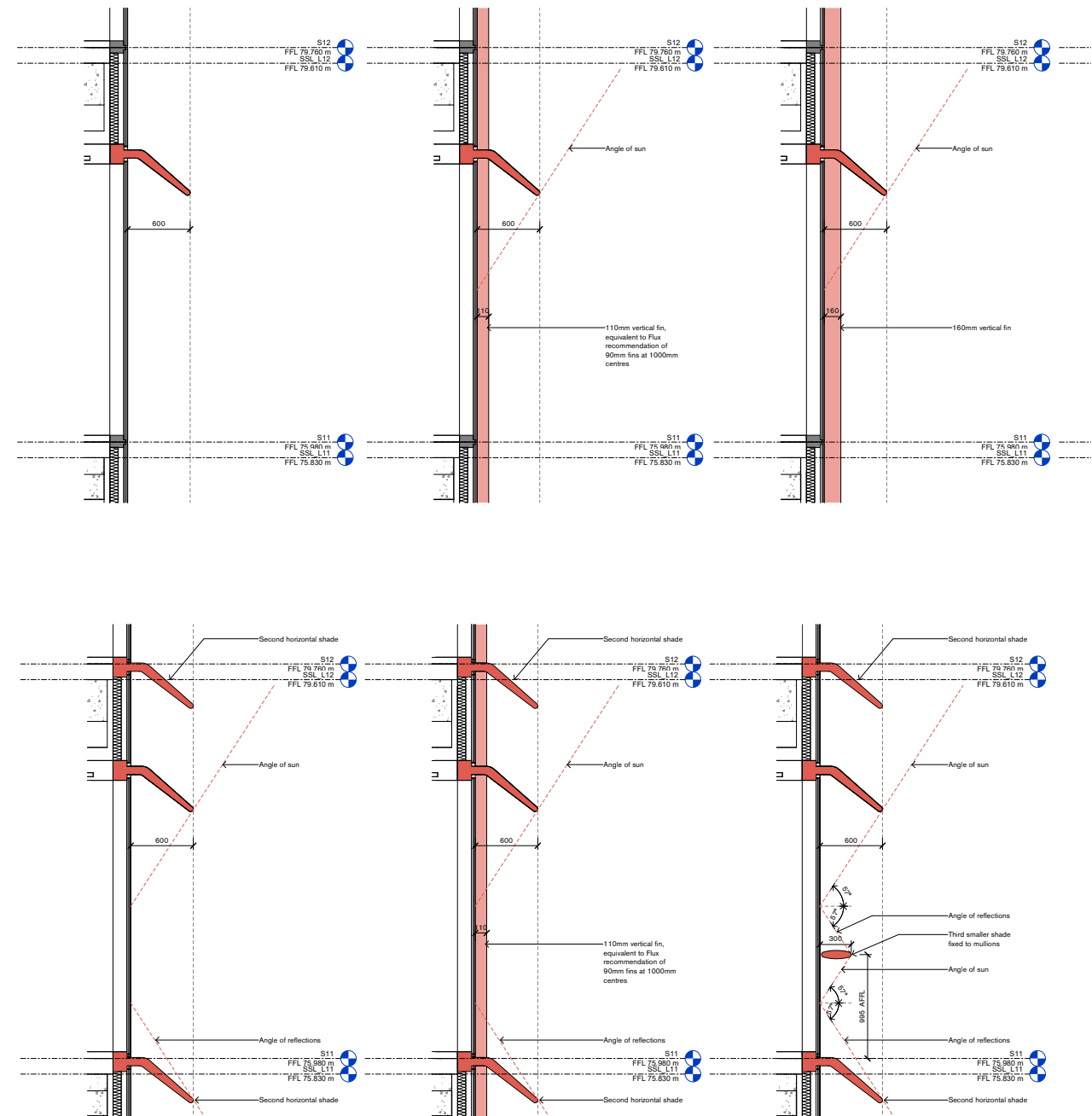
Glare Mitigation to the North Facade

Glare Mitigation to the North Facade - DA Conditions

- Convergent reflections from the façade were addressed through previous DRPs and resolved prior to issue of the DA conditions of consent.
 - Condition B11 addressing the specular reflectivity of external materials will be addressed through a separate report.
 - The subject of this DRP are the following conditions:
- B13. Vertical fins or other measures must be incorporated into the northern facade to reduce or eliminate glancing glare to the western end of Martin Place.** The design details are to be submitted to the satisfaction of the Planning Secretary, within 6 months of the date of this consent or other timeframe as agreed to by the Planning Secretary.
 - B14.** When developing the glare mitigation measures above, the Applicant shall engage with, and seek the views of, the Martin Place Over Station Development Design Review Panel and provide evidence of how that feedback has been addressed before seeking the Planning Secretary's endorsement.

Process of Assessment

- A review process and assessment criteria were agreed by Che Wall of Flux Consultants and Arup and previously presented to the DRP.
- The Independent Façade Review report prepared by Che Wall made a recommendation for glare mitigation measures.
- Tzannes and Arup have worked collaboratively to develop a number of alternative architectural design options to align with the design intent for the façade.
- These have been evaluated by Arup with regard to the agreed assessment criteria and Che Wall's recommendation.
- Through this process we have collectively developed a design proposal that strengthens the architectural expression of the façade and is supported by engineering analysis.



Preferred Architectural Solution



Proposed Outcome



Current Approved DA Design

Flux Recommendation

Preferred Architectural Solution

Preferred Architectural Solution

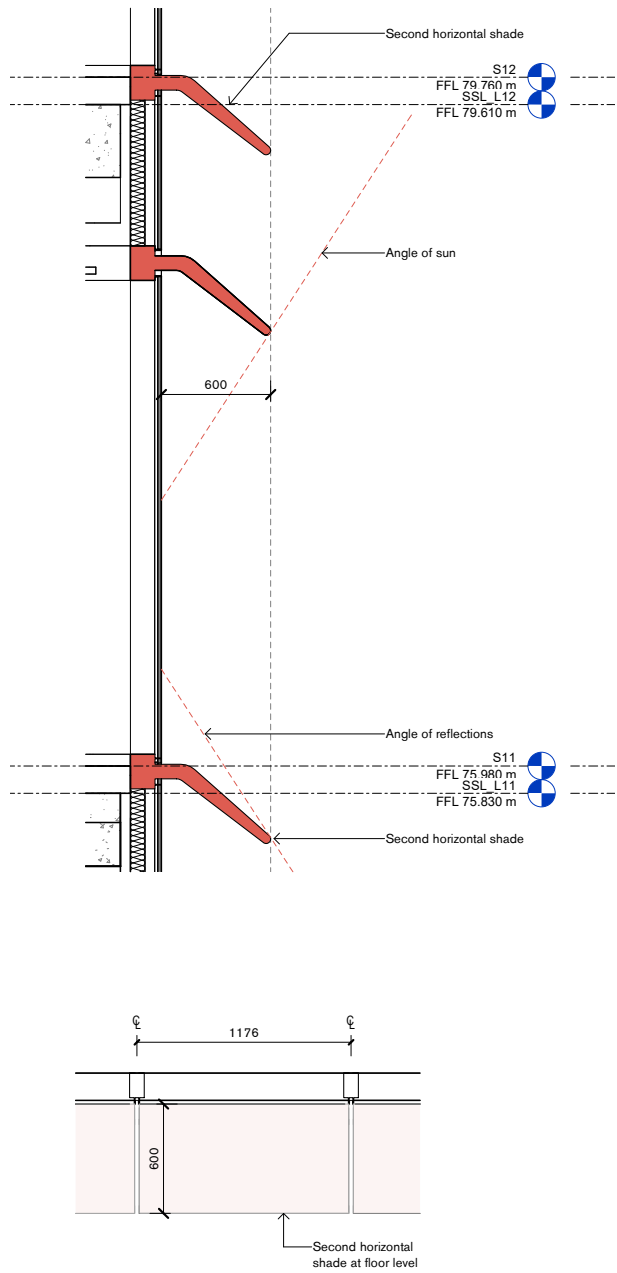


View of North facade

Preferred Architectural Solution - double 600mm deep horizontal solar shades



Detail View of North facade with Preferred Architectural Solution



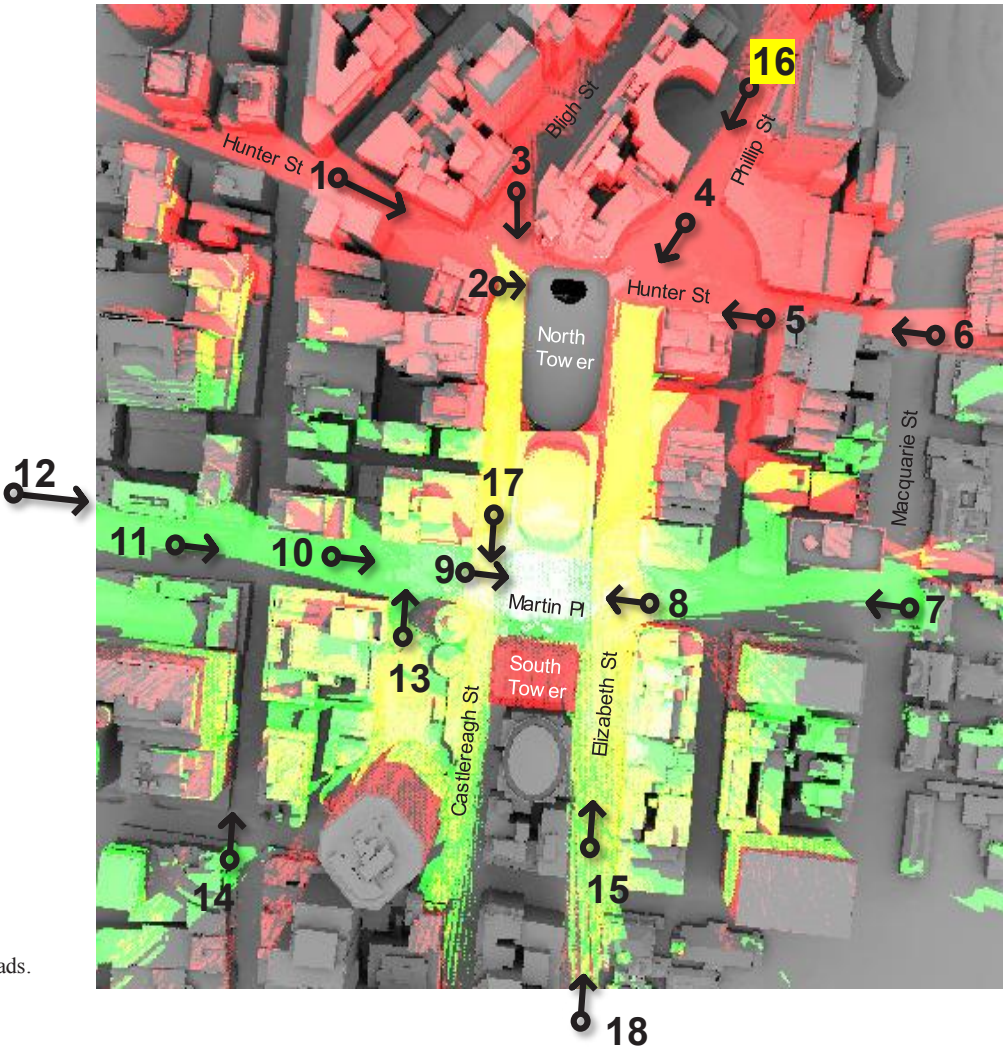
Plan and Section through North Facade with Preferred Architectural Solution

How We Assess Glare Intensity

- 1.Reflectivity Properties of Glazing
- 2.View Locations
- 3.Visualisation of Peak Reflection Times
- 4.Benchmark Thresholds of Veiling Luminance (Cd/m2)
- 5.Measuring the percentage of the glazed facade that generates reflections

- 1. Hunter St driving south east
- 2. Pedestrian crossing Castlereagh St
- 3. Bligh St driving south
- 4. Chifley Square driving south/ close to pedestrian plaza
- 5. Pedestrian crossing Phillip St
- 6. Pedestrian crossing Macquarie St at Hunter
- 7. Pedestrian crossing Macquarie St at Martin Place
- 8. Pedestrian crossing Elizabeth St
- 9. Pedestrian crossing Castlereagh St
- 10. Martin Place event space
- 11. Martin Place Cenotaph
- 12. Pedestrian crossing George St
- 13. Pedestrian walking down MLC stairs
- 14. Pedestrian crossing King St
- 15. Elizabeth St driving north
- 16. Phillip St driving south, after Bent St
- 17. Castlereagh St driving south
- 18. Elizabeth St driving north near King

Note: all points are within the Sydney CBD 40 km/h zone for roads.



Proposed Outcome



Current Approved DA Design

View 11 Veiling Luminance =150 Cd/m2
View 12 Veiling Luminance =575 Cd/m2
28% of facade causes reflecting incidence



Flux Recommendation

View 11 Veiling Luminance =0 Cd/m2
View 12 Veiling Luminance =0 Cd/m2
4% of facade causes reflecting incidence



Preferred Architectural Solution

View 11 Veiling Luminance =0 Cd/m2
View 12 Veiling Luminance =269 Cd/m2
7% of facade causes reflecting incidence

View 11

View 12

Current
Approved DA
Design



Date / time	7.50am AEDT, Oct 12
Average luminance [Cd/m2]	1,512
Vertical illuminance [lux]	7,683
Glare source luminance [Cd/m²]	550,000,000
Veiling luminance [Cd/m²]	150 (< 500)



Date / time	7.28am AEDT, Oct 6
Average luminance [Cd/m2]	2,272
Vertical illuminance [lux]	12,185
Glare source luminance [Cd/m²]	400,000,000
Veiling luminance [Cd/m²]	575

Flux
Recommendation

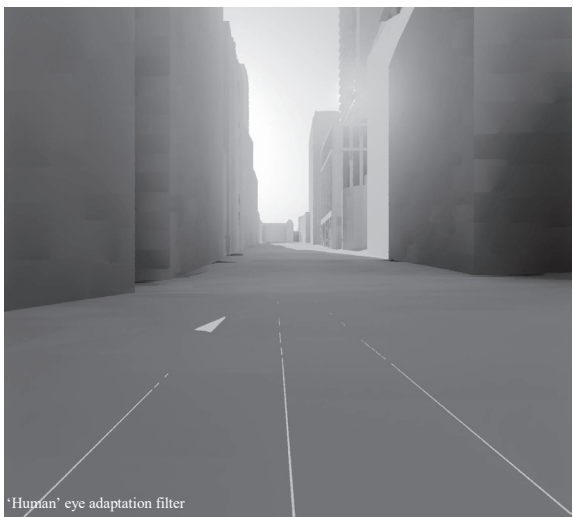


Date / time	7.50am AEDT, Oct 12
Average luminance [Cd/m2]	407
Vertical illuminance [lux]	1,593
Glare source luminance [Cd/m²]	0
Veiling luminance [Cd/m²]	0



Date / time	7.28am AEDT, Oct 6
Average luminance [Cd/m2]	383
Vertical illuminance [lux]	1,320
Glare source luminance [Cd/m²]	0
Veiling luminance [Cd/m²]	0

Preferred
Architectural
Solution



Date / time	7.50am AEDT, Oct 12
Average luminance [Cd/m2]	412
Vertical illuminance [lux]	1,605
Glare source luminance [Cd/m²]	0
Veiling luminance [Cd/m²]	0



Date / time	7.28am AEDT, Oct 6
Average luminance [Cd/m2]	1,262
Vertical illuminance [lux]	6,380
Glare source luminance [Cd/m²]	400,000,000
Veiling luminance [Cd/m²]	269

Preferred Architectural Solution



East Facade Alignment

East facade alignment with 60 Castlereagh Street

Approved DA design

- The east facade of approved DA design for 39 Martin Place does not align with the existing street wall of Elizabeth Street.
- The existing adjacent building, 60 Castlereagh Street, is built to the site boundary. Any future development on this site is also likely to build to the site boundary in order to maximise area.
- In the existing condition, and likely future condition, there is a 600mm step in the street wall between the facades of 39 Martin Place (as approved) and 60 Castlereagh Street.

Proposed Revised Design

- The design intent, in accordance with the Consolidated Design Guidelines, is to reinforce the street alignment of Castlereagh street.
- The proposed amendment to the approved design does this by resolving a technical discrepancy through realigning the east facade with the site boundary and the dominant street wall.
- Through consistent alignment with the existing street wall the proposed design will prioritise the pedestrian experience of the public domain over a rectilinear building plan.
- The junction between 60 Castlereagh St and 39 Martin Place will be articulated by a re-entrant.
- The impact to the overall building form is minimal. The additional mass does not cause any additional overshadowing of Hyde Park and sits within the approved Stage 1 DA envelope.



View from north on Elizabeth St

Approved DA design showing step between facade of 39 Martin Place and 60 Castlereagh St



View from south on Elizabeth St

Approved DA design showing step between facade of 39 Martin Place and 60

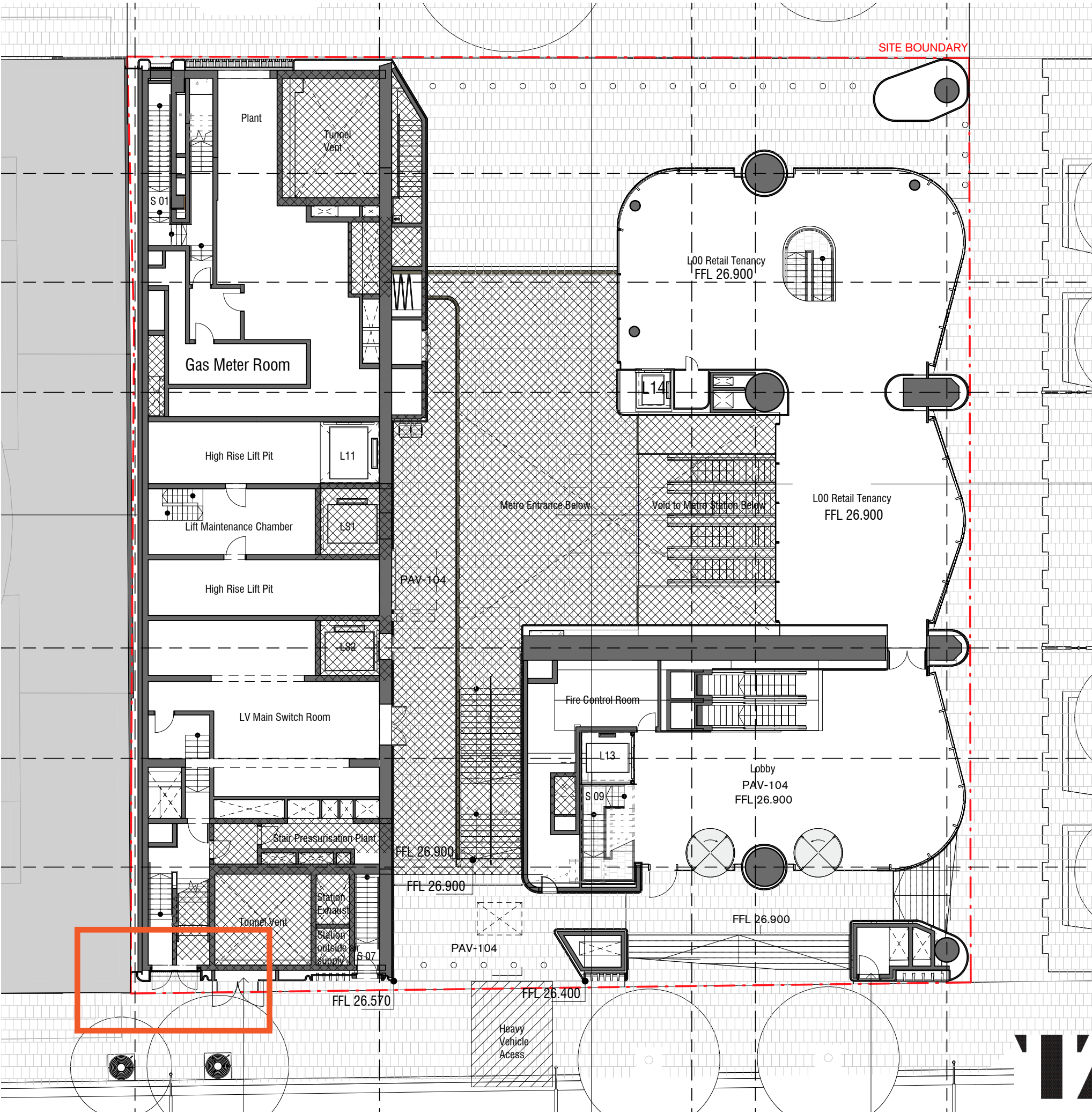


Existing condition



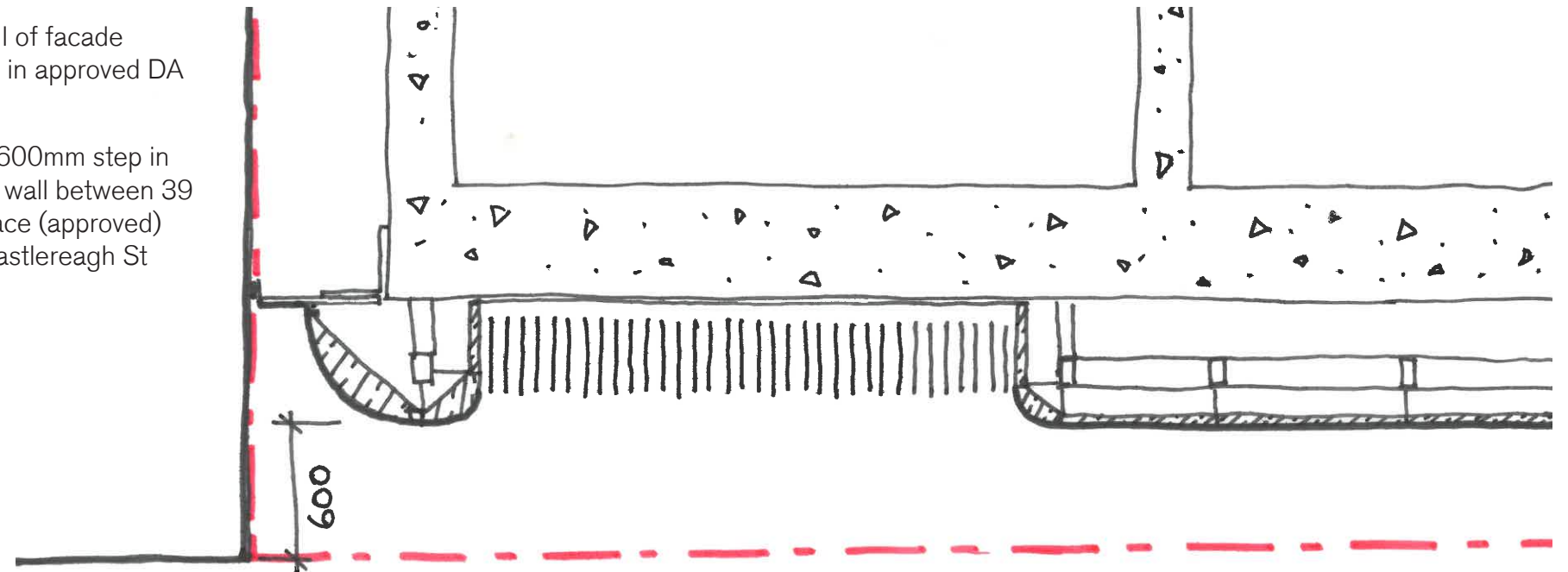
Approved DA design showing step between facade of 39 Martin Place and 60 Castlereagh St

Ground plan
Approved DA design



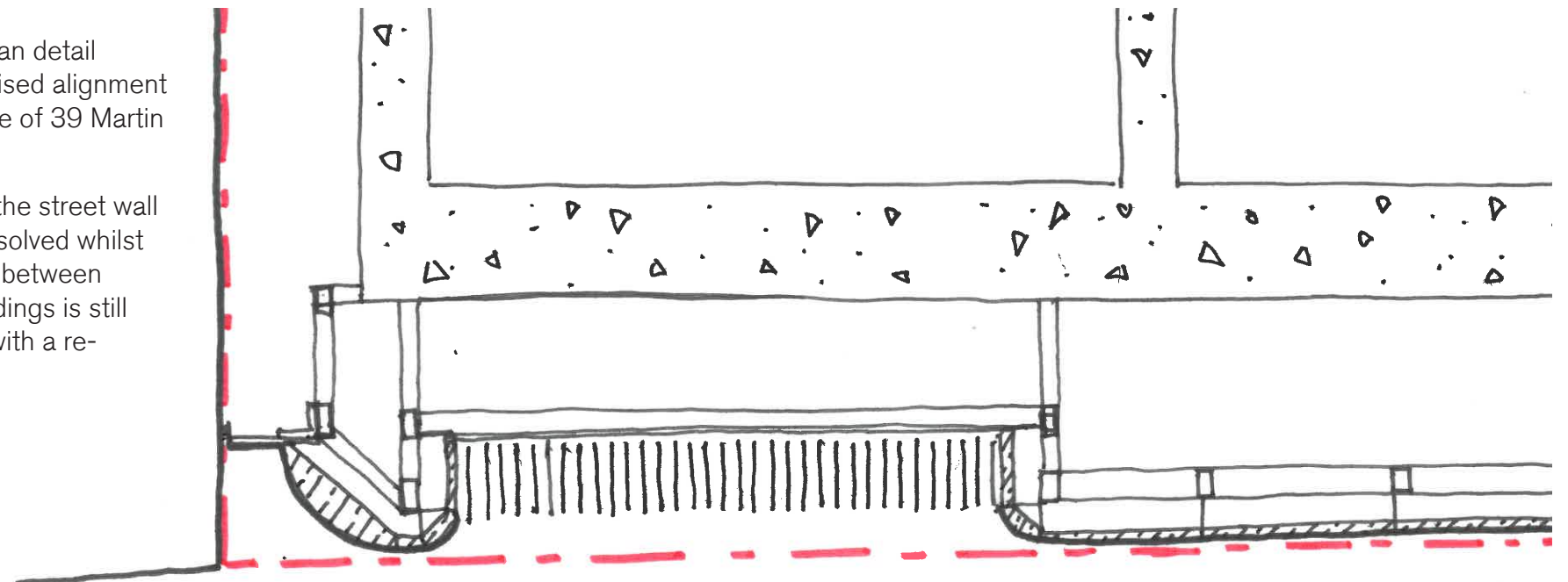
Plan detail of facade alignment in approved DA design

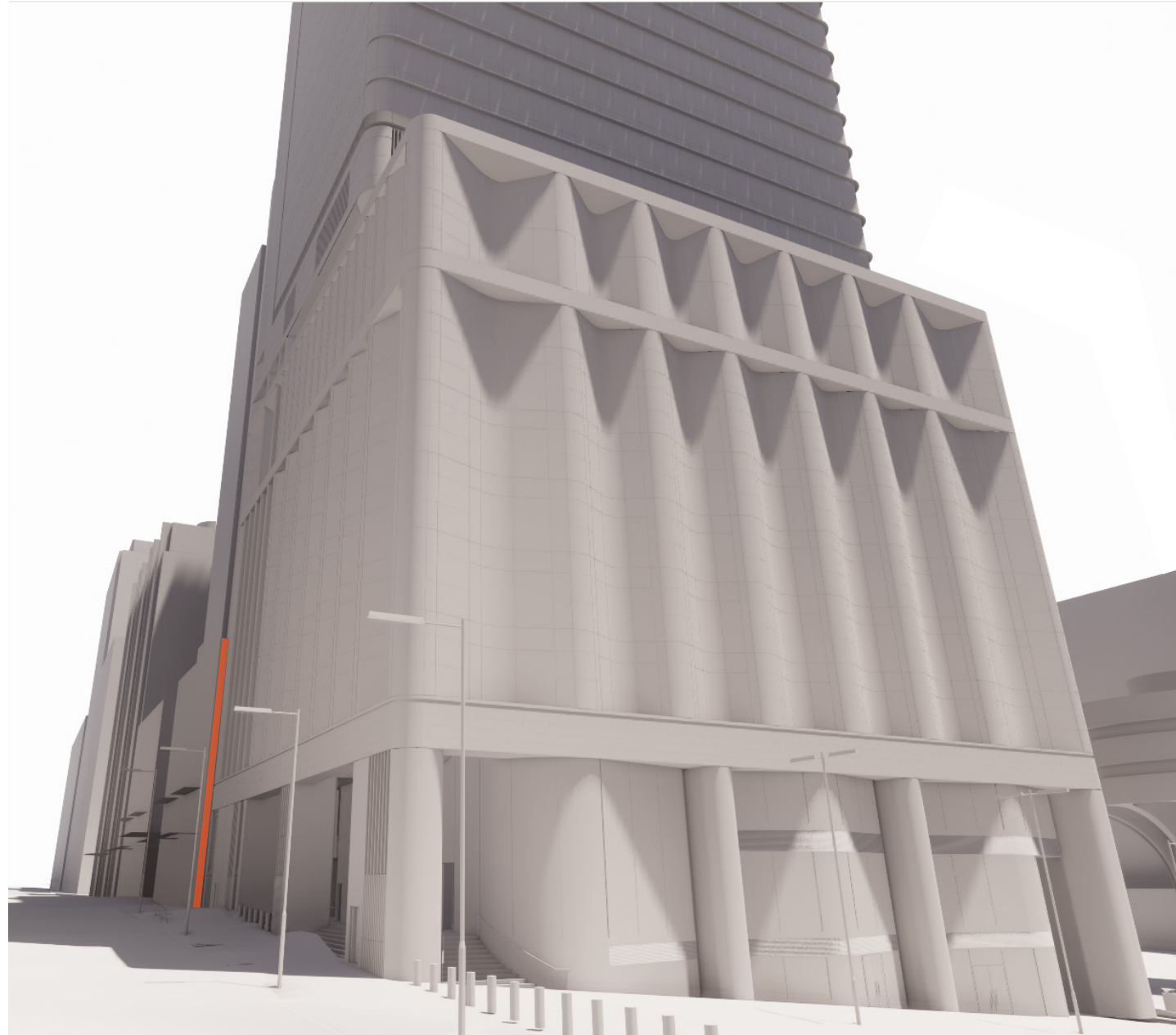
Note the 600mm step in the street wall between 39 Martin Place (approved) and 60 Castlereagh St (existing)



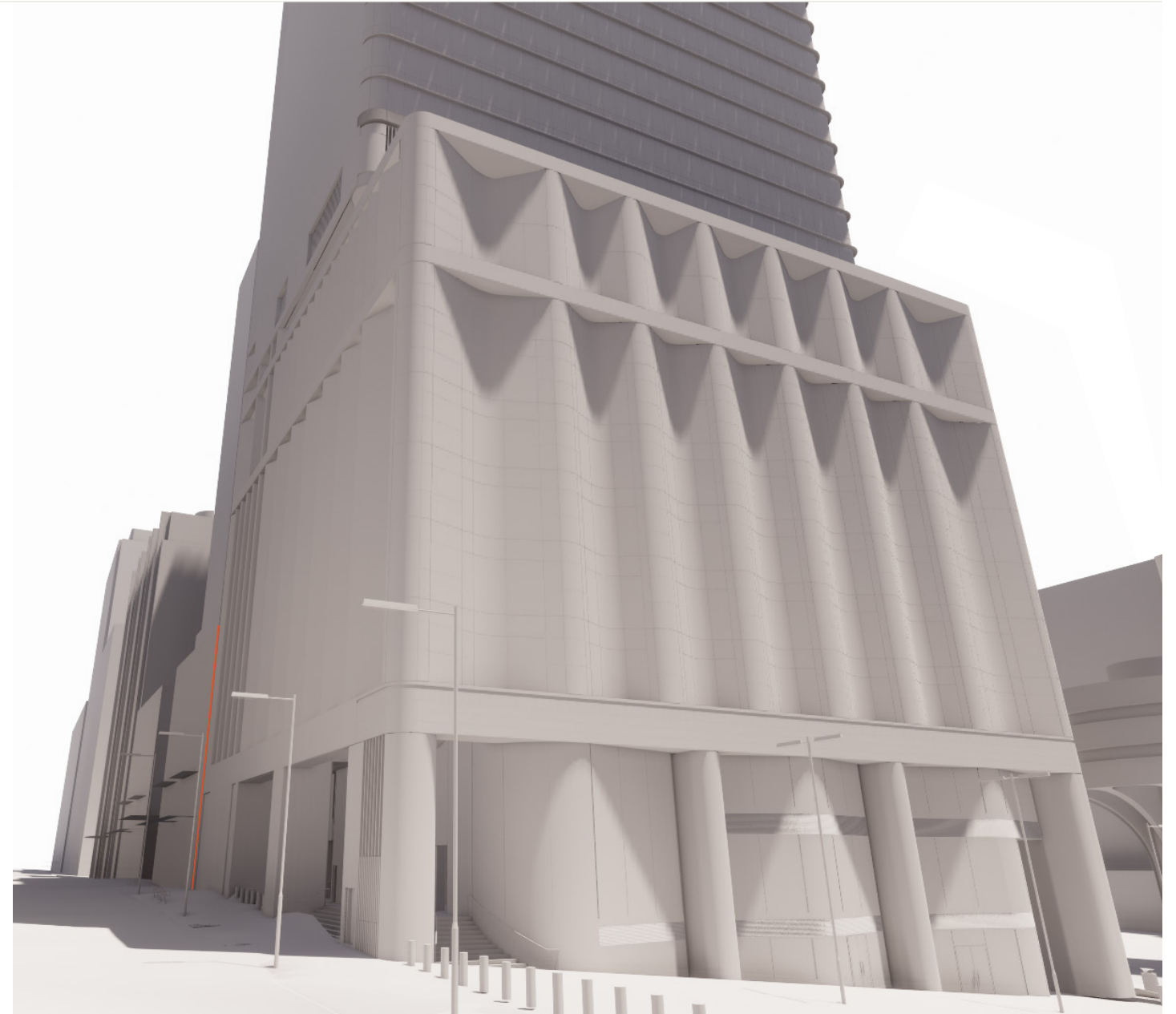
Proposed plan detail showing revised alignment of the facade of 39 Martin Place.

The step in the street wall has been resolved whilst the junction between the two buildings is still articulated with a re-entrant



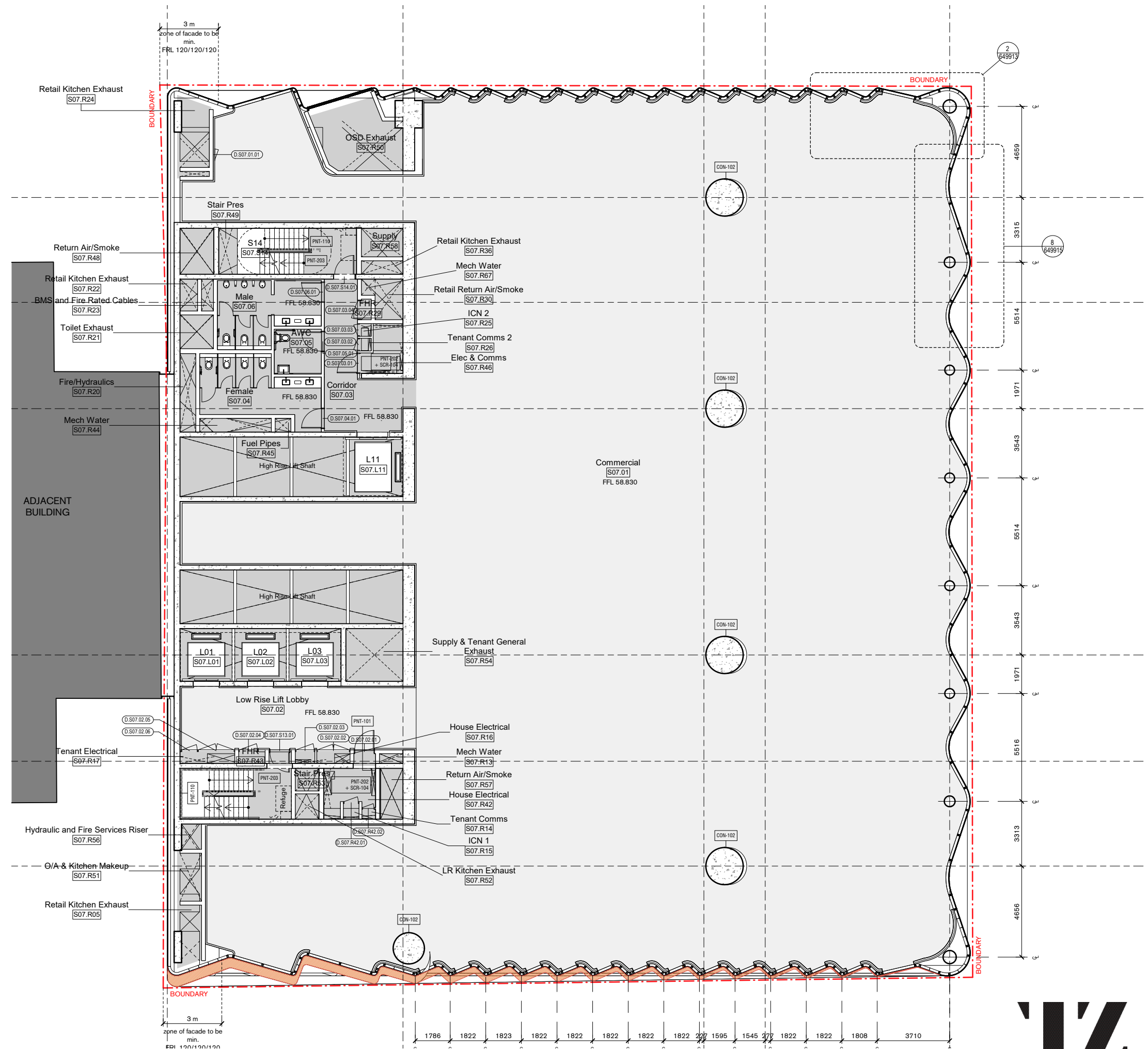


Approved DA design showing 600mm step in street wall



Proposed revised design showing alignment east facade with existing street wall





Metro Martin Place South Tower

DRP 12

Technical Submission: Appendix A

10 December 2019



Glare Mitigation to the North Facade

How We Assess Glare Intensity

How We Assess Glare Intensity

1. Reflectivity Properties of Glazing
2. View Locations
3. Visualisation of Peak Reflection Times
4. Benchmark Thresholds of Veiling Luminance (Cd/m²)
5. Measuring the percentage of the glazed facade that generates reflections

How We Assess Glare Intensity

The following key criteria were agreed for calculation of Visible Light Reflectivity of Glazing (presented by Flux to DRP on 13.06.19):

1. Reflectivity Properties of Glazing

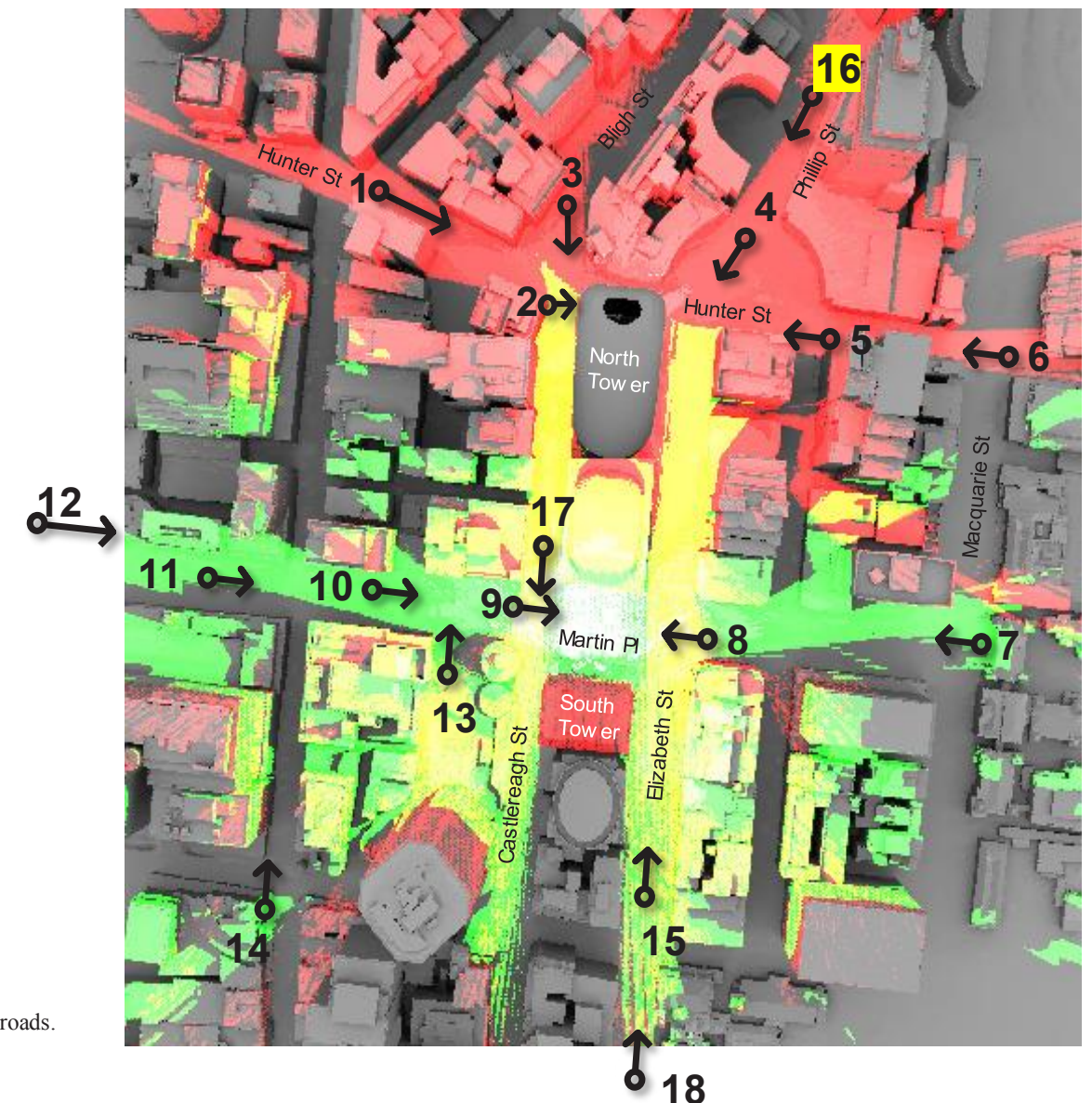
— These have been agreed and not changed.

2. View Locations and Timings

— Simulations were undertaken by Arup and view locations were assessed and agreed with Flux.

1. Hunter St driving south east
2. Pedestrian crossing Castlereagh St
3. Bligh St driving south
4. Chifley Square driving south / close to pedestrian plaza
5. Pedestrian crossing Phillip St
6. Pedestrian crossing Macquarie St at Hunter
7. Pedestrian crossing Macquarie St at Martin Place
8. Pedestrian crossing Elizabeth St
9. Pedestrian crossing Castlereagh St
10. Martin Place event space
11. Martin Place Cenotaph
12. Pedestrian crossing George St
13. Pedestrian walking down MLC stairs
14. Pedestrian crossing King St
15. Elizabeth St driving north
16. Phillip St driving south, after Bent St
17. Castlereagh St driving south
18. Elizabeth St driving north near King

Note: all points are within the Sydney CBD 40 km/h zone for roads.



How We Assess Glare Intensity

3.Visualisation of Peak Reflection Times

- Times for spot check simulations were selected based on when reflections of the full sun disk could affect the selected view points

4. Benchmark thresholds of Veiling Luminance (Cd/m2)

- 500 Cd/m2 is the threshold applied in the standard methodology for Disability Glare.

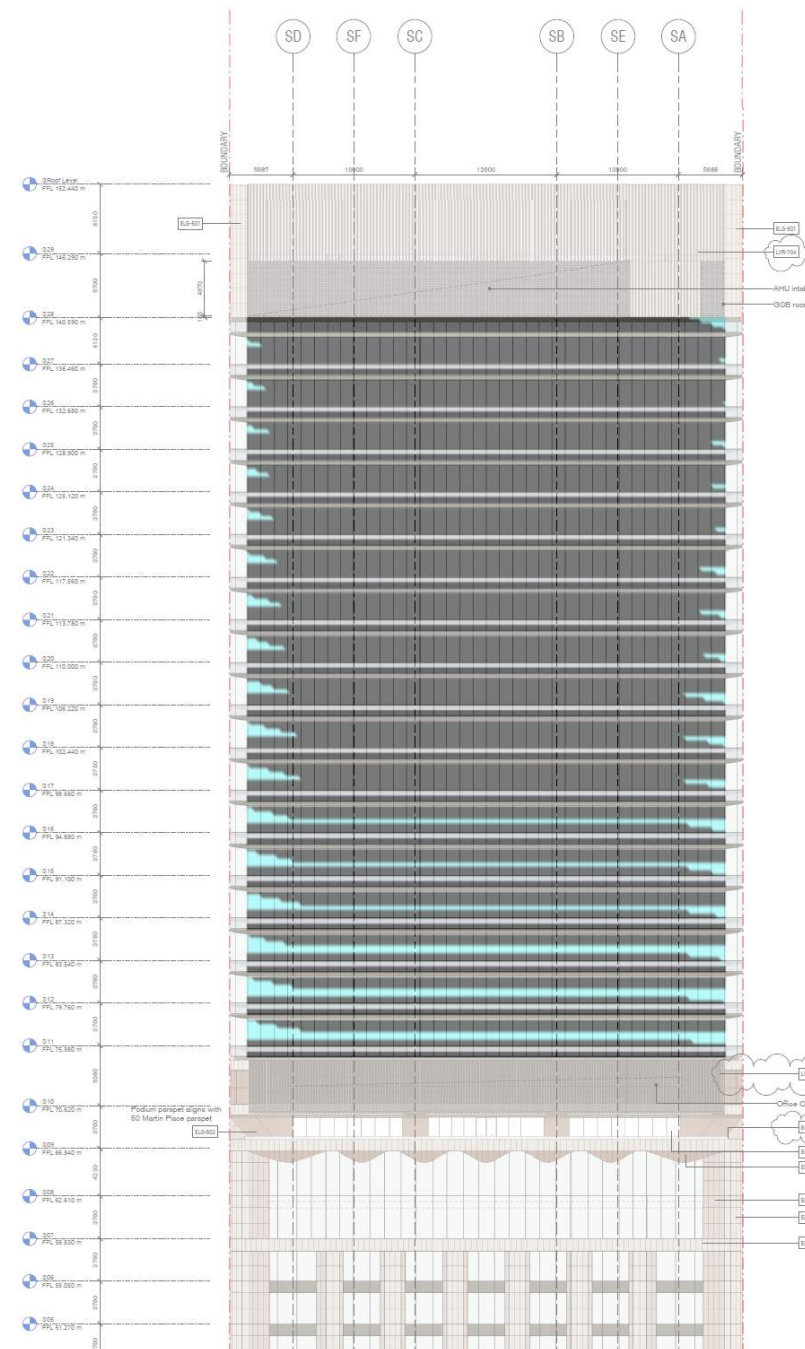


Date/time	7.15am, Oct 10 (generally mornings mid season 30min)
Average luminance	3,280
Vertical illuminance	17,500
Glare source luminance	670,000,000
Veiling luminance (Cd/m2)	360 < 500
Remarks	Glare source is slightly lower down causing higher veiling luminance

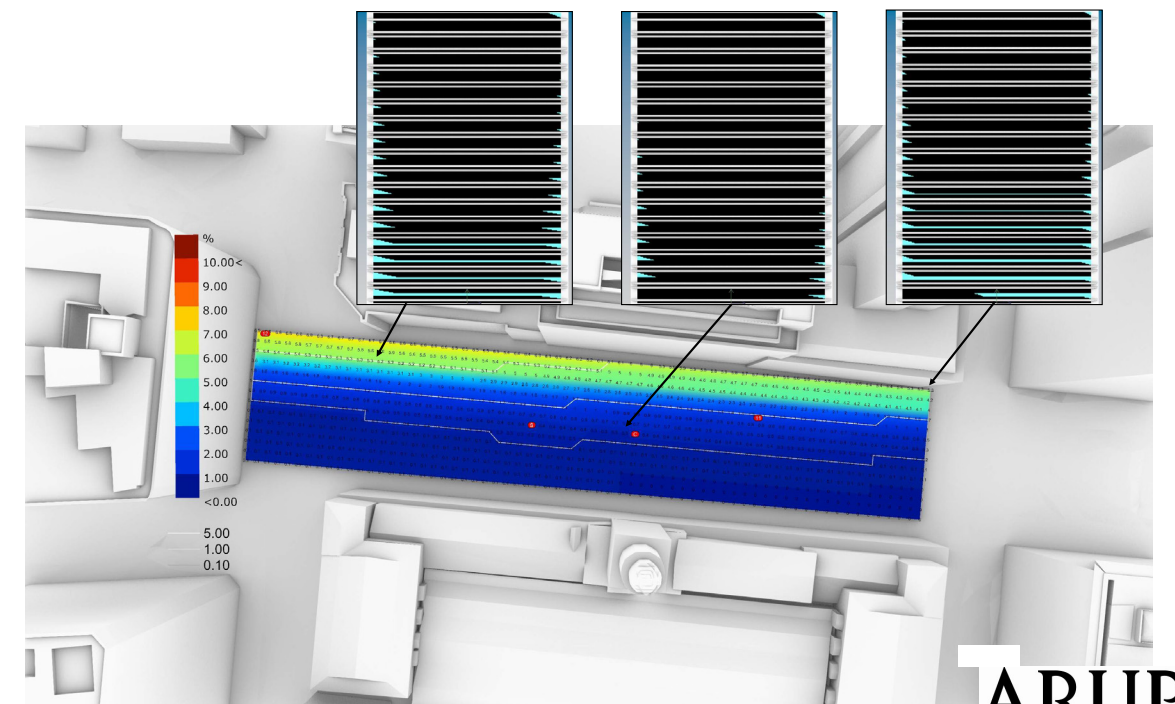
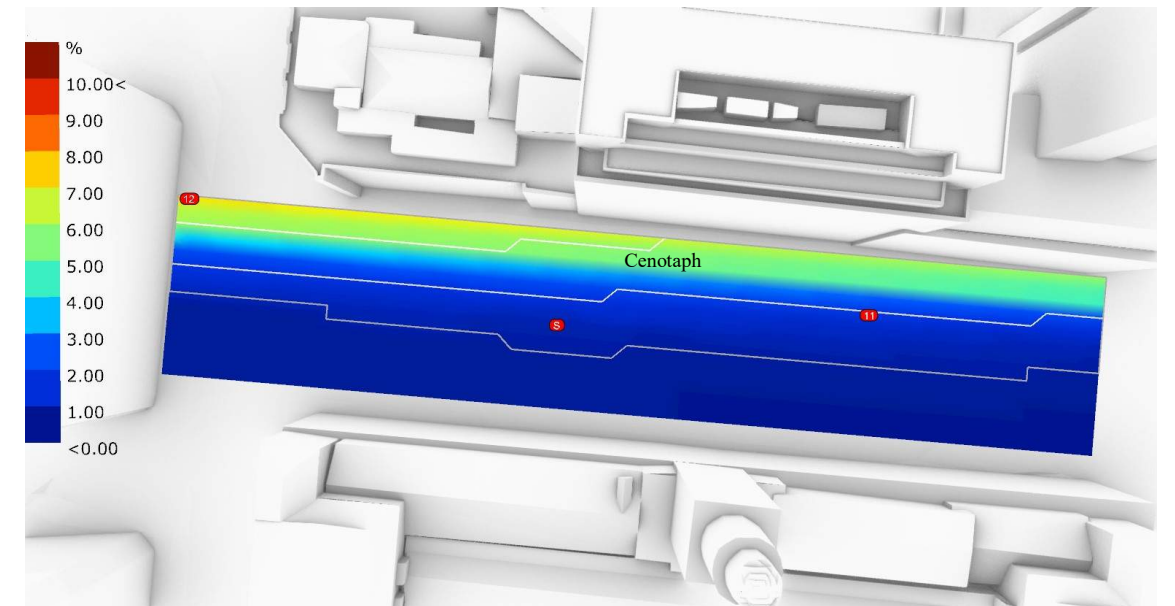
How We Assess Glare Intensity

5. Measuring the percentage of the glazed facade that generates reflection

- This criteria was developed in addition to the previous criteria to measure the overall percentage of the facade that reflects onto Martin Place for each shading option.



Assessment of areas of North elevation that can cast reflections within the Cenotaph area.



Percentage of North facade that can cast sun reflections from selected viewpoints

Viewpoint Assessment

Current Approved DA Design

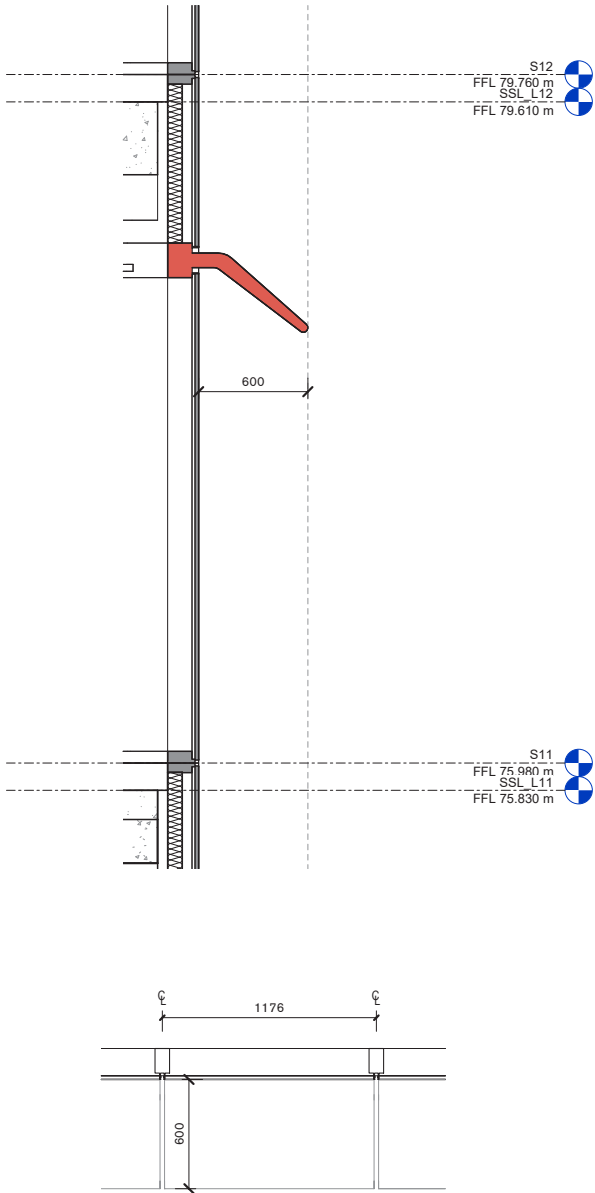


View of North facade

Current Approved DA design - single 600mm deep horizontal solar shade



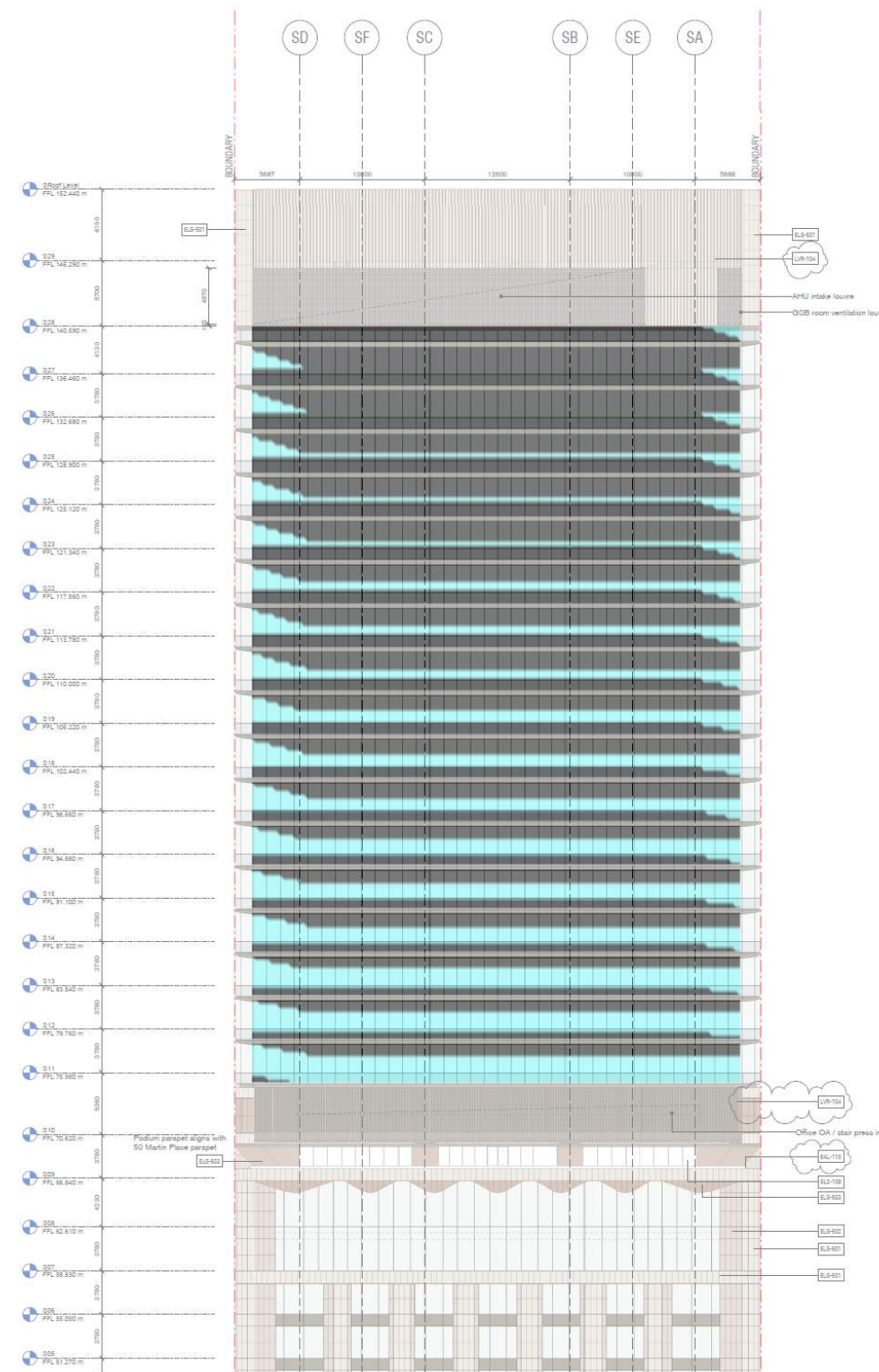
Detail View of North facade with Current Approved DA design



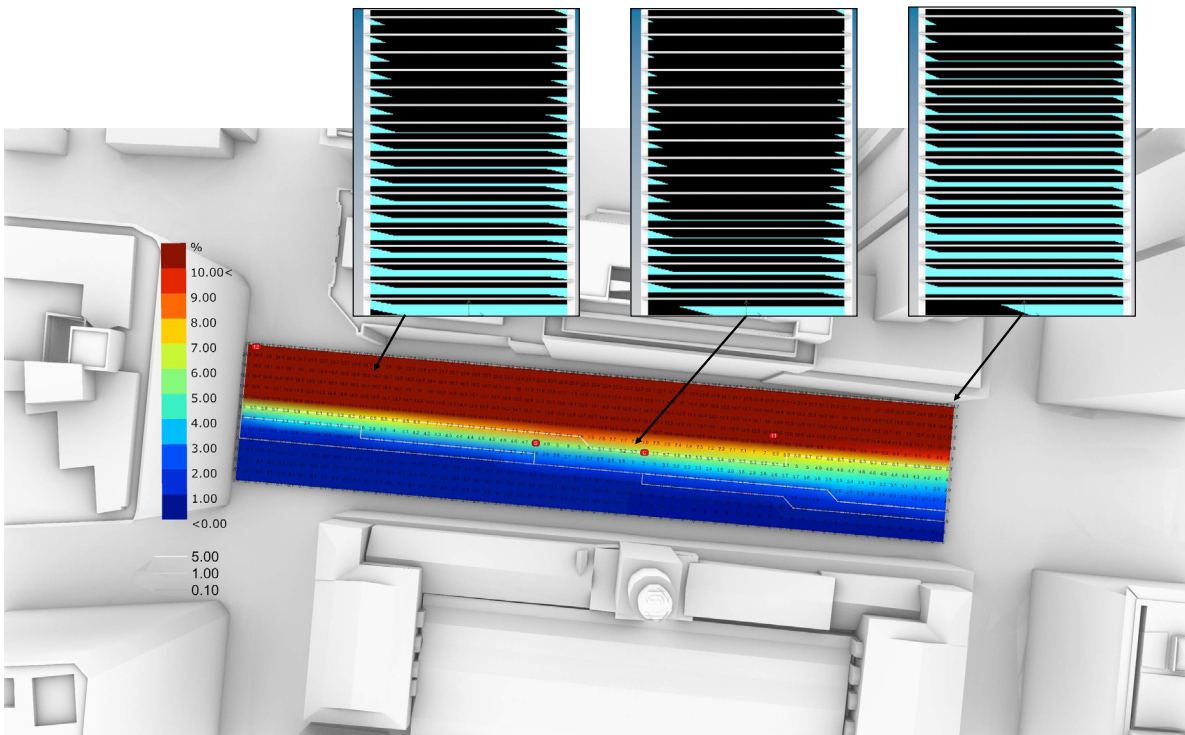
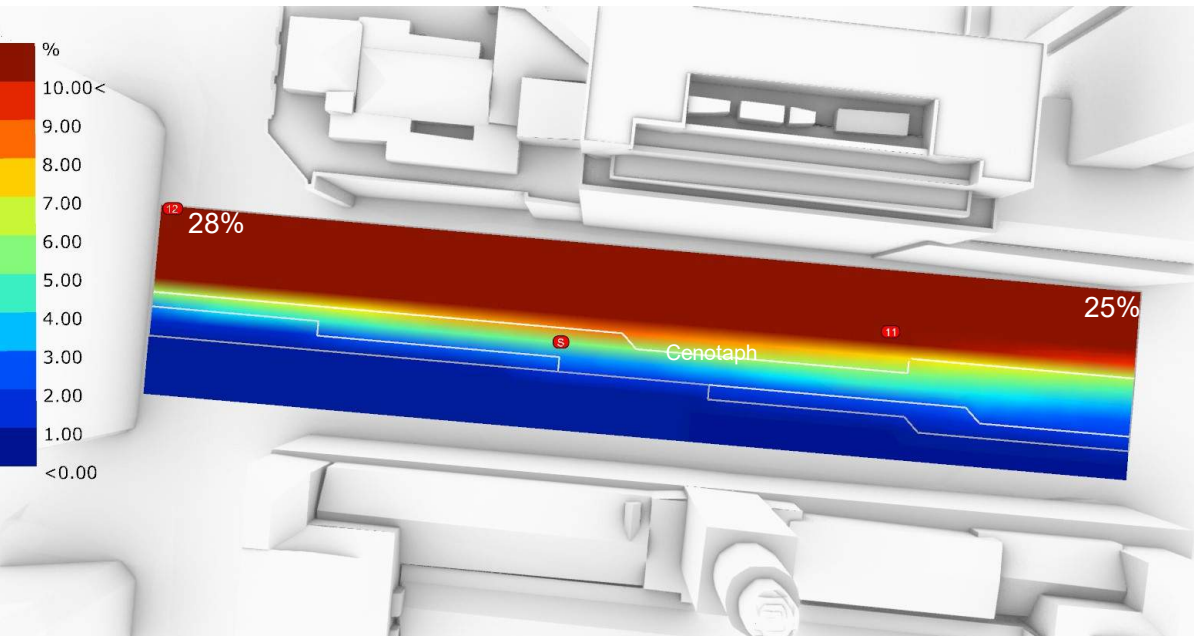
Plan and Section through North Facade with current Approved DA design



Current Approved DA Design

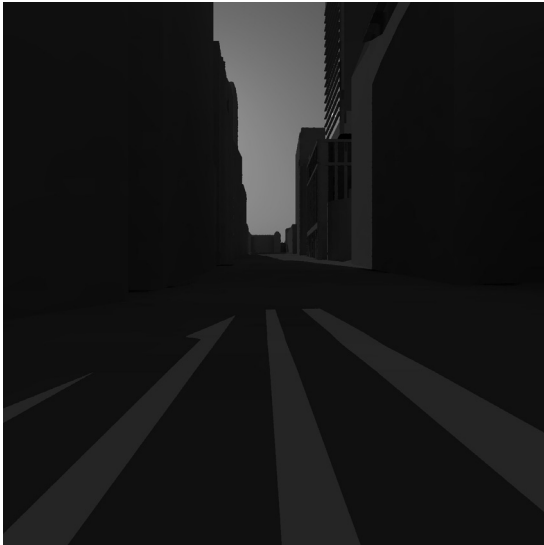
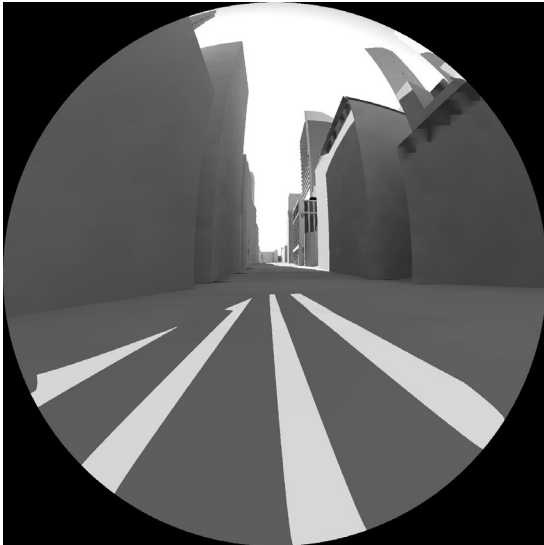
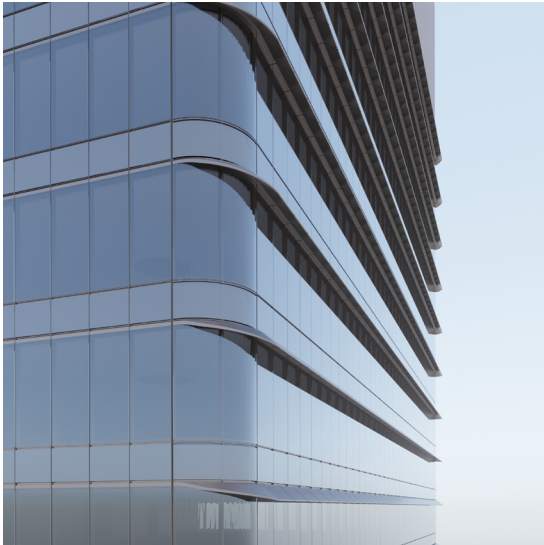


Assessment of areas of North elevation that can cast reflections within the Cenotaph area, with approved DA design



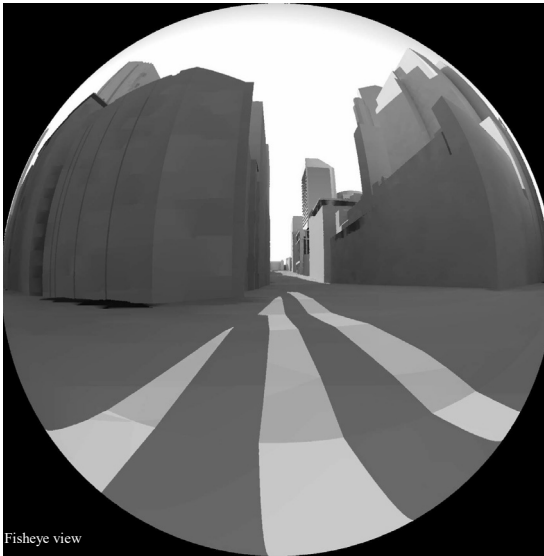
Percentage of the facade that can reflect sun towards the Cenotaph is 28%.

Current Approved DA Design

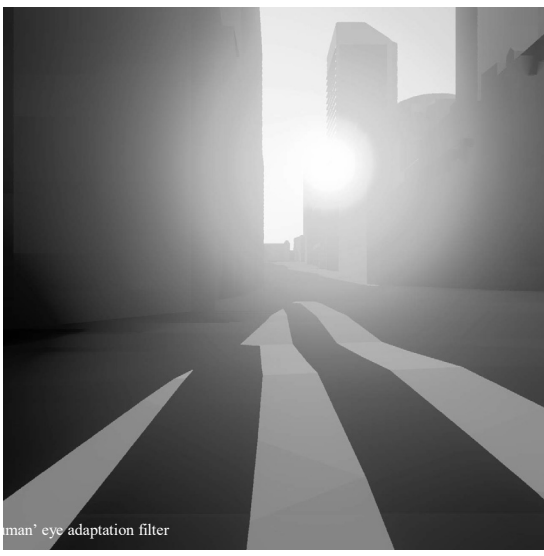


View Point 1 1

Date / time	7.50am AEDT, Oct 12
Average luminance [Cd/m2]	1,512
Vertical illuminance [lux]	7,683
Glare source luminance [Cd/m²]	550,000,000
Veiling luminance [Cd/m²]	150 (< 500)



Fish Eye View



'Human' eye adaption filter



Toned down image

View Point 12

Date / time	7.28am AEDT, Oct 6
Average luminance [Cd/m2]	2,272
Vertical illuminance [lux]	12,185
Glare source luminance [Cd/m²]	400,000,000
Veiling luminance [Cd/m²]	575

Flux Recommendation

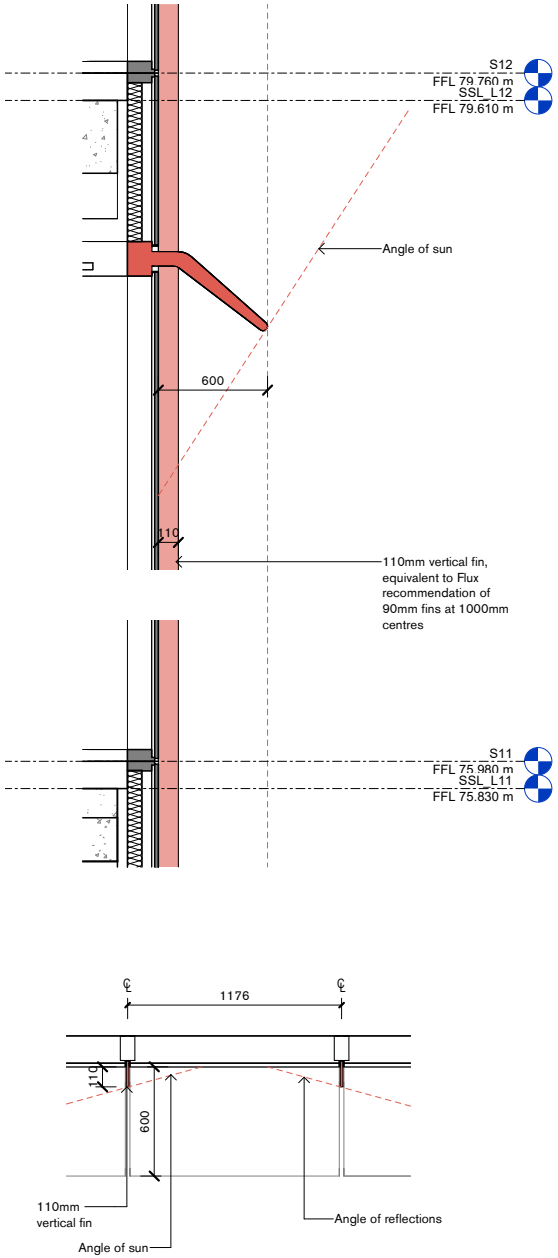


View of North facade

Flux Recommendation - single 600mm deep horizontal solar shade with 110mm vertical fins (equivalent to 90mm fins at 1m centres)

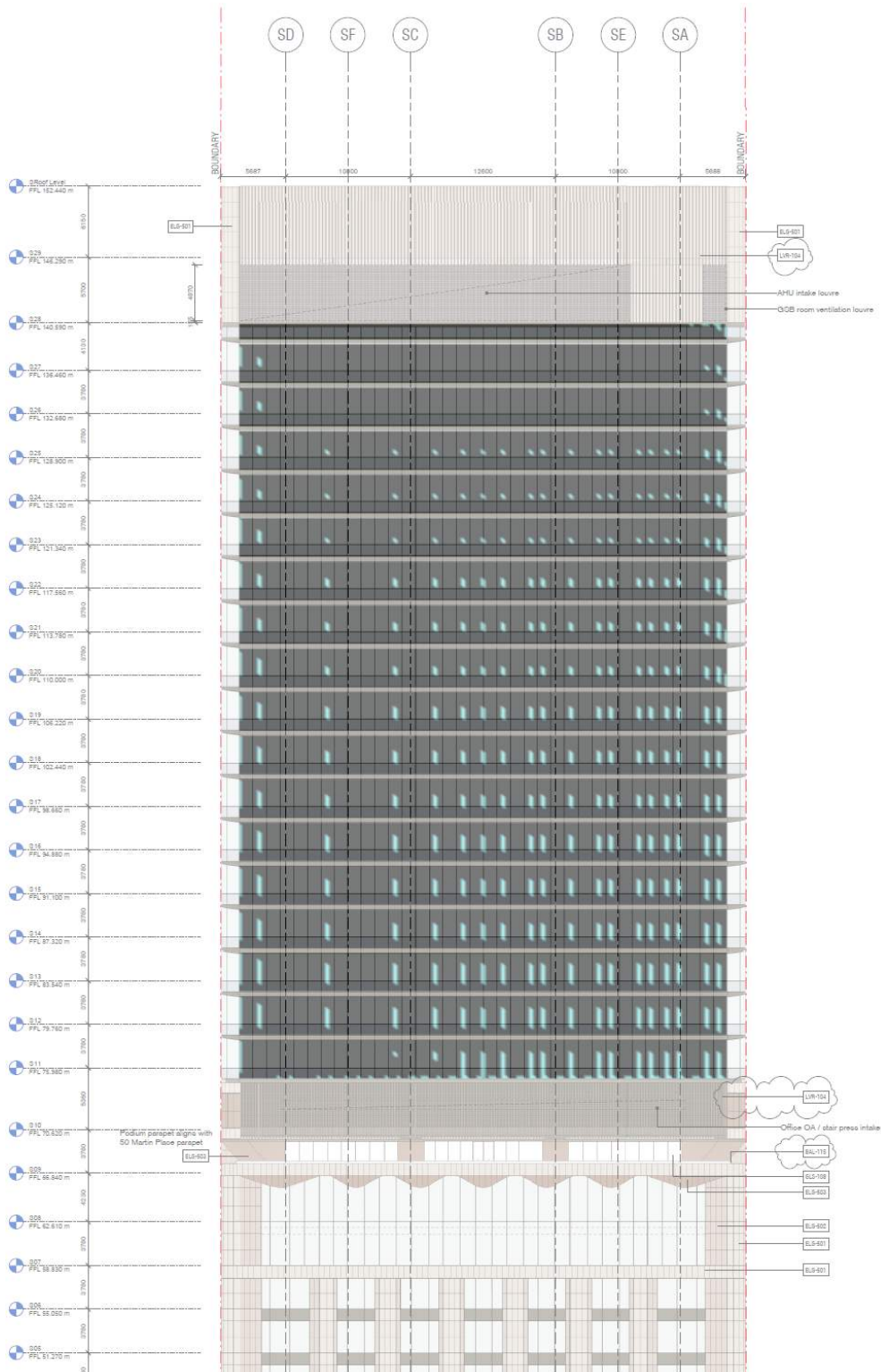


Detail View of North facade with Flux Recommendation

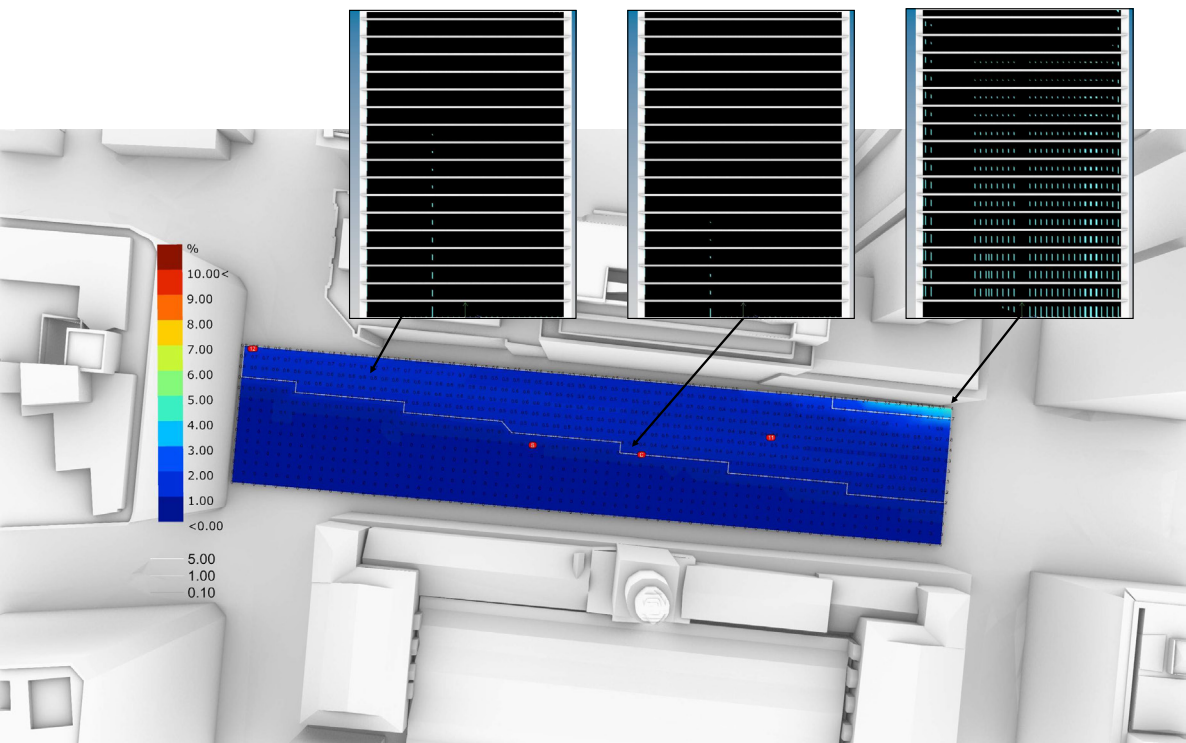
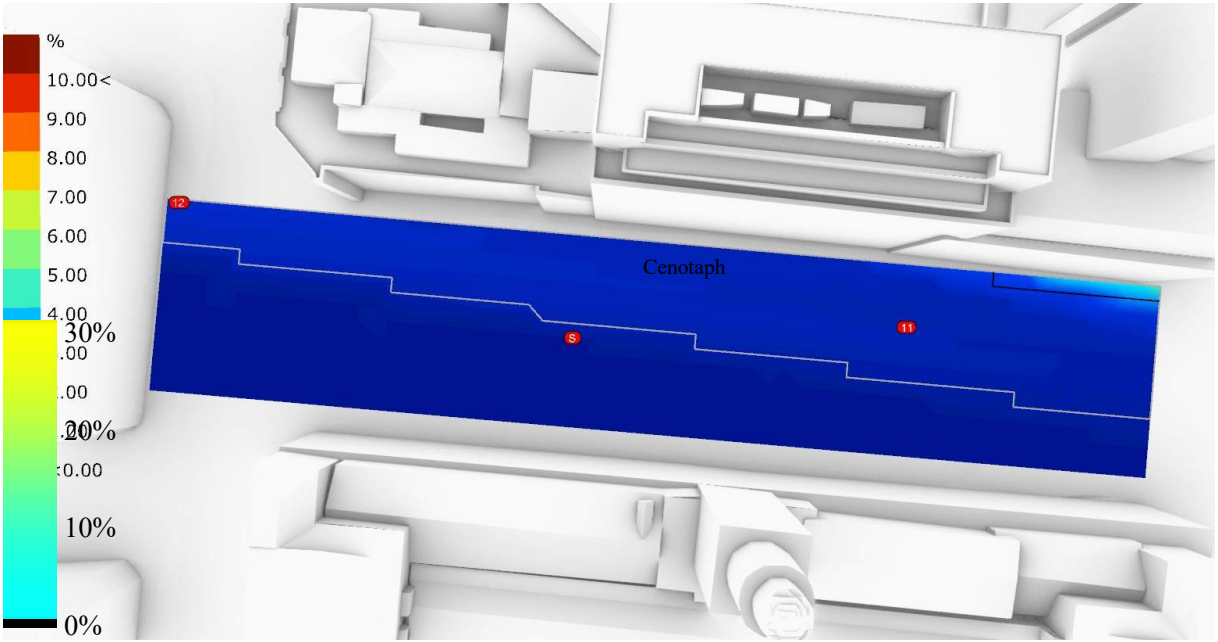


Plan and Section through North Facade with Flux Recommendation

Flux Recommendation

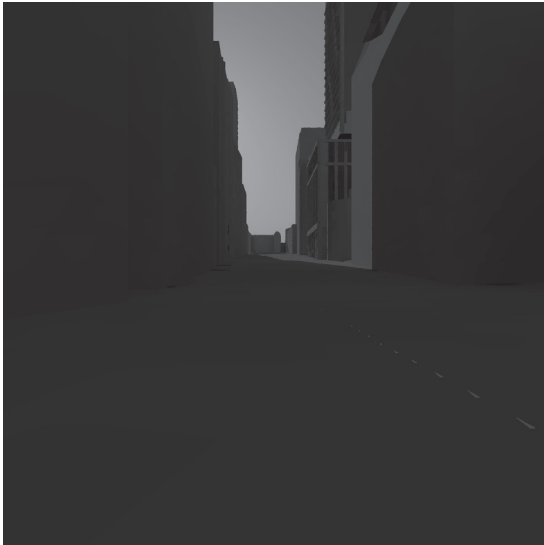
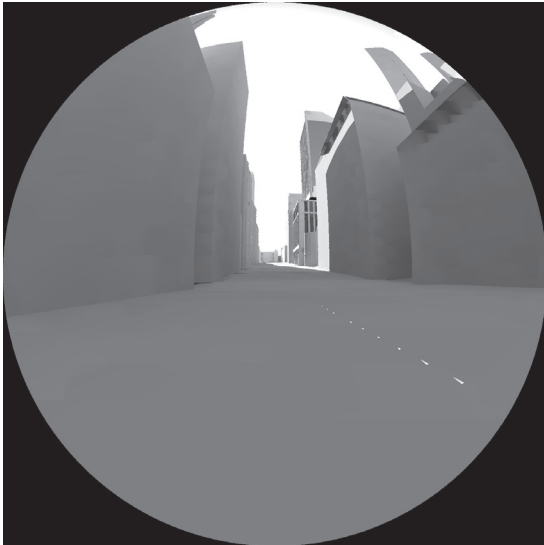


Assessment of areas of North elevation that can cast reflections within the Cenotaph area, with Flux Recommendation



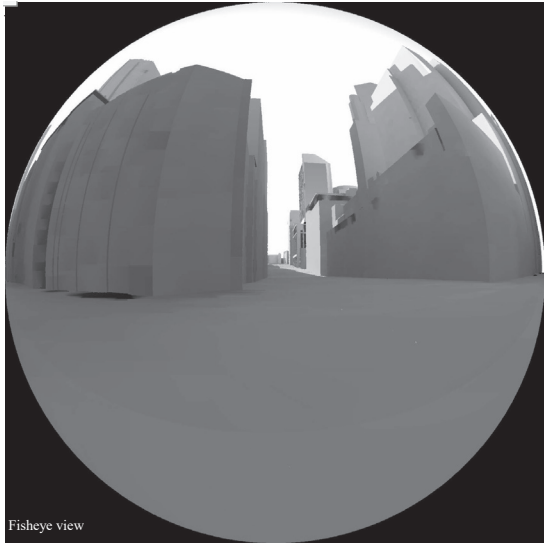
Percentage of the facade that can reflect sun towards the Cenotaph reduced from 28% to 4%

Flux Recommendation



View Point 11

Date / time	7.50am AEDT, Oct 12
Average luminance [Cd/m2]	407
Vertical illuminance [lux]	1,593
Glare source luminance [Cd/m²]	0
Veiling luminance [Cd/m²]	0



View Point 12

Date / time	7.28am AEDT, Oct 6
Average luminance [Cd/m2]	383
Vertical illuminance [lux]	1,320
Glare source luminance [Cd/m²]	0
Veiling luminance [Cd/m²]	0

Fish Eye View

‘Human’ eye adaption filter

Toned down image

Preferred Architectural Solution

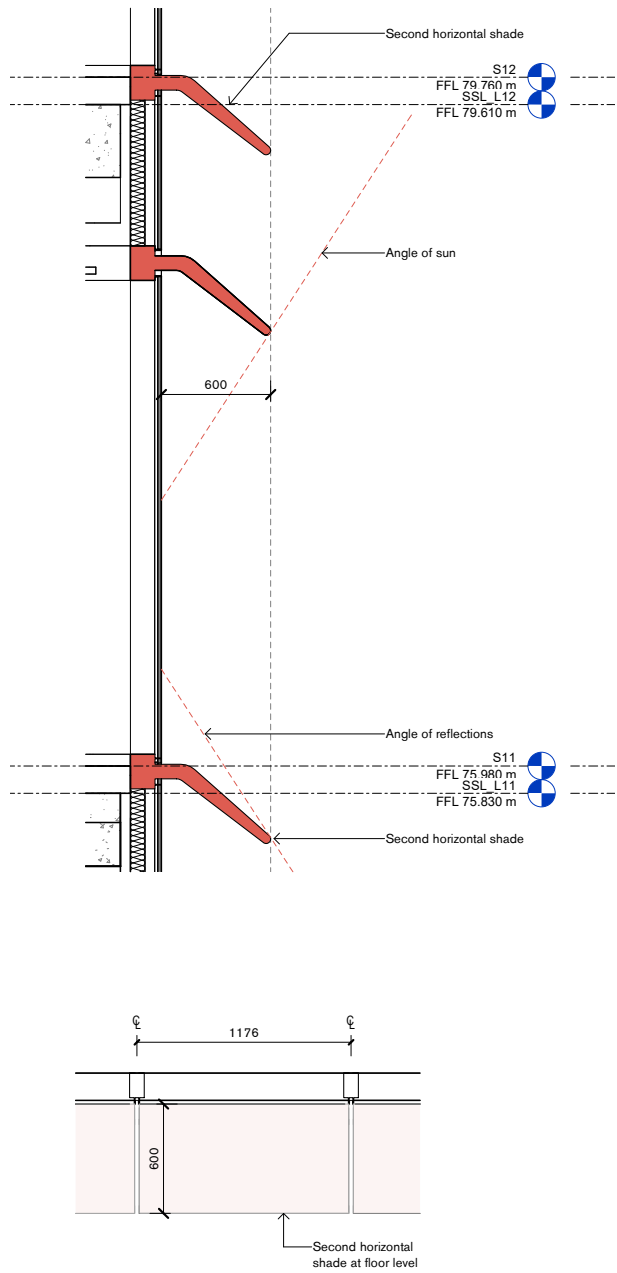


View of North facade

Preferred Architectural Solution - double 600mm deep horizontal solar shades

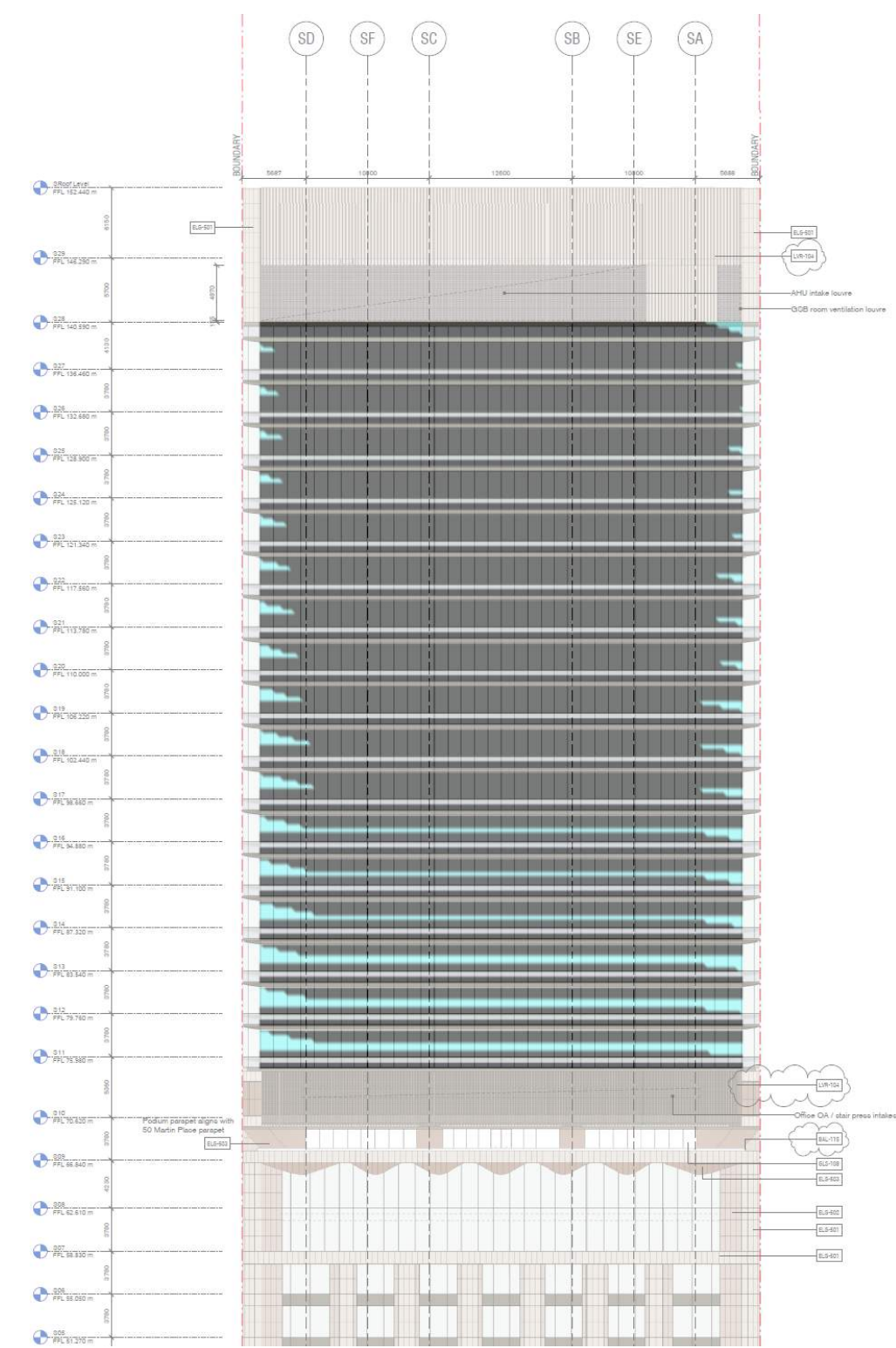


Detail View of North facade with Preferred Architectural Solution

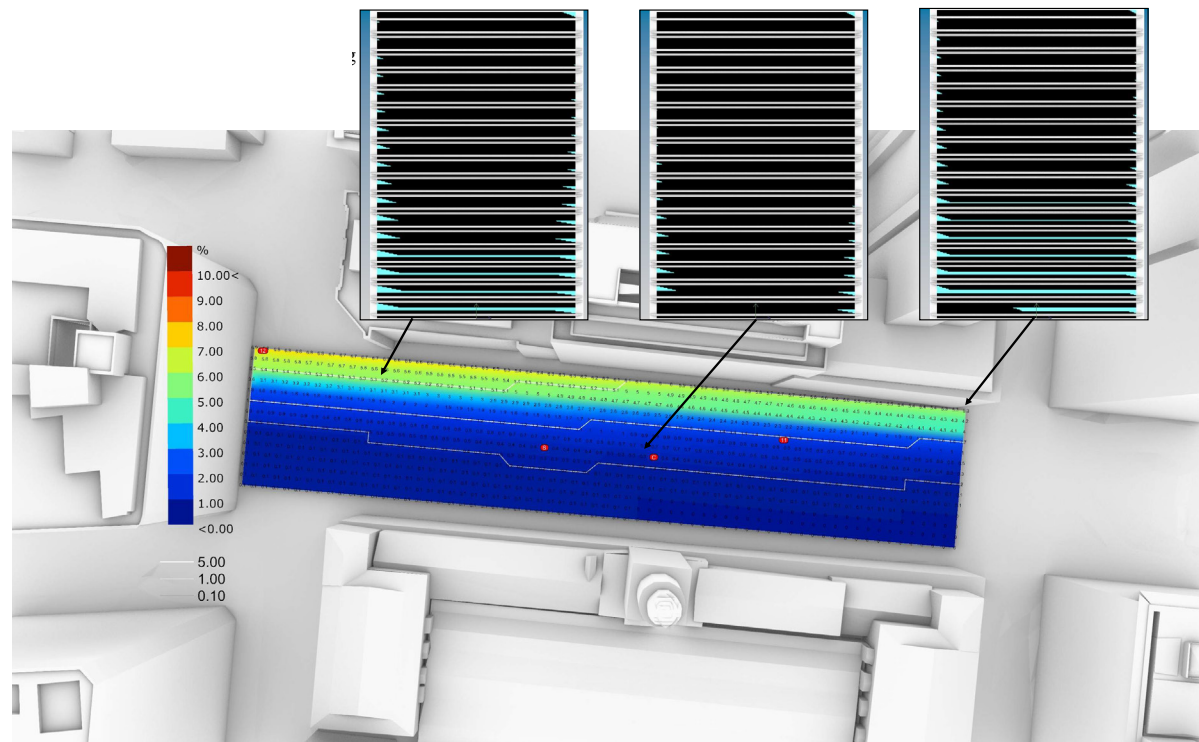
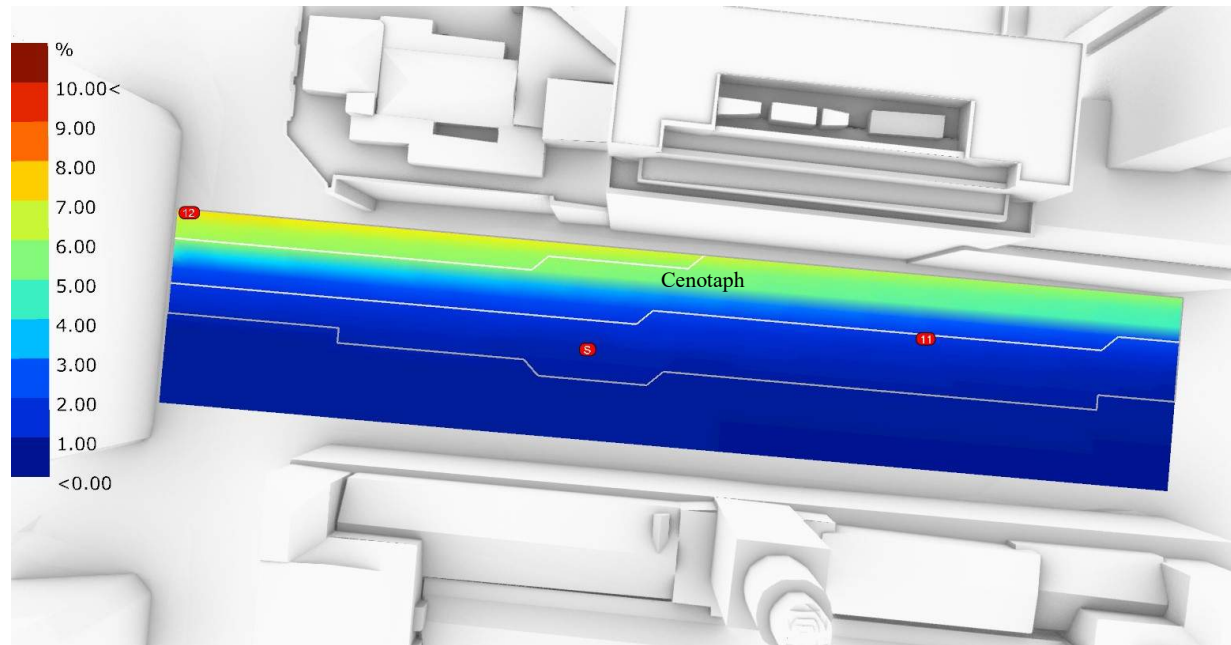


Plan and Section through North Facade with Preferred Architectural Solution

Preferred Architectural Solution

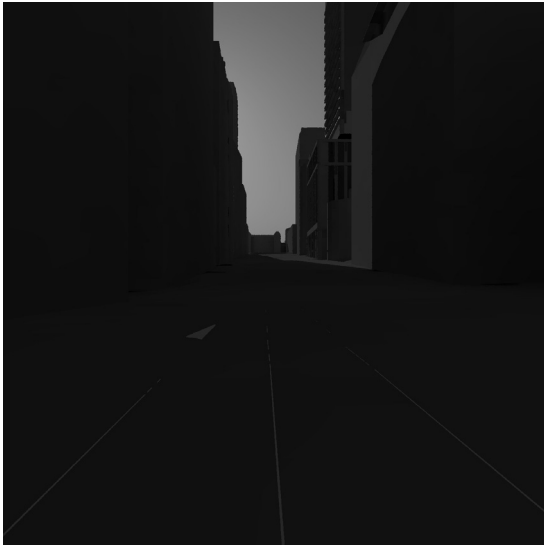
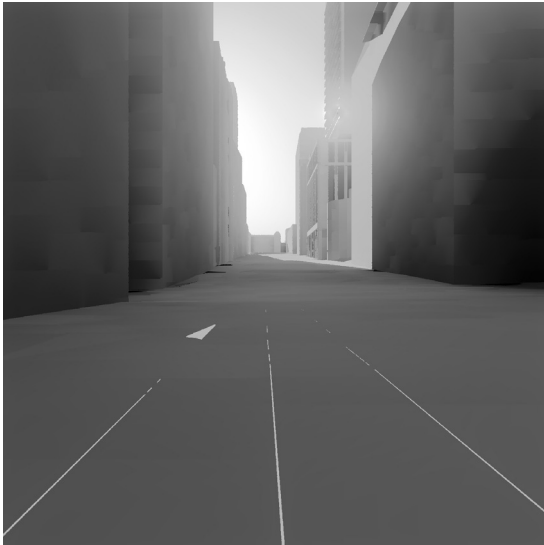
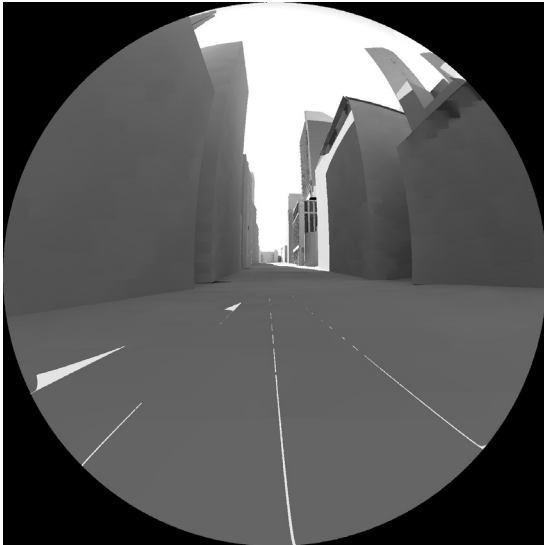
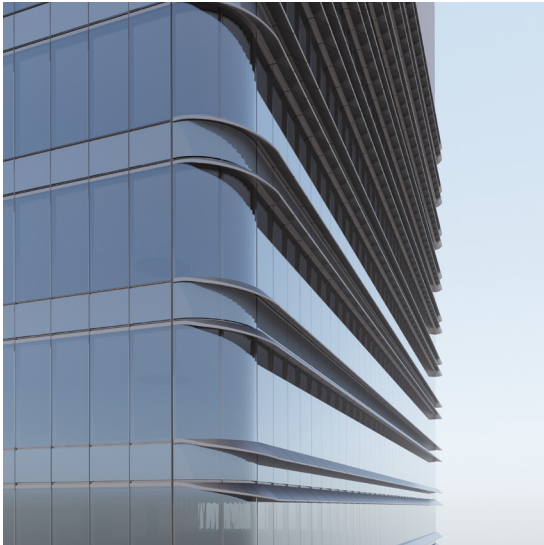


Assessment of areas of North elevation that can cast reflections within the Cenotaph area, with Preferred Architectural Solution



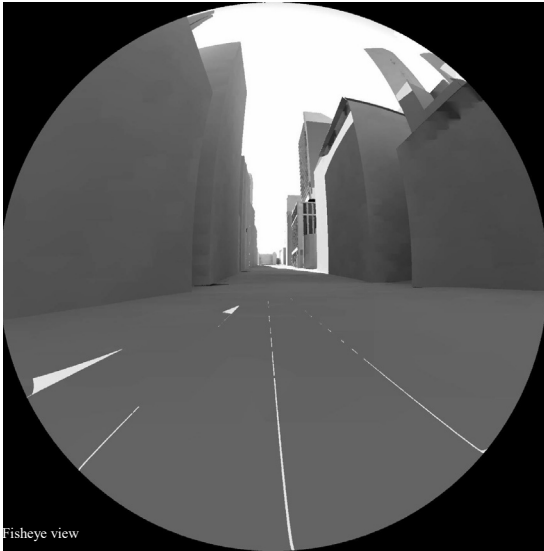
Percentage of the facade that can reflect sun towards the Cenotaph reduced from 28% to 7%

Preferred Architectural Solution



View Point 1 1

Date / time	7.50am AEDT, Oct 12
Average luminance [Cd/m2]	412
Vertical illuminance [lux]	1,605
Glare source luminance [Cd/m²]	0
Veiling luminance [Cd/m²]	0



View Point 12

Date / time	7.50am AEDT, Oct 12
Average luminance [Cd/m2]	412
Vertical illuminance [lux]	1,605
Glare source luminance [Cd/m²]	0
Veiling luminance [Cd/m²]	0

Fish Eye View

'Human' eye adaption filter

Toned down image

Appendix 2

OSD DRP Advice

16 December 2019

MARTIN PLACE OSD DRP – SESSION 12 10.12.19

Michael Silman
Executive Director
Corporate Operations Group

Via email:
Michael.Silman@macquarie.com

Dear Michael,

At the last DRP, the panel recommended amending the design of the South Tower by the addition of vertical fins (or any other means) to reduce or eliminate glare from the northern façade onto the western end of Martin Place near the Cenotaph. The recommendation was adopted as a Condition of Consent and DRP 12 was convened to seek the panel's endorsement of the changes and discharge the condition.

Glare mitigation to the north façade

Tzannes presented two amended proposals to address glare impacts from the northern façade of the South Tower. The proposals were determined in collaboration with Arup and independently reviewed by Flux Consultants.

The first proposal adds vertical fins to the northern façade between the horizontal shading of the approved tower. This proposal eliminates glare completely from the critical area around the Cenotaph. Proposal two, adds a second band of horizontal shading immediately below the first. This proposal significantly reduces glare in this area.

Endorsement

The panel has pursued the issue of glare impacts on Martin Place due to its significance as a public open space within the city. In addition, at its western end is the Sydney Cenotaph, a sacred monument around which events are hosted throughout the year.

The panel acknowledges and commends the effort of all parties to resolve this issue and endorses the addition of a second band of horizontal shading to the northern façade of the South Tower. While the change does not eliminate glare completely, there is a significant reduction. It is also understood that any remaining glare impacts are minor and will not conflict with major events associated with the Cenotaph, including ANZAC and Remembrance Days.

The panel considers the addition of a second band of horizontal shading to be a solution that reduces glare and strengthens the architectural expression of the tower.

East façade alignment with 60 Castlereagh Street

Tzannes explained that due to technical drafting issues the eastern façade of the South Tower does not align with the existing street wall of Elizabeth Street.

An amended proposal was presented which seeks to rectify the discrepancy by realigning the eastern façade with the site boundary and the dominant street wall, a change of approximately 600mm.

Endorsement

The panel supports this change which reflects previous discussions around the importance of the street wall and sits within the approved building envelope.

Next steps

GANSW understands OSD DRP involvement in the review of detailed design development is ongoing as part of Conditions of Consent to ensure outstanding matters are addressed and design excellence is achieved.

Sincerely



Olivia Hyde
Chair, Martin Place OSD DRP

CC

Panel members – Yvonne von Hartel, Bob Nation, Graham Jahn

Flux Consultants – Che Wall

Macquarie – Anthony Henry, Damien Hertslet, Steve Mouldsdale, Liz Matthews

Arup - Jorg Kramer

Lendlease – Michael Antonelli

Savills – Stephanie Ballango

Tzannes – Alec Tzannes, Ben Green

Ethos – Alexis Cella

DPIE – Russell Hand