

Shared Loading Dock Strategy

Strategy

The reference scheme proposes 23 loading spaces for Pitt & Bridge, with an additional 6 dedicated for public use under the Neighbourhood Shared Loading Strategy, notably exceeding the DCP requirement. The remaining 23 loading spaces to be utilised for the Pitt & Bridge Street development, which is in line with analysis outlined in TTPP's Traffic and Transport Assessment Report.

The Neighbourhood Shared Loading Dock is envisioned as a communal loading dock to offer a centralised loading facility for public use. Its aim is to deliver practical loading facilities to properties within the precinct with inadequate off-street loading facilities and the removal of on-street loading spaces as part of the City North Public Domain Plan, including the removal of 6 loading spaces due to closure of vehicular access to Spring Street.

Pitt & Bridge Loading Bays

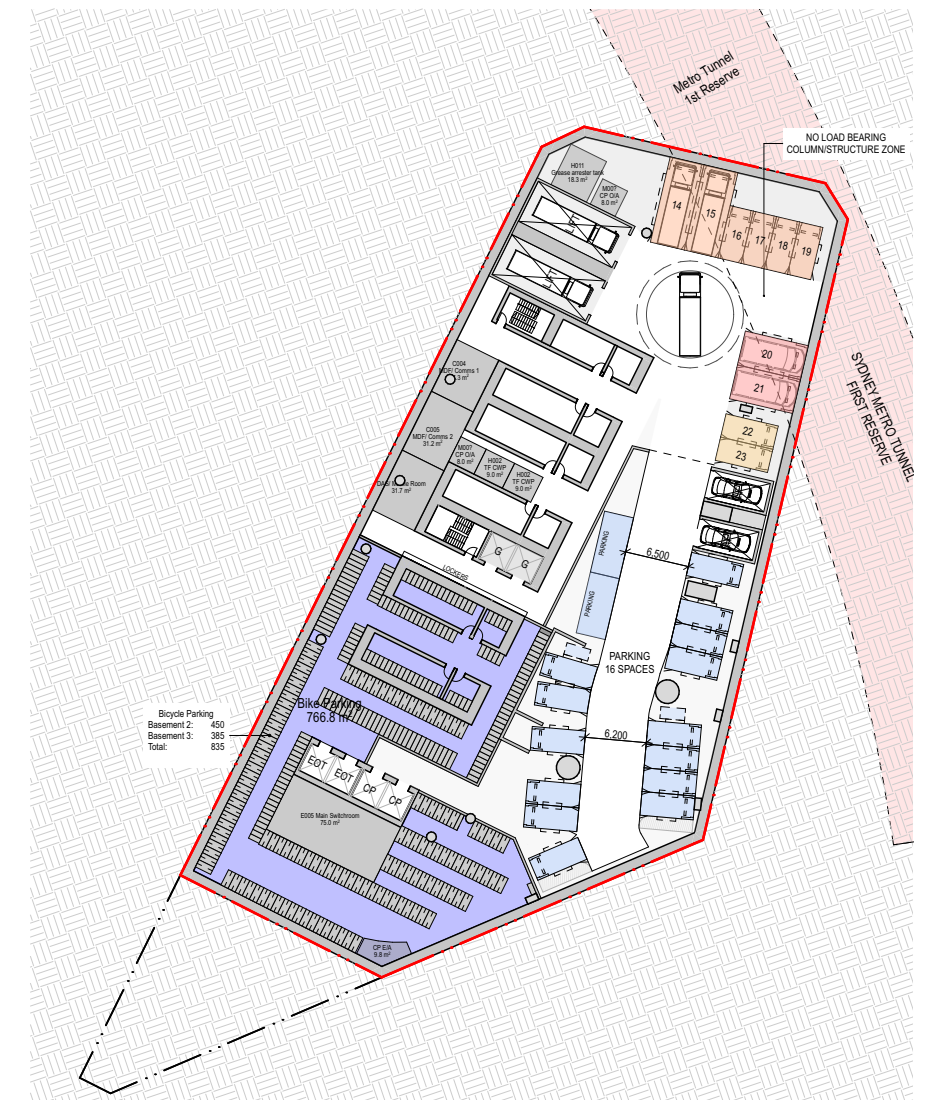
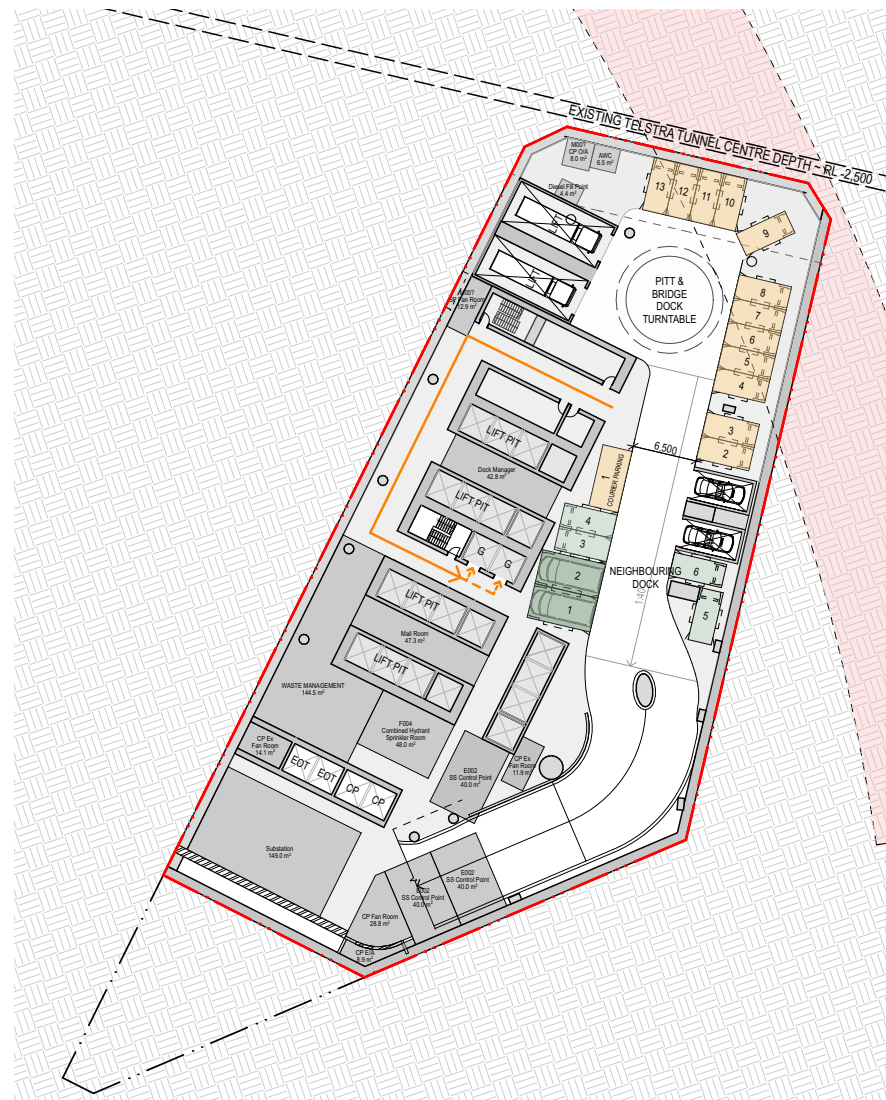
6 Loading docks available to public/neighbouring properties

Courier Van/Car	19
SRV	2
MRV	2
Total	23

Neighbouring Loading Bays

Courier Van/Car	4
SRV	2
Total	6

Total Loading Bays 29



Flood Strategy

Strategy

Stantec Australia has carried out a flood assessment of the Pitt & Bridge site, using the planning proposal reference scheme. The reference scheme fulfills the flood RL requirements as recommended by Stantec.

Flood report extract

This study has assessed the existing flood risks and existing adjacent major overland flow paths around the site and determine the impact of the proposed development on existing flood behaviour. This study has been prepared to accompany a planning proposal for the site being lodged with City of Sydney Council. This study has been undertaken in accordance with Australian Rainfall and Runoff 2019, the NSW Floodplain Management Manual and Council’s Interim Floodplain Management Policy.

In preparing this assessment, the City Area Catchment TUFLOW flood model was obtained from the City of Sydney Council to confirm the existing flood conditions around the site and determine whether the proposed development impacts on existing flood behaviour. The post development results have also been used to set floor levels for the development in line with Council’s Interim Floodplain Management Policy.

Flood modelling results demonstrate that generally, flood impacts are typically contained within Pitt St in the 1% AEP event with minor increases and decreases observed locally in pockets along Pitt St. In the PMF event, a flood level increase is observed within the road network to the west of the site; however, this is considered minor and there is no change to flood hazard within the public domain.

Flood modelling of the proposed planning envelope and reference scheme demonstrates that impacts as a result of the development are minimal and localised along the street network. There are no increases in flood hazard as a result of the development. The proposed development complies with the flood planning levels as set out in City of Sydney Council’s Interim Floodplain Management Policy and specified in Appendix A of this report.

Design Response

The reference design levels have been designed in accordance with the FFL recommendations provided by Stantec.

Figure 4 and Figure 5 present the flood depth and level contours and flood hazard maps, respectively, in the existing scenario for the 1% AEP flood event.

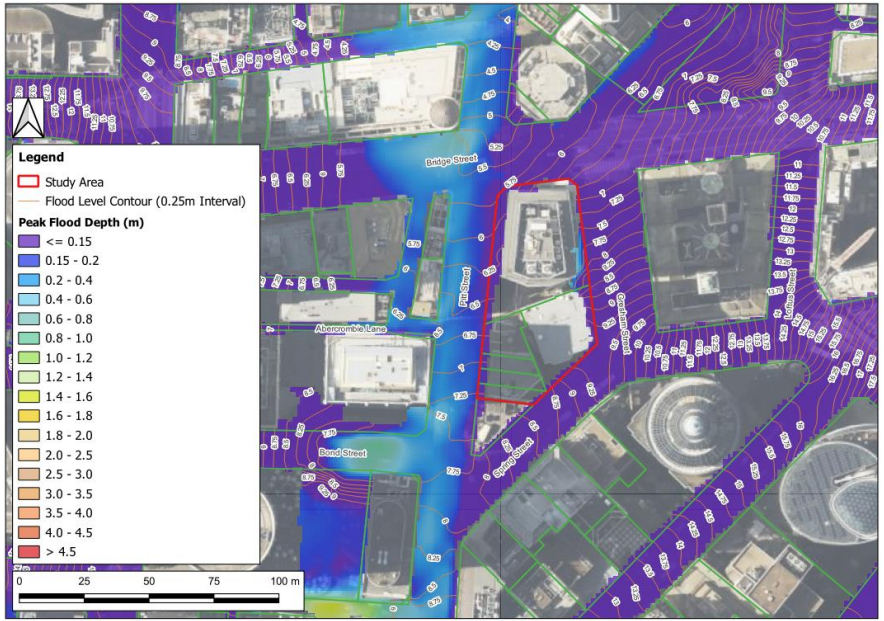


Figure 4: 1% AEP Event – Peak Flood Depth & Level Contours (Existing Scenario)

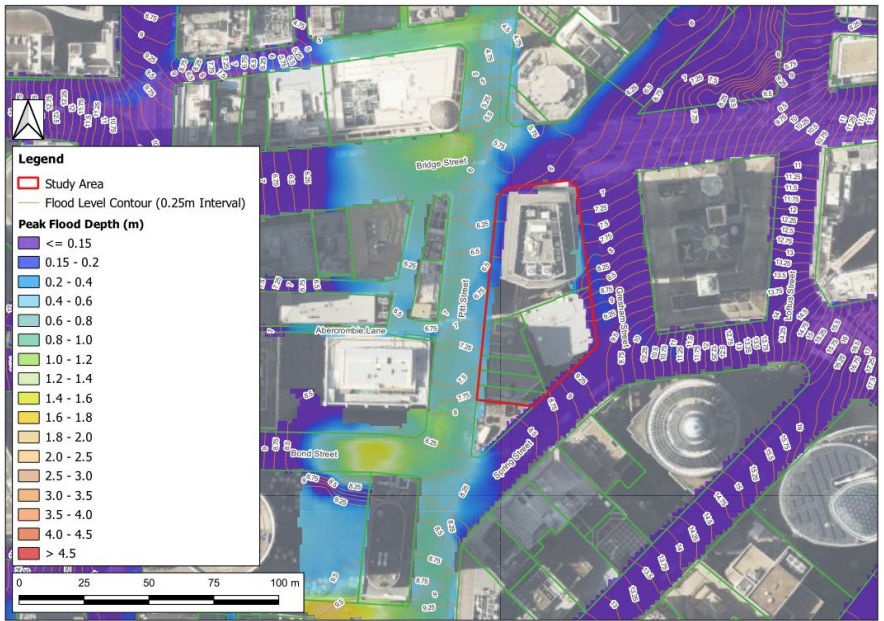
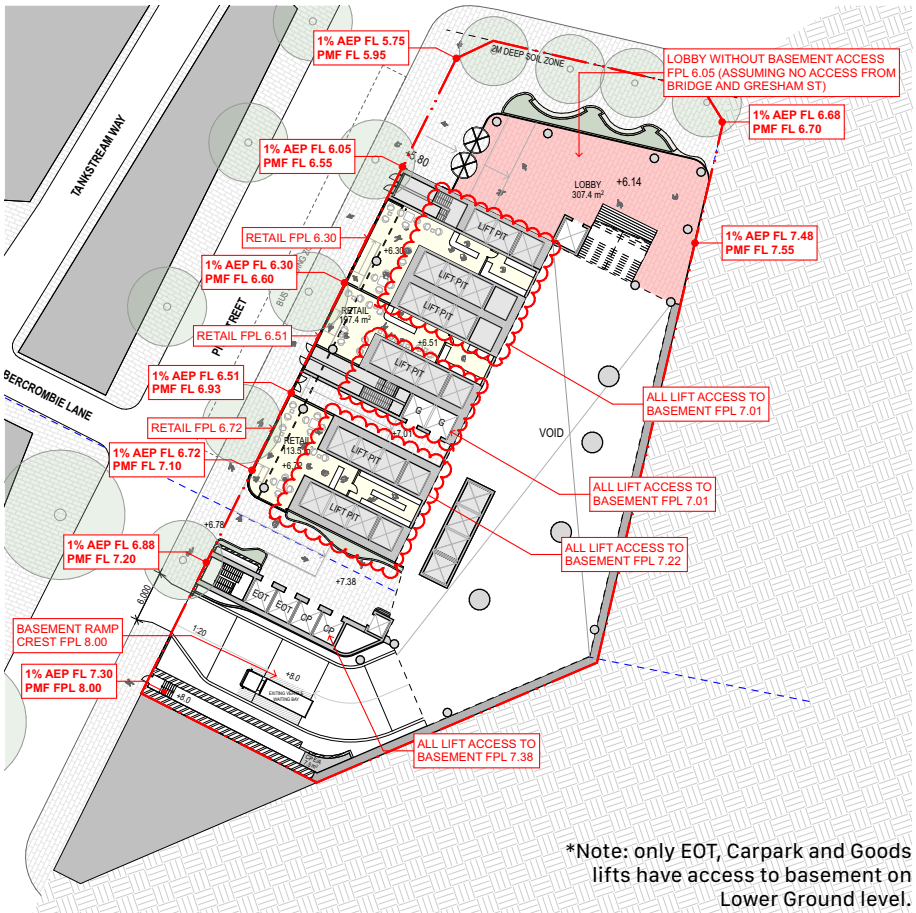
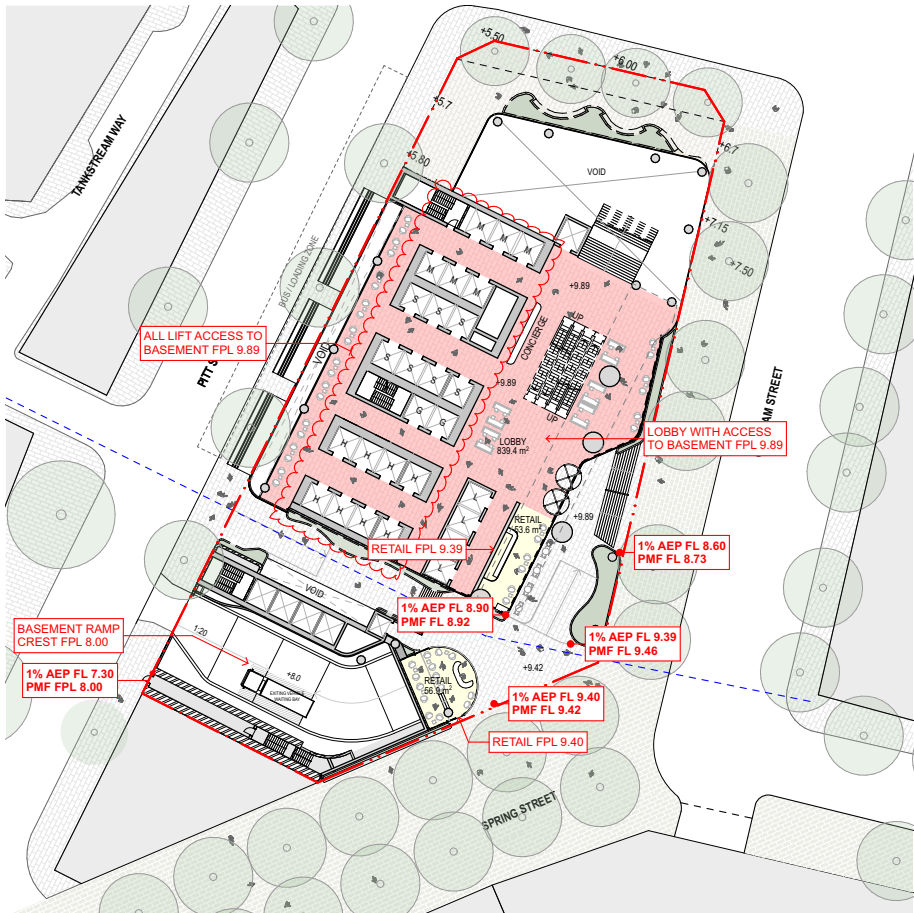


Figure 6: PMF Event – Peak Flood Depth & Level Contours (Existing Scenario)



Lower Ground Floor Flood Planning Levels



Upper Ground Floor Flood Planning Levels

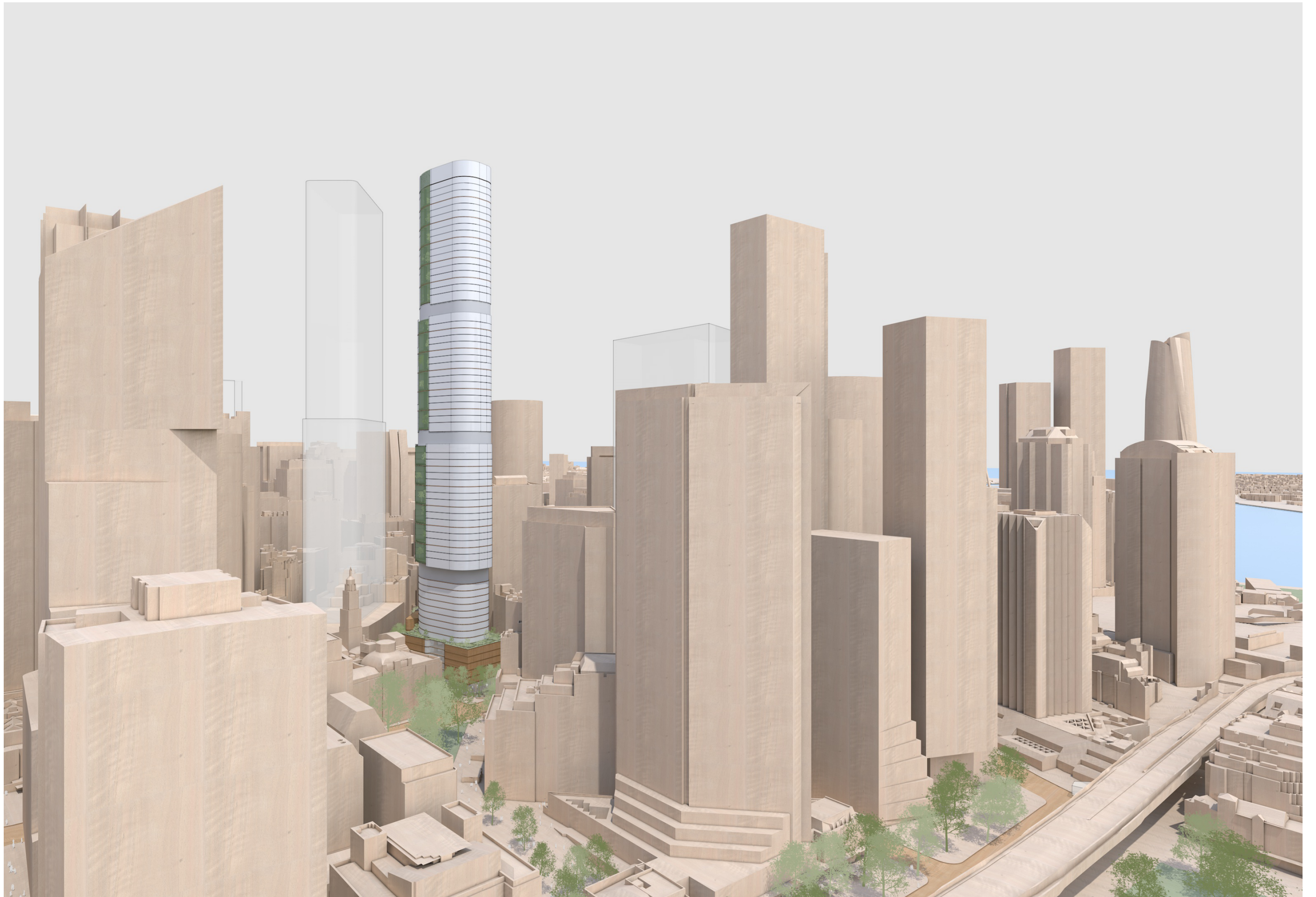
Analysis

The following section of the report considers the potential impacts of the proposal

Analysis studies include:

- CSPA Envelope development process
- Podium and Tower setbacks
- Contextual fit of tower
- Tower height and Skyline Analysis
- Design Advisory Panel comments and responses
- Bulk and Scale
- City of Sydney comments and responses
- Analysis of floorplates
- Articulation study
- Daylight access (Sky View Factor)
- Wind comfort
- Overshadowing
- No additional overshadowing
- Solar access (residential impact)

Sustainability will be at the core of any future development with a focus on a low carbon and a healthy environment which is attractive to the potential tenants and workers of an advanced workplace building in a global CBD location.



Aerial view from North East

Schedule 12 Envelope process

The proposed envelope has been developed with consideration of the adopted December 2020 Schedule 12 as forms part of the Sydney DCP 2012 – Central Sydney Planning Review Amendment.

Schedule 12 sets out procedures for demonstrating compliance with variation provisions for street frontage height and setbacks, side and rear setbacks, building separations and tapering controls in Central Sydney as follows:

Minimum Street Frontage Height and Street Setbacks

Section 5.1.1.1

(1) The Street Frontage Height and Street Setbacks of a building must be in accordance with Table 5.1 – Permissible range of Street Frontage Heights and Table 5.2 Minimum Street Setbacks, except for buildings in Special Character Areas that must be in accordance with the Minimum Street Frontage Heights for Special Character Areas in Table 5.3, and the Minimum Street Setbacks and Maximum Street Frontage Heights as shown in the Special Character Area maps at Figures 5.3 to 5.15 in Section 5.1.1.2.

(3) Where noted in Table 5.2 Minimum Street Setbacks and on the Special Character Area maps, variation to Street Setbacks may be permitted to building massing that provides:

(a) encroachment(s) 2m forward of the minimum Street Setback within the middle third of the frontage to a Public Place and provision of compensating recess(es) of equal to or greater area up to 4m behind the minimum Street Setback; or

(b) equivalent or improved wind comfort, wind safety and daylight levels in adjacent Public Places relative to a base case building massing with complying Street Frontage Heights and Street Setbacks (i.e. variation to massing is governed by achieving equal or better performance).

Procedures for demonstrating compliance with 5.1.1.1(3)(a) and (b) are set out in Schedule 12.

Side and Rear Setbacks and Building Form Separations

Section 5.1.1.3

(5) Variation to Side and Rear Setbacks and Building Form Separations may be permitted to building massing that provides equivalent or improved wind comfort, wind safety and daylight levels in adjacent Public Places relative to a base case building massing with complying Side and Rear Setbacks (i.e. variation to massing is governed by achieving equal or better performance).

Procedures for demonstrating compliance with 5.1.1.3(4) are set out in Schedule 12.

Note: Building massing includes all building elements at all levels. For example fins, external sun shading devices, architectural features, screens, signs, awnings etc

Built form massing, tapering and maximum dimensions

Section 5.1.1.4

(3) Above the Street Frontage Height the total Building Envelope Area may occupy the following proportion of the site area less any areas of heritage items and required DCP setbacks:

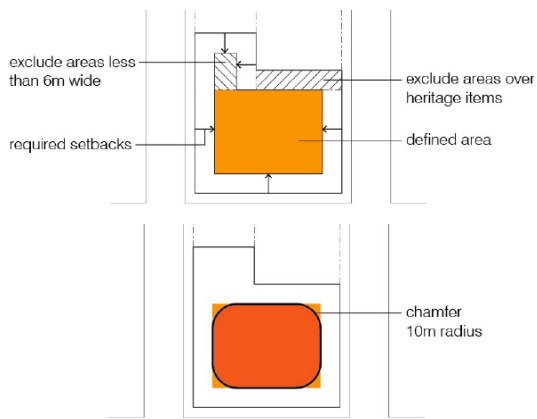
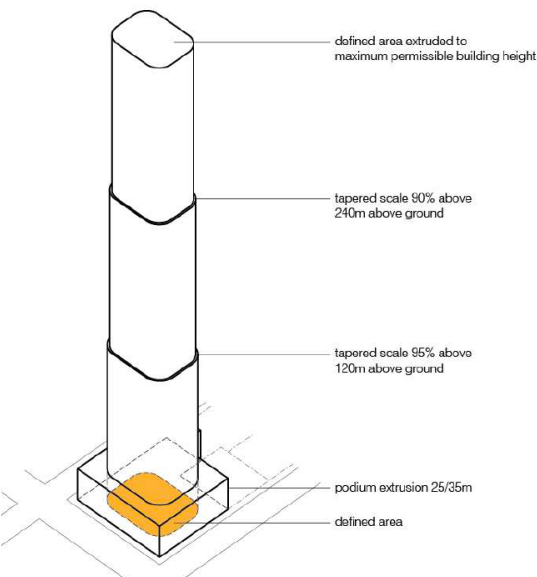
- (a) 100% up to 120m above ground;
- (b) 90% above 120m up to 240m above ground; and
- (c) 80% above 240m above ground.

It is noted that the Schedule 12 Street Frontage Heights are based on the December 2020 of Attachment D3 - DCP, Figure 5.3, Bridge Street Special Character Area ie: a maximum of 25m to Bridge Street and a maximum of 45m to the southern portion of the site.

Given the proposal to heritage list 62 Pitt Street, the tower component of the Schedule 12 envelope adopts a whole of block approach. This sees the Pitt Street and Spring Street set back lines extended to join, with a 20 sqm reduction taken to generate a 3.66m radius at the southern edge of the tower envelope. This is illustrate on the attached plans.

This approach is consistent to that adopted in the draft submission from May 2020 and all subsequent presentations to the City of Sydney, including material as prepared for the Design Advisory Panel (DAP) dated 08 April 2021.

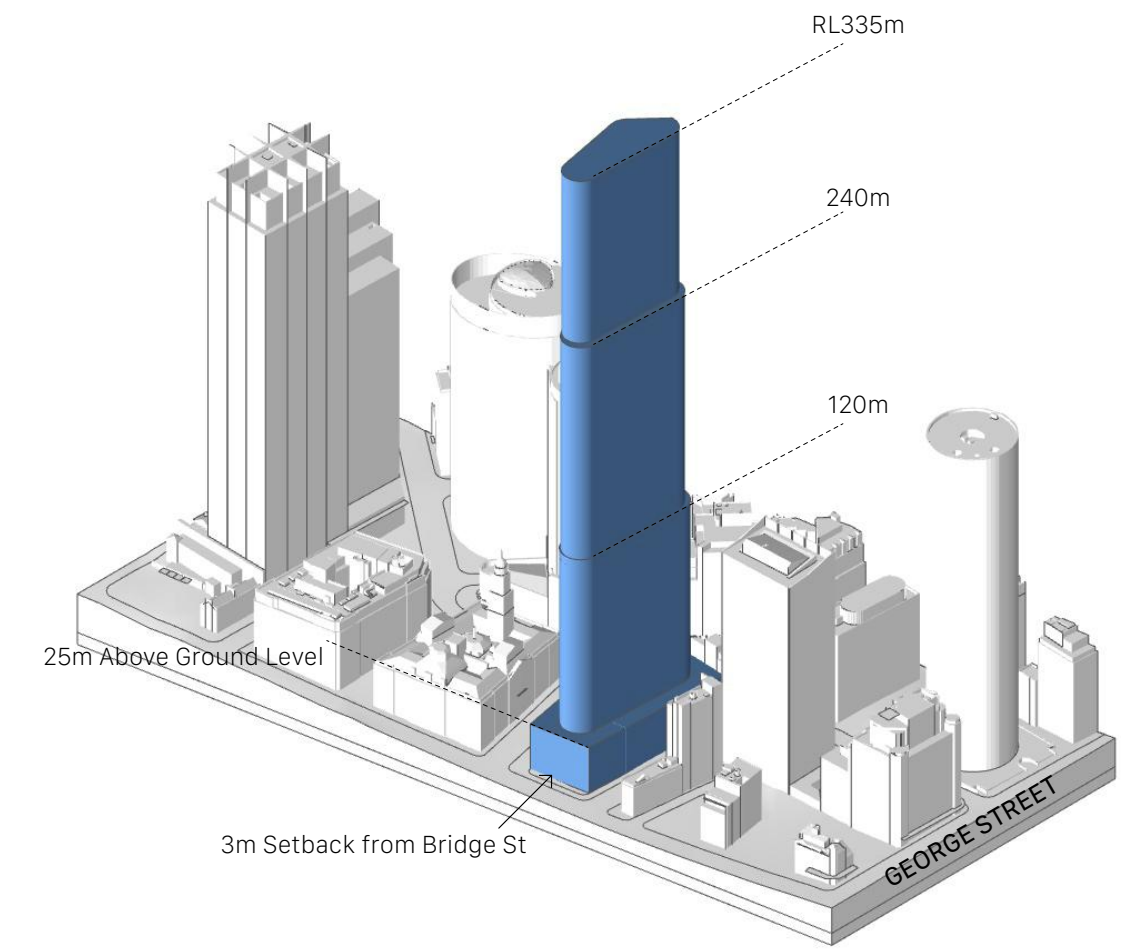
The proposed envelope has been developed to deliver Equivalent or improved wind comfort and wind safety and daylight levels in adjacent Public Places in accordance with the procedure B requirements of the Draft December 2020 Schedule 12. Studies demonstrate that the proposed envelope improves the average Sky View Factor (SVF) in the surrounding public domain within the study area when compared with the base case. Additionally wind conditions are demonstrated to be in accordance with the requirements of Procedure B. Further detail is include in subsequent section of this report and additional specialist reports and included in the submission.



Schedule 12

DCP Established Schedule 12 Base Case massing

Podium component		Tower component	
Street frontage Height	25m	Tower Height:	328.43m
Pitt St setback	0m	Pitt & Bridge St setbacks	8m
Bridge St pedestrian setback	3m	Gresham and Spring St setback	8m
Bridge St podium setback	0m	Pitt/Spring St nominal setback	28.873m
Gresham & Spring St Setback	0m		



Axonometric view - Established Schedule 11 base case massing

- Pros:
- Contiguous tower floorplate
- Con:
- Floorplate cannot achieve PCA Premium Grade area requirements.
 - Floor plate lacks depth (east / west) as required to accommodate core and vertical transportation to service a tower of circa 300m height.
 - The envelope does not accommodate sufficient GFA to justify the structural and vertical transportation requirements as associated with a tower of circa 300m height.
 - Flat podium height do not provide a good contextual response to Bridge Street.



Schedule 12

Daylight access Methodology Analysis (Sky view Factor)

The following analysis compares the impact on natural light levels in the public domain surrounding the site as a result of the proposed envelope against a base case as per CSPS Schedule 12.

It follows the natural daylight analysis procedure set out in Procedure B, Schedule 12 of the Sydney DCP 2012 - Central Sydney Planning Review Amendment.

Methodology

This study identifies the potential impact of proposed massing options on daylight levels over a 1m grid along surrounding public places to a nominated distance from the development site.

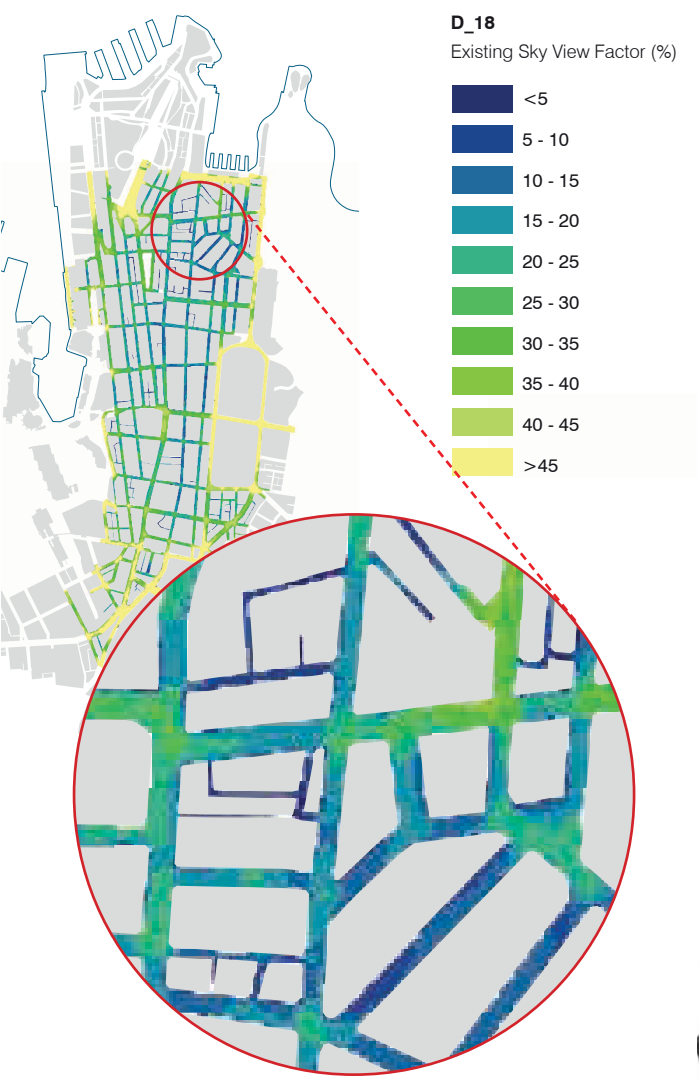
A 1m grid is proposed to a distance of 310m from the development site (approx maximum height of proposed building).

Measures of daylight levels are established for a base case (schedule 12). These are expressed as a percentage. The average of these measures is expressed as a percentage.

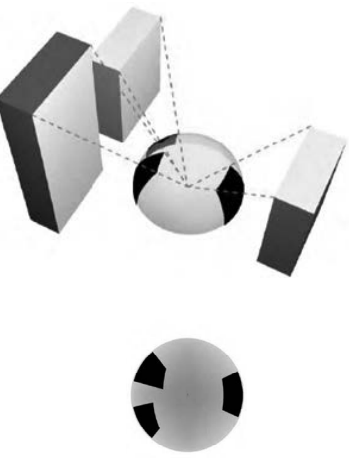
Measures of daylight levels are established for a test massing (proposed envelope). These are expressed as a percentage. The average of these measures is expressed as a percentage.

Measures of the difference between daylight levels are established for the base case versus the test massing. The difference at any point is also expressed as a percentage, and the average of these measures is expressed as a percentage.

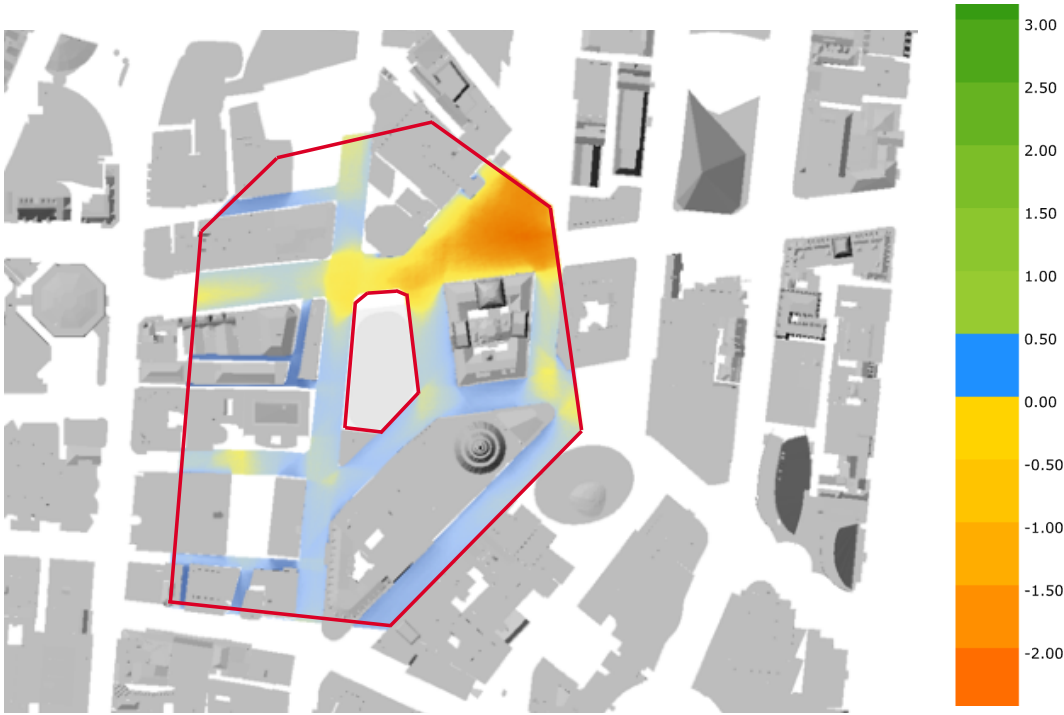
The intent of the study is for the test massing average daylight percentage (Sky View Factor) compared to the base case Sky view Factor, to be a positive number.



Existing Sky View Factor (%) map



Extract from DCP Schedule 11 - Figure 1.11



Testing of Existing Sky View Factor (%) - Schedule 11

Envelope vs Schedule 12 Procedure B Base case massing

Daylight analysis:

The proposal provides an improved daylight result compared to the base case

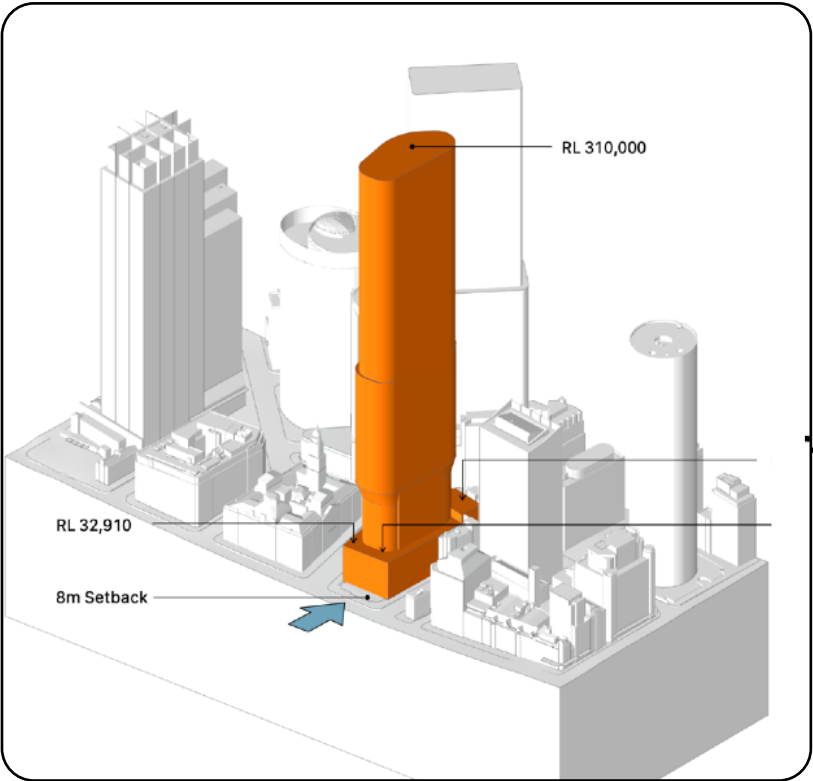
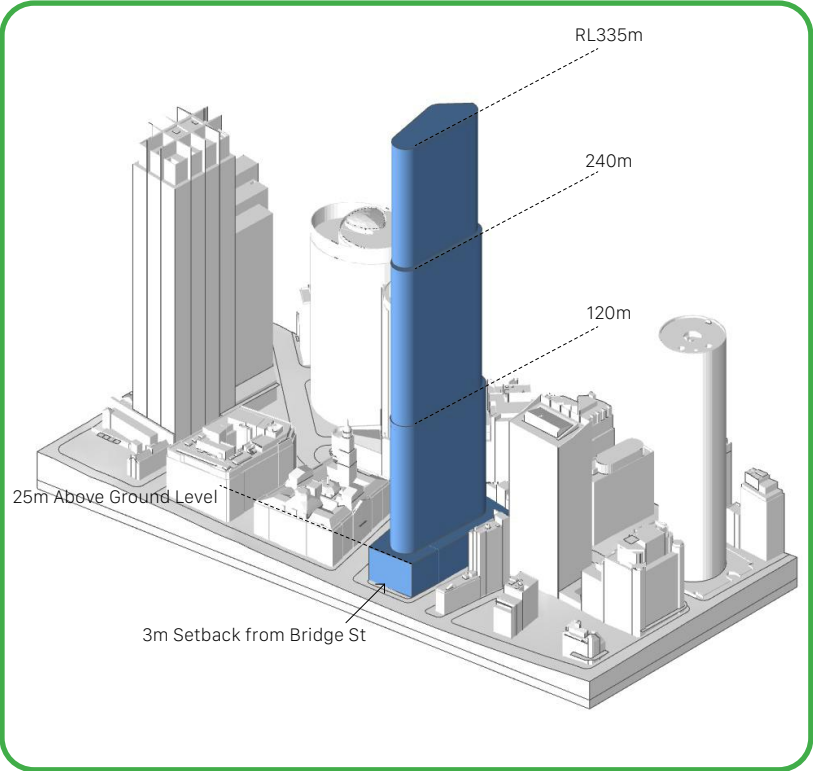
Analysis comparison to Schedule 12 Procedure B massing resulted in a net increase in sky view, over a 100m radius from the subject site.

Refer to skyview analysis later in analysis section for comparison and commentary on test results.

Sky view analysis

Sky view analysis has been completed for Schedule 12 and proposed envelope. There is comparative pass result of 0.00426 (0.02539%)

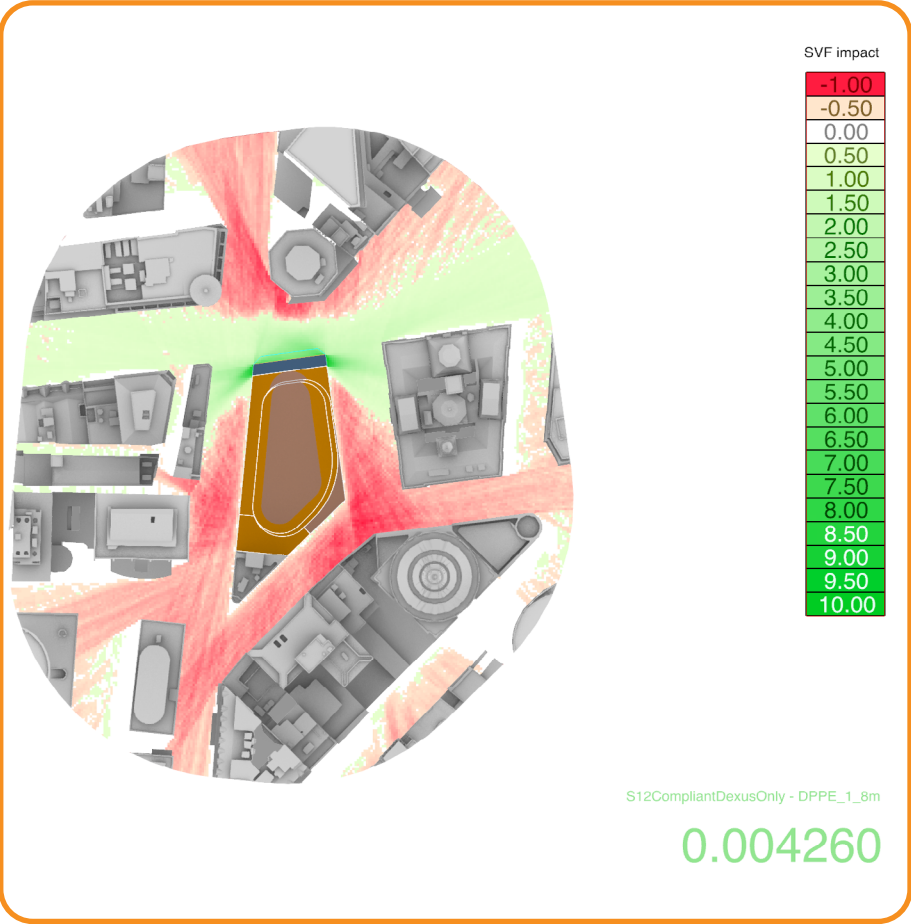
*A copy of fjcstudio's base case and proposed massing model were issued to CoS in 2023 and review by CoS technical team who confirmed the methodology and results were valid.



SVF Average	
average base case envelope sky view factor	16.767183
average challenge envelope sky view factor	16.771442
average SVF difference	0.00426

SVF Comparison

Sky view analysis has been completed for Schedule 12 and proposed envelope. There is comparative pass result of 0.00426 (0.02539%)



Average SVF Difference: 0.00426
0.02539%
Result: PASS

Wind Analysis
Wind comfort levels

The following analysis compares the impact on wind comfort levels in the public domain surrounding the site as a result of the proposed envelope against the base case as per Schedule 12.

It follows the wind comfort analysis procedure set out in Procedure B, Schedule 12 of the Sydney DCP 2012 - Central Sydney Planning Review Amendment.

Methodology

A wind tunnel study of the proposed Pitt and Bridge development was conducted by MEL Consultants to assess the pedestrian wind environment in and around the development site.

A wind tunnel massing study was completed on the reference scheme massing.

Refer to the Building Massing Study Environmental Wind Conditions on a wind tunnel model Test Report for further details.



Existing Wind environment comfort levels map



Wind tunnel testing

Wind Analysis

The Proposed Envelope was shown to achieve equivalency or better than the Base Case Envelope.

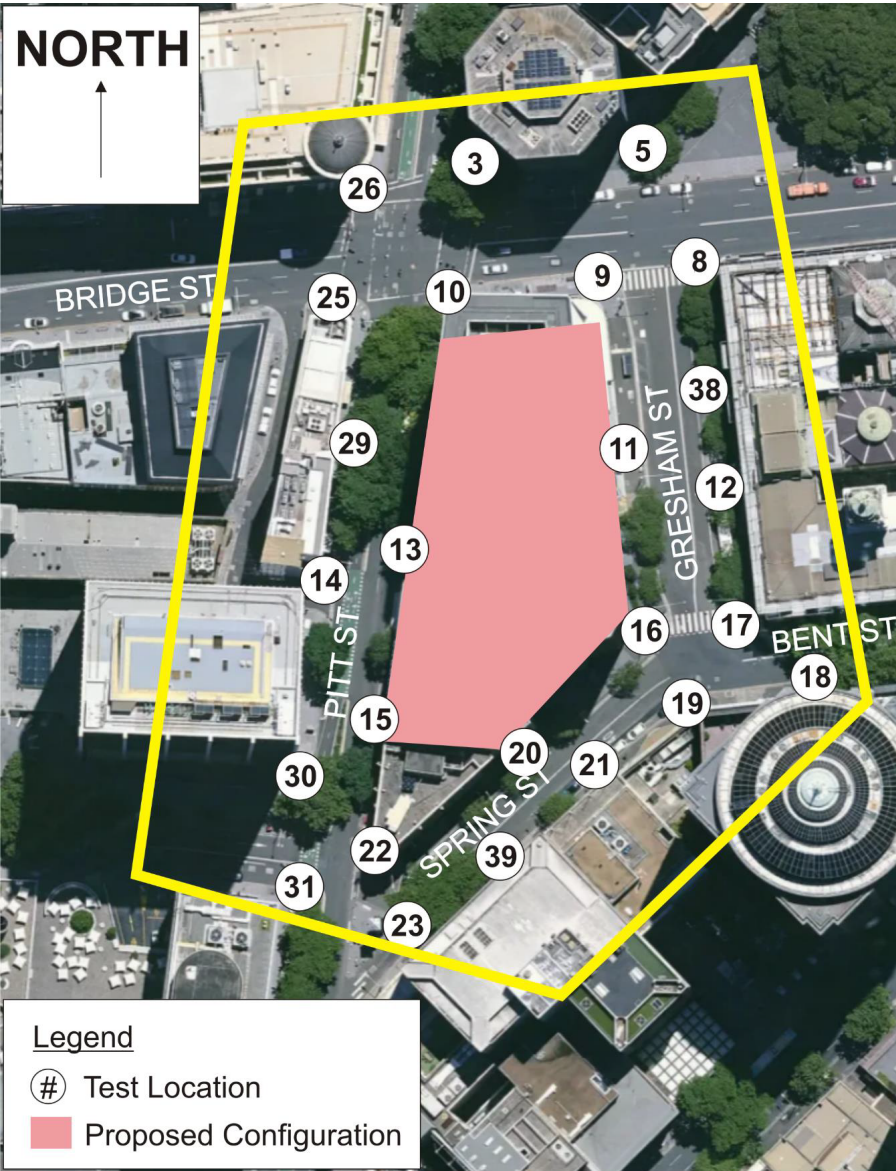
Text from MEL report

A wind tunnel study has been conducted on a 1/400 scale model of the proposed 56 Pitt Street Development, in Sydney, to determine the likely environmental wind impacts of the development. The wind conditions have been assessed using the pedestrian wind criteria defined in the Sydney Development Control Plan (2012).

For the equivalency assessment, the wind tunnel testing quantified the wind conditions for the Proposed Planning Envelope (Proposed Configuration) and compared the results against the Base Case and Existing Configurations. The Proposed Configuration was shown to achieve equivalency or better based on the average mean wind speed across all the Test Locations tested compared to the Base Case Configuration.

In addition to the Equivalency Study, measurements were also made with a focus on the future Bridge Street Plaza that would be located along the Bridge Street frontage of the proposed future development. The wind conditions for the Proposed Configuration within the future Bridge Street Plaza have been shown to satisfy the standing comfort criterion as a minimum and pass the safety standard with some locations away from the building corners satisfying the sitting comfort criterion. The average mean wind speed achieved for the Proposed Configuration within the future Bridge Street Plaza represents a minor exceedance of the sitting criterion at 4.3ms⁻¹ compared to the criterion of 4.0ms⁻¹. This space would be expected to achieve the sitting comfort criterion during the design development stage through a combination of additional wind mitigation strategies including podium facade design and landscape architectural elements within the plaza area.

The wind conditions for all Configurations tested and at all Test Locations were shown to pass the safety criterion.



Test locations



View from the East of base case - wind tunnel



View from the North of proposed envelope - wind tunnel

Podium to Tower Transition Zone

The heights and setbacks to the podium envelope have been developed with careful consideration of context.

The main body of the podium has been set back 8m along Bridge Street to open up vista to the historical sandstone buildings, in particular the adjacent Lands Department Building (1876-1892) from the lower portion of Bridge Street. Setting the podium back allows these existing heritage buildings to have greater visual prominence along the street whilst creating the opportunity for improved streetscape conditions to activate the built edges with integrated landscape, gathering and First Nation contemplation spaces.

The height of the podium (RL 32.91) aligns with the primary horizontal datum of the adjacent Lands Department Building. Given the significance of the Gresham Street interface this is deemed the key vertical alignment. The southern part of the podium aligns with the adjacent heritage building on 62 Pitt St at RL39.50. The stepped podium heights has been developed with careful consideration of its context.

The envelope set back between the podium and the tower allows the podium and tower to be visually separated. The base of the tower envelope is splayed along the northern, eastern and southern edge to assist with wind management and to provide additional visual separation to the Lands Department Building on the opposing side of Gresham Street.

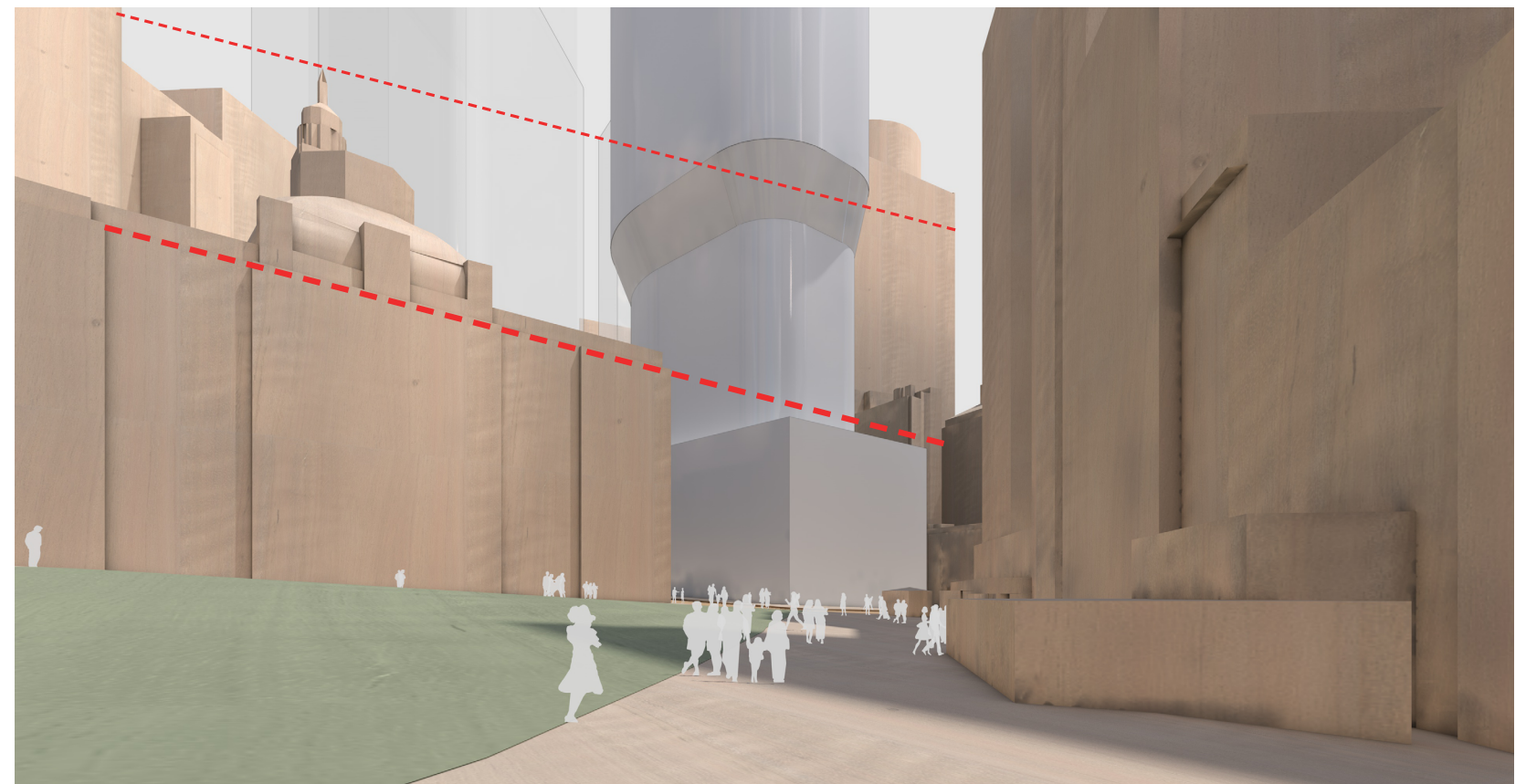
The envelope creates an opportunity to incorporate a through site link from Pitt Street to Gresham Street between the stepped podium forms, improving permeability of the site.

The indented portion of the envelope (between podium and tower) has been scaled such that it relates to the existing urban context. The indent typically terminates at RL66.75 but extends higher along to terminate at RL76.75. This separation zone relates to the upper datum as established by the adjacent heritage buildings as is visible on the north envelope street elevation drawings.

The remaining podium frontages, ie: Pitt Street, Gresham Street and Spring Street adopt nil setback which is consistent with the current and anticipated street edge conditions.



Envelope Render of Pitt St

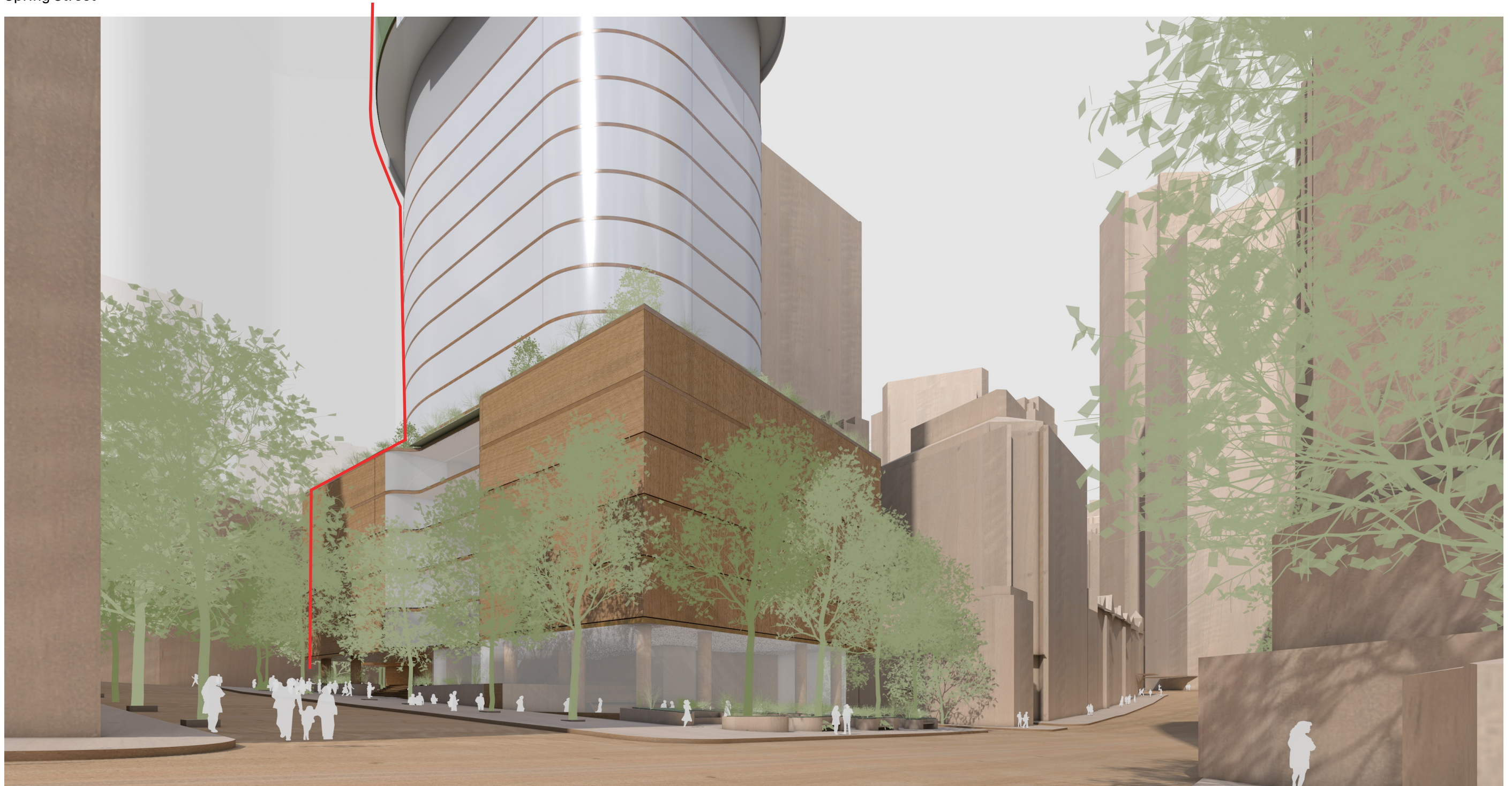


Envelope Render from Macquarie Place Park

Urban Form and Public Space: tower and podium relationship - (indent / relief)

Opportunity for tower envelope to indent at a datum that responds to the adjacent clock tower (assuming a western core position)

Indent lessens cumulative visual impact from street level when considered together with potential future tower to south of Spring Street



Elevated view looking from north east towards site



Aerial view from North



Aerial View from North East



Harbour View

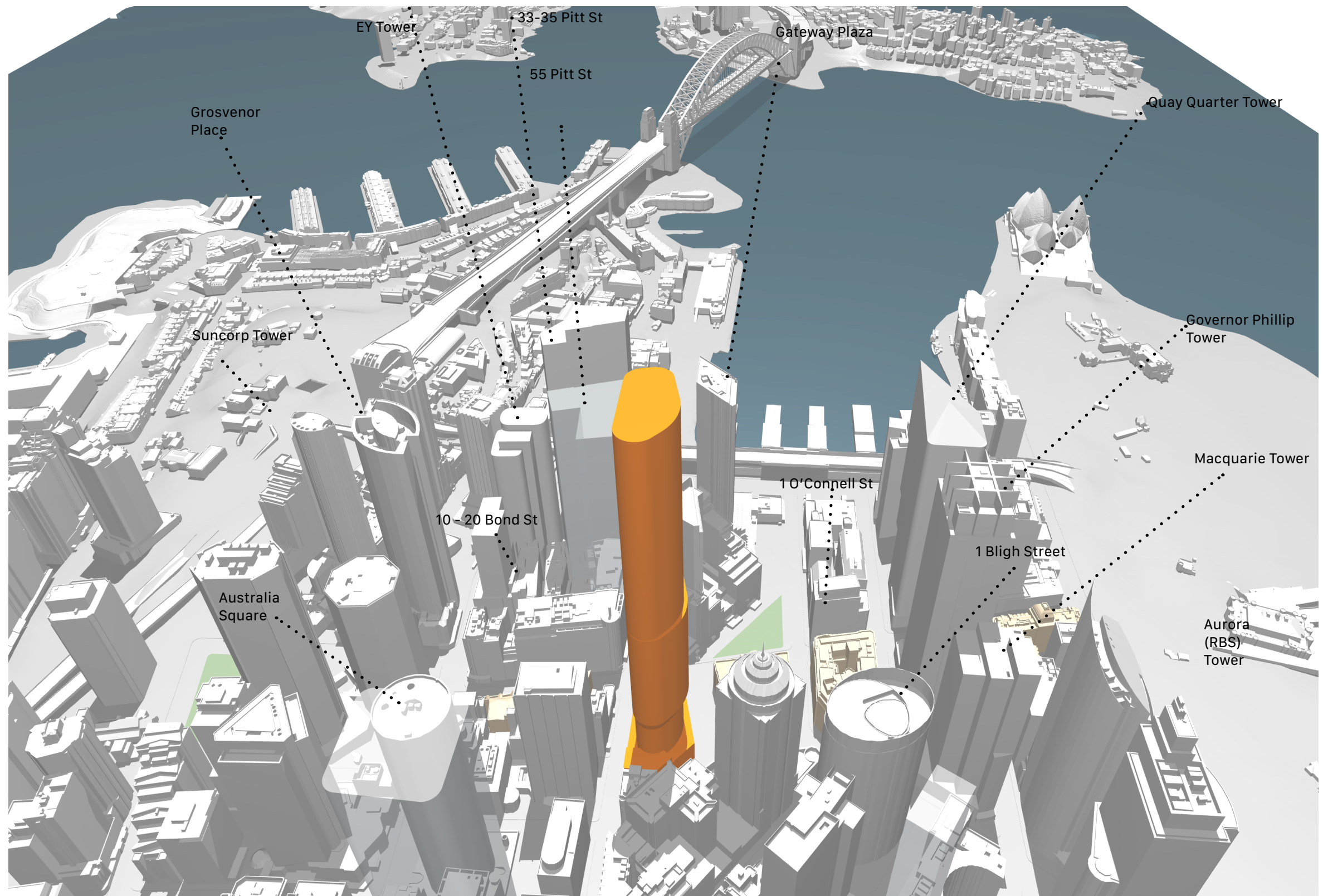
Aerial view from South

Tower Separation

Tower

The following illustrates the proximity of the proposed tower envelope to the surrounding existing and proposed towers.

The tower meets the 6m tower separation as described in the DCP. Due to the wide streets that border the site, there is adequate tower separation to all sides, to deliver a 'tower in the round'. The rear commercial site of 62 Pitt Street is not suited to a future tower development.



Proposed envelope in context showing separation to existing and proposed towers.

Tower Form

The proposed envelope tower is formed from parallel offset setbacks from Bridge Street, Gresham Street, Spring Street and Pitt Street. The corners of the envelope are rounded to mitigate appearance of tower bulk and scale and assist with wind effects.

The resulting floorplate steps in between the medium and high/sky rises reaching a height of RL 310m.

The north/south orientation of the resulting tower form is wider which is typical of the buildings to the eastern end of the city (as seen in visual assessment images to the right). The tower has a ridge formed by the corner of Gresham Street and Spring Street which serves as a future point for tower articulation, and reading of the tower as potential northern and southern subforms.

The east/west orientation of the tower form is, on the other hand, narrow, and allows the tower to have a decreased perception of building bulk, with adequate separation to other buildings. As new tall towers are similarly developed within the skyline of the central core, this slenderness will allow light and air to penetrate to Martin Place and other areas of the city.

Slenderness of the towers have been compared to other towers in Sydney and proposed towers in the towers cluster zone (see analysis). Pitt and Bridge compares favourably to other towers of similar scale and height.

From the Visual Impact Assessment report (Ethos Urban):

The proposal through its adequate building separation, street setbacks and rounded corners will be compatible with the overall visual characteristics of Central Sydney. Together with other approved buildings within the future tower cluster context, will contribute to the positive development and evolution of the Central Sydney skyline.



Photomontage looking north along Pitt Street with proposed tower form



Photo-montage from Opera House Steps with proposed tower form and future towers



Photomontage looking west along Bridge Street with proposed tower form



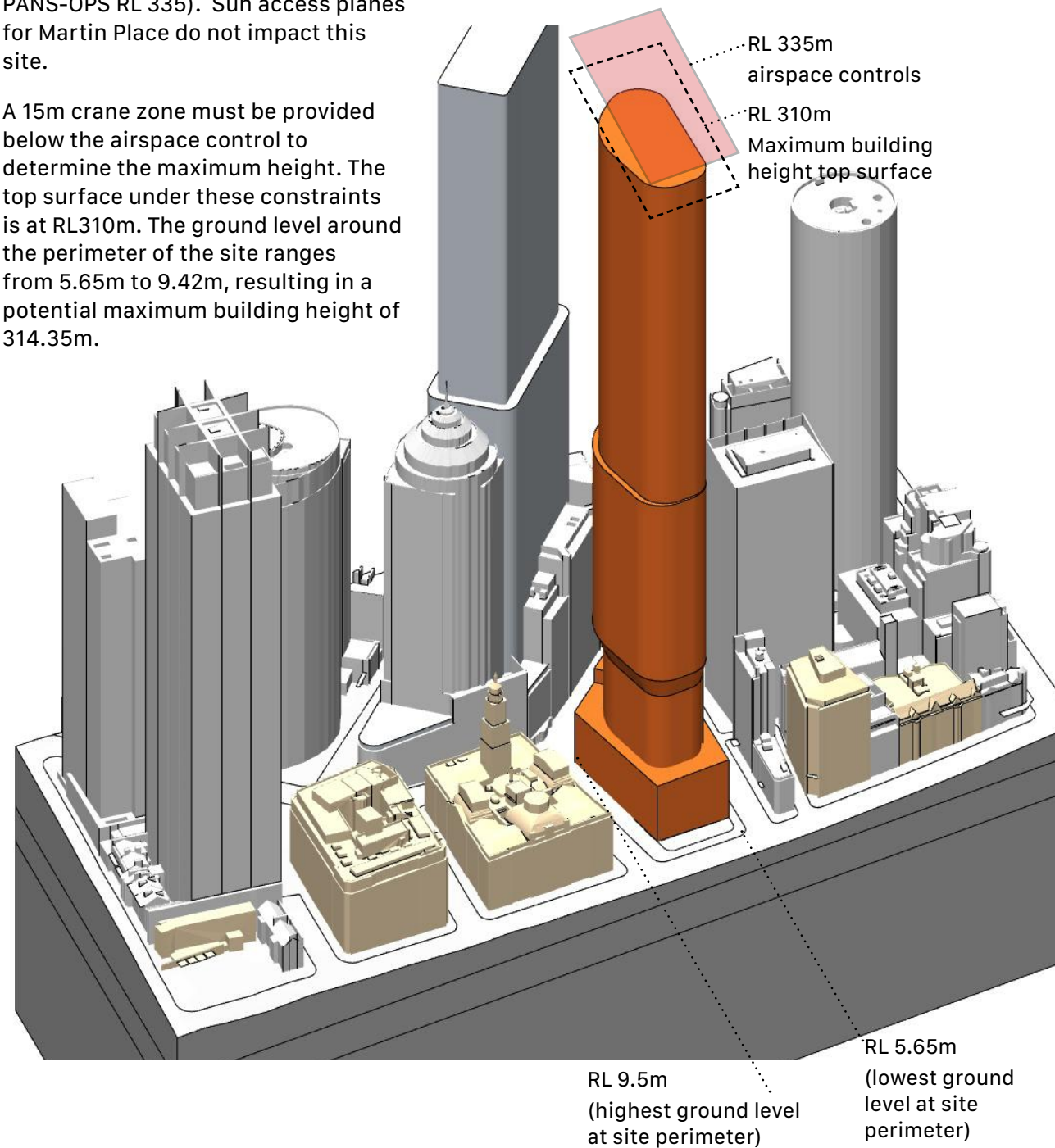
Photomontage looking north along Pitt Street with proposed tower form

Contextual fit of tower

Tower Height

Under the Central Sydney Planning Strategy the maximum building height for this site is limited by airspace controls. (Sydney Airport draft 2018 PANS-OPS RL 335). Sun access planes for Martin Place do not impact this site.

A 15m crane zone must be provided below the airspace control to determine the maximum height. The top surface under these constraints is at RL310m. The ground level around the perimeter of the site ranges from 5.65m to 9.42m, resulting in a potential maximum building height of 314.35m.

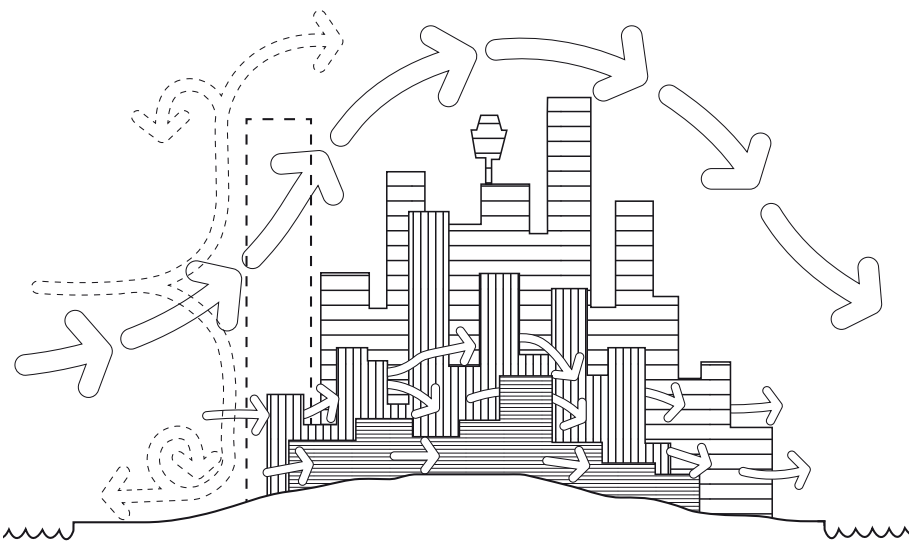


Skyline analysis

Urban planning in Sydney has considered that building heights within central Sydney should generally confirm to an established outline, or curve.

As planning controls and technology has allowed for increased height of buildings particularly in the central core, there has been a trend towards a bell curve skyline.

The subject site of Pitt and Bridge, is an ideal location to introduce increased heights of 300m+ in the central core while still aligning with the intent of the skyline curve.



Extract from CSPS Height of Buildings Study
(Principle diagram of bell shaped city from 1988 - wind light views)



Extract from CSPS Height of Buildings Study
(1971 Height diagrams)

Tower Height and Skyline analysis

Urban Stratum

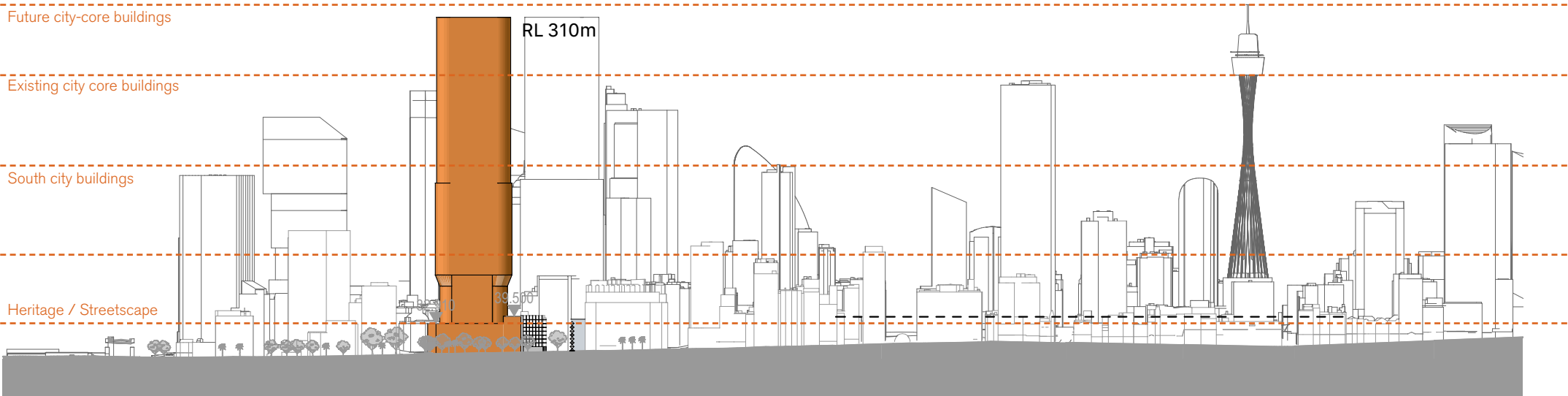
Tower development in the city over time has resulted in a series of steps or strata as planning controls and technology have evolved.

An individual tower form can respond to these in order to provide articulation to a large otherwise unbroken form.

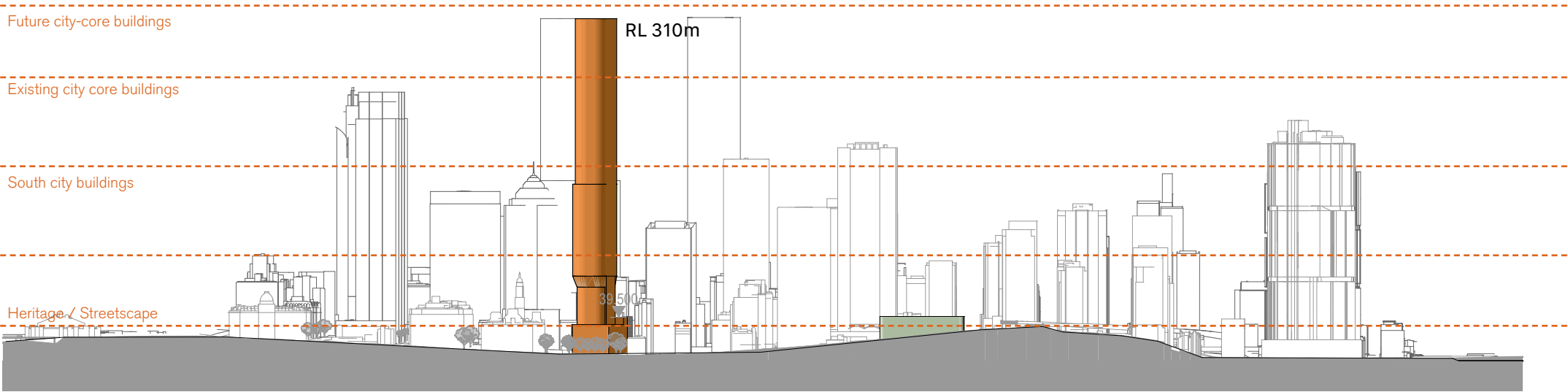
The proposed building envelope is broken up into 3 key elements: podium, low-rise and high-rise reflecting the existing stratification of buildings in the precinct.

The articulation at the interface levels of tower elements can contain sky lobbies, green spaces, transfer lobbies or shared facilities and roof terraces.

The proposed envelope allows for a next generation workplace tower. The form permits multiple commercial opportunities within a vertical arrangement, each with their own identity in the same way that a horizontally arranged series of buildings would share a city street.



City section through Pitt Street looking east



City section through Bridge Street looking south

Local Benchmarking

Following the CSPA controls on height, Pitt and Bridge's height is 310m. Its width and length have been derived externally from SVF analysis and mitigating bulk and mass from the streetscape.

Although the height is more in line with surrounding tower cluster dimensions and controls, Pitt and Bridge compares well in term of slenderness ratio to existing Sydney towers.

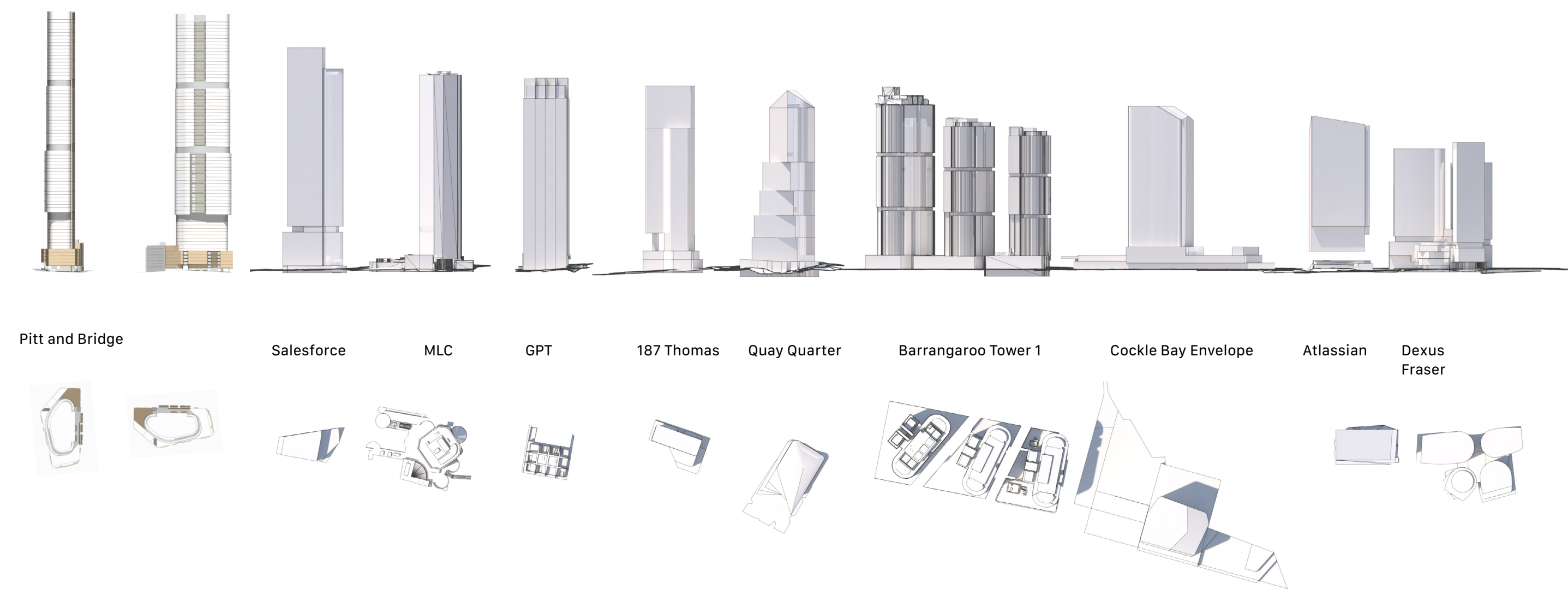
The width slender ratio of 8.7 would make Pitt and Bridge the slimmest of the towers compared with.

The length slender ratio of 4.4 is similar to GPT, and better than Quay Quarter, Barrangaroo, Cockle Bay and the Western Gateway towers.

The slender width provides the ability to produce quality design excellence due to the ratio - outstanding in comparison to existing envelope examples. Furthermore the 10% articulation zone allows for further flexibility while still maintaining the slender form in the design excellence stage.

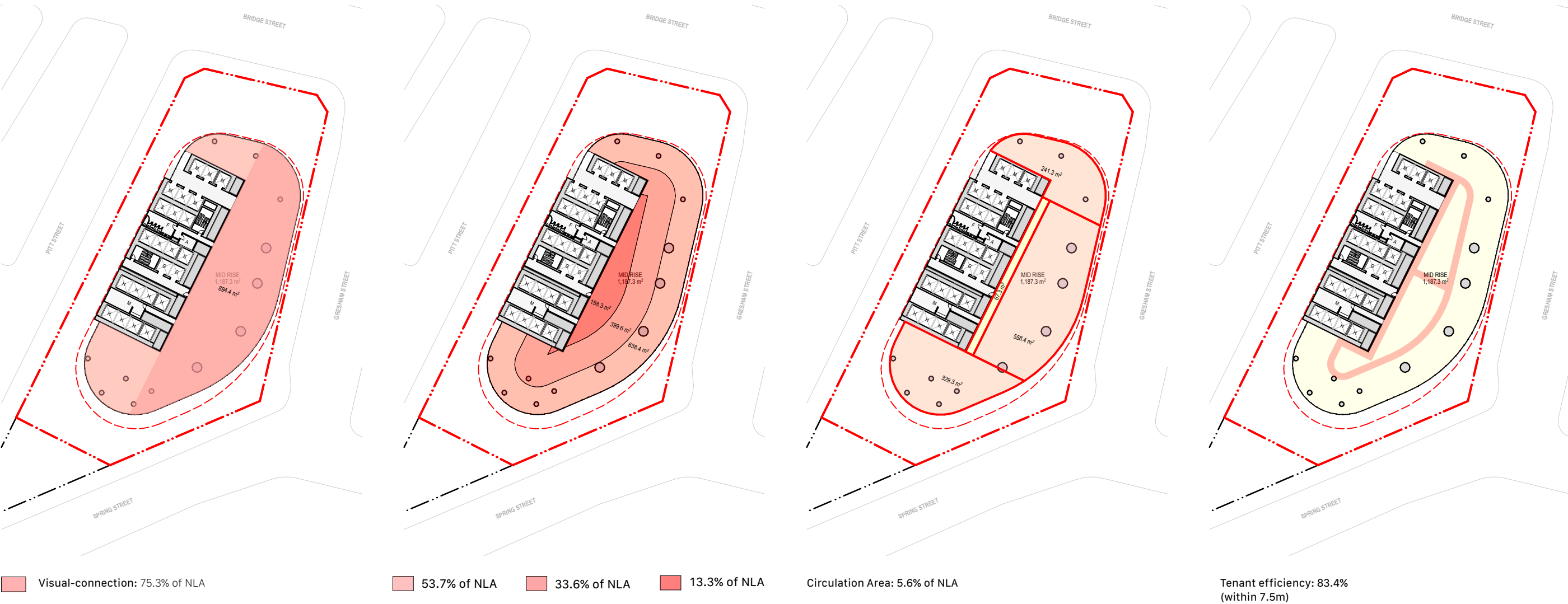
Slender Ratio comparisons

	Height	Width	Length		
Pitt and Bridge	310	35	8.7	69	4.4
Sales Force	263	33	8.0	68	3.9
MLC	228	45	5.1	45	5.1
GPT	227	37	6.1	53	4.3
187 Thomas St	227	32	7.1	55	4.1
Quay Quarter	216	41	5.3	76	2.8
Barrangaroo	217	43	5.0	85	2.6
Cockle Bay	183	54	3.4	63	2.9
Atlassian	180	38	4.7	69	2.6
Central Frasers	155	44	3.5	77	2.0



Analysis of floor plates

The reference scheme floorplate with the western perimeter core protects the floorplate from high solar loads on the West while preserving northerly and easterly views. The following diagrams show the floorplates visual connectivity, daylight, sub-divisibility and efficiency.



Floorspace efficiency study

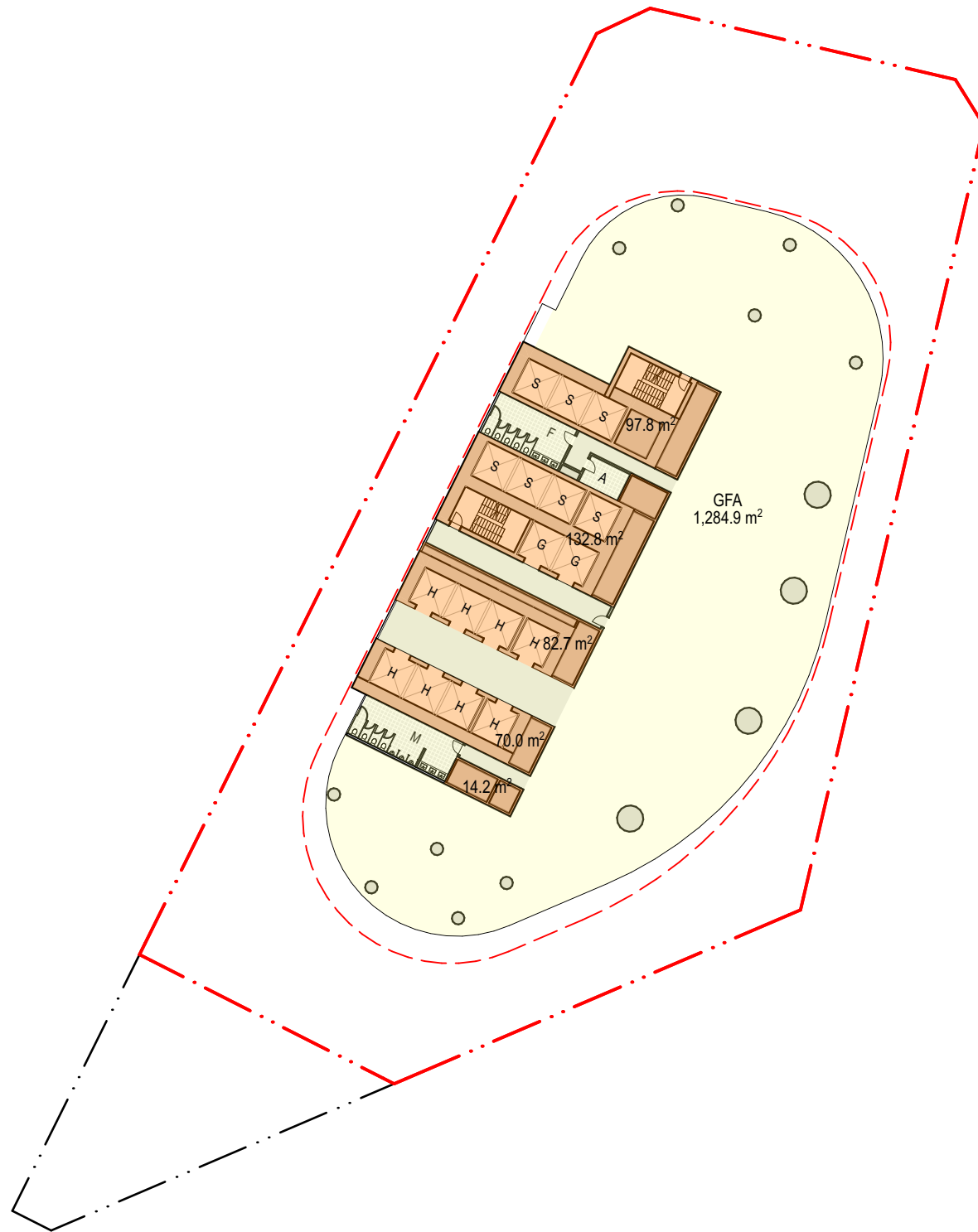
Indicative GFA/GBA Efficiency (noting GBA above ground)

90,000sqm / 128,267 sqm = 70%

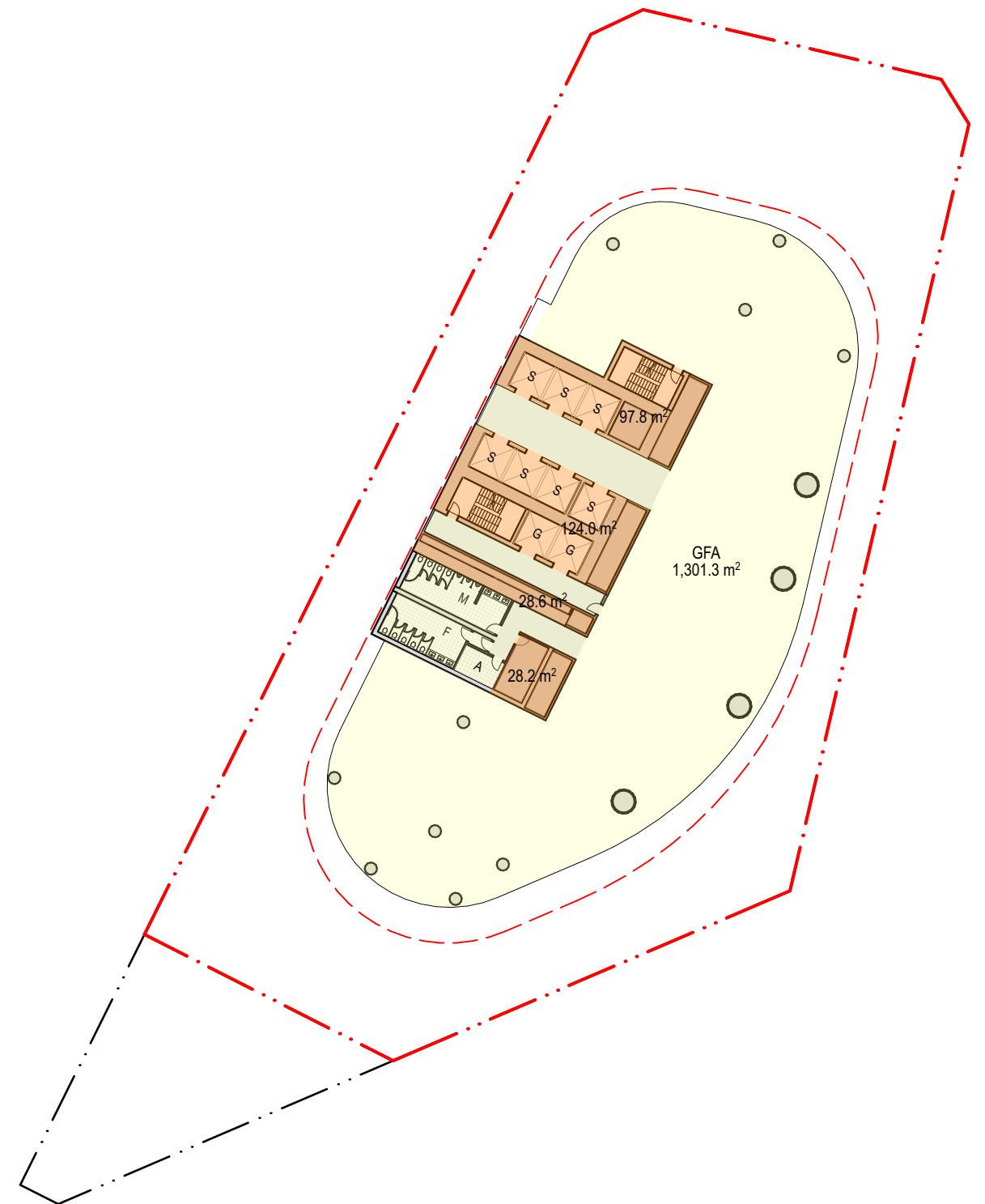
Core Area



Mid Rise Commercial Floor Plan
GBA = 1849.3 m2
GFA = 1698 m2
Core = 483.3 m2
Core 483.3 / GBA 1849.3 = 26.13%



High Rise Commercial Floor Plan
 GBA = 1692.6 m²
 GFA = 1284.9 m²
 Core = 397.5 m²
 Core 397.5 m² / GBA 1692.6 = 23.48%



Sky Rise Commercial Floor Plan
 GBA = 1595.5 m²
 GFA = 1301.3 m²
 Core = 278.6 m²
 Core 278.6 / GBA 1595.5 = 17.46%

Articulation study

Overview

The guideline for site specific planning proposals in Central Sydney defines a minimum proportion for architectural articulation for buildings 280m at 16%. The envelope has been defined to this requirement and allows flexibility for a future competitive design process. The reference design includes significant recesses vertically and horizontally. Major building setbacks are proposed at level 14, level 33 and level 51. A significant green spine allows winter-garden spaces at each level and provide further articulation. Increased floor to floor heights at ground, level 2, 3 and major tower indent visually break up the facade and allow for additional flexibility in the envelope.

Tower Setbacks

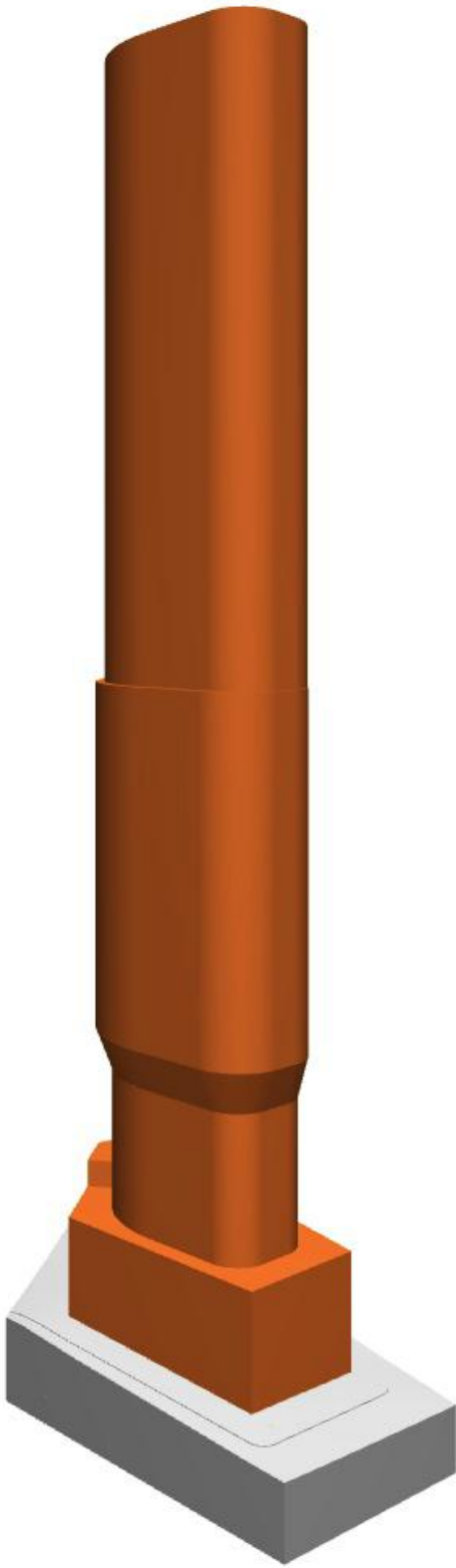
The increased tower setbacks (beyond base case) and the significant core required to service a 300m+ building efficiently mean that a complex vertical lifting strategy is required and therefore takes up GFA / GBA. At 10% articulation, the current tower floor plate average is 1,100sqm NLA. Floor plates between low-rise and high-rise range between 890sqm - 1,100sqm NLA, which are already well below the industry standard of PCA Premium Grade of 1,500sqm floor plate NLA. Applying an articulation beyond 10% will result in tangible impact to the floor plates viability.

Tower form

The slenderness of the tower (utilising local benchmarking on previous pages) results in an extremely shallow east-west dimension for a floor plate and stifles meaningful opportunity to provide workable floor plates for office development. The site's proportions together with the preferred tower / podium articulation make it difficult to design a core more efficiently or locate it in a more efficient location. Greater articulation may be achievable on other sites which are more regular, such as the Metro OSD sites. This site however, is constrained by its proportions and reduced east-west depth.

Return to office

There is a strong 'flight to quality' movement within the Sydney CBD, with businesses using state-of-the-art office designs to encourage staff back into the office, this is supported by recent office market data that demonstrates why newer and more premium grade buildings have a higher chance of attracting tenants. Larger, flexible floor plates are critical to this. Pitt & Bridge needs to be able to deliver a product that enables future customers to have flexible tenancy fit outs - enabling a greater proportion of collaboration spaces - that can respond to changing needs throughout the term of a lease.



Envelope Volume: 601,217 m3



Reference design Volume: 540,277 m3



Reference design / envelope overlay

≥10% articulation zone

Tower neck articulation

The low-rise 'neck' of the tower makes a genuine contribution to, and sculpting of, the built form. There should therefore be some credit for this, as the low-rise form will generate a unique built form in the CBD, opening up the lower levels of the tower immediately above the podium. It genuinely contributes to 'articulation' in the broader sense, and has the added benefit of aiding in wind mitigation. Similarly, the height of the tower at 300m+ allows future Competitors a larger canvas for creativity where articulation would be better represented in its overall form than that of a smaller building that achieves a larger % of area dedicated to articulation.

Future Design Excellence

There is ample room for competing architects to explore building form in the competition with 10% articulation. Given the site's constraints, it is not anticipated that fundamental changes to the overall tower form (with its current curved formation) will occur during the design excellence process. For example, it is considered unlikely that more rectilinear forms or fundamentally different core strategies will be adopted. As such, the 10% is anticipated to be used at the medium to detailed articulation of the tower form. The articulation allowance will still ensure that competitors can deliver a range of design proposals during a future design excellence process





View over Sydney Harbour Indicative tower design in context

Overshadowing and Solar Access

The proposed envelope has been developed to ensure No Additional Overshadowing to the relevant public places, or breach of Sun access Planes as outlined under the CSPS.

Sun access

The sun access plane for;

Martin Place - Does not project above the site in a way that restricts the building height.

No additional overshadowing

The public places and times identified within the subject site's proximity that could potentially be impacted upon include;

- Australia Square
- Chifley Square
- Martin Place (Between Pitt and George St)
- Pitt St Mall (Beyond the shadow that would be cast by a wall with a 20 meter frontage height on the boundary between the park and the railway land)

The following shadow impact analysis has been undertaken on April 14, June 21 and August 31 during the specified times to demonstrate the achievement of these requirements.

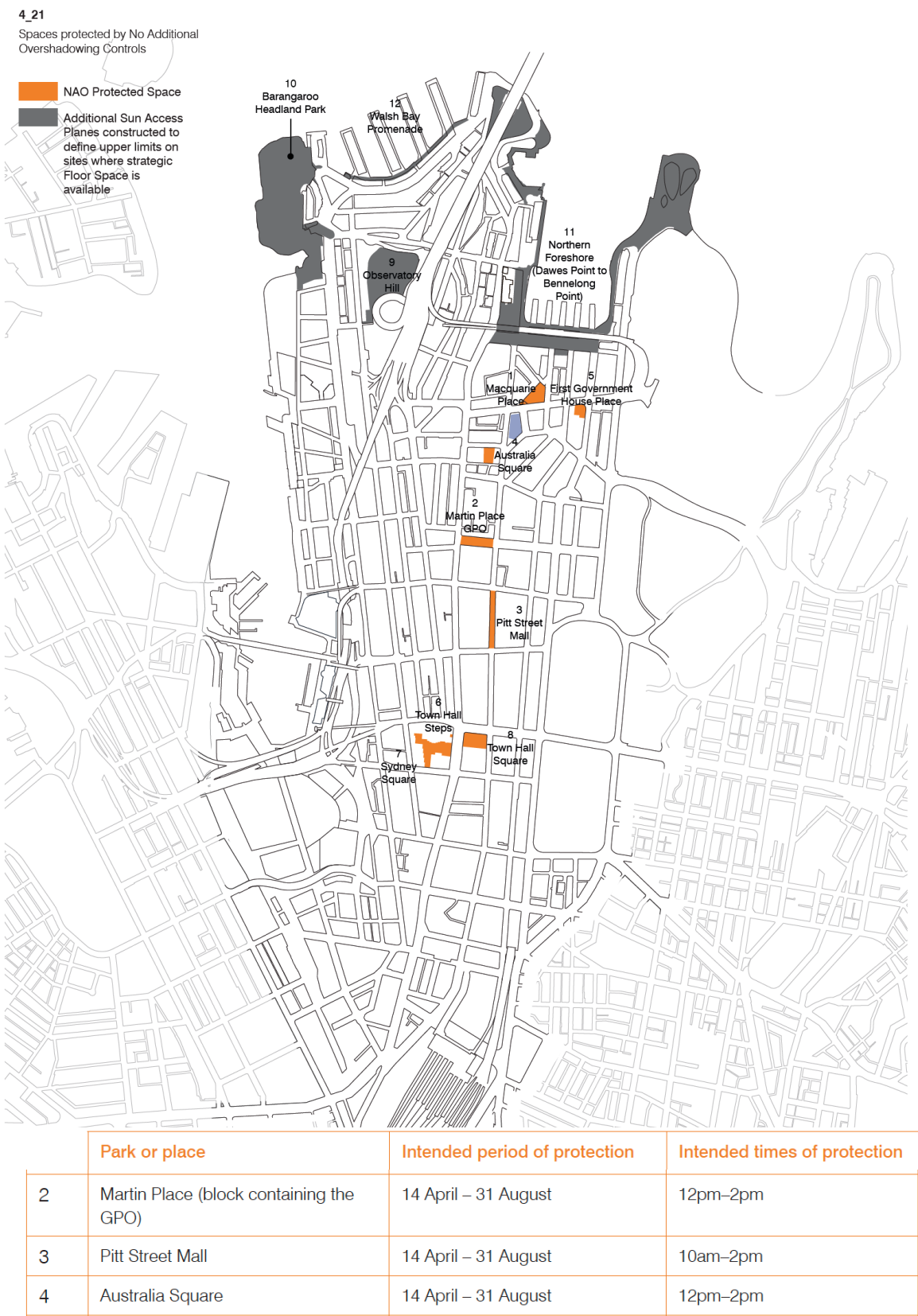
Chifley Square is another site identified within the current controls as being protected from Additional overshadowing. During the workshop process, this site was also included in the shadow diagram study.

The results illustrate that the proposed envelope will not result in any additional overshadowing of Australia Square, Chifley Square, Martin Place (between Pitt and George St), or Pitt St Mall, within the specified times.



CSPS Map of Sites protected by Sun Access Planes
Now embedded into Section 5 DCP 2012

Subject Site



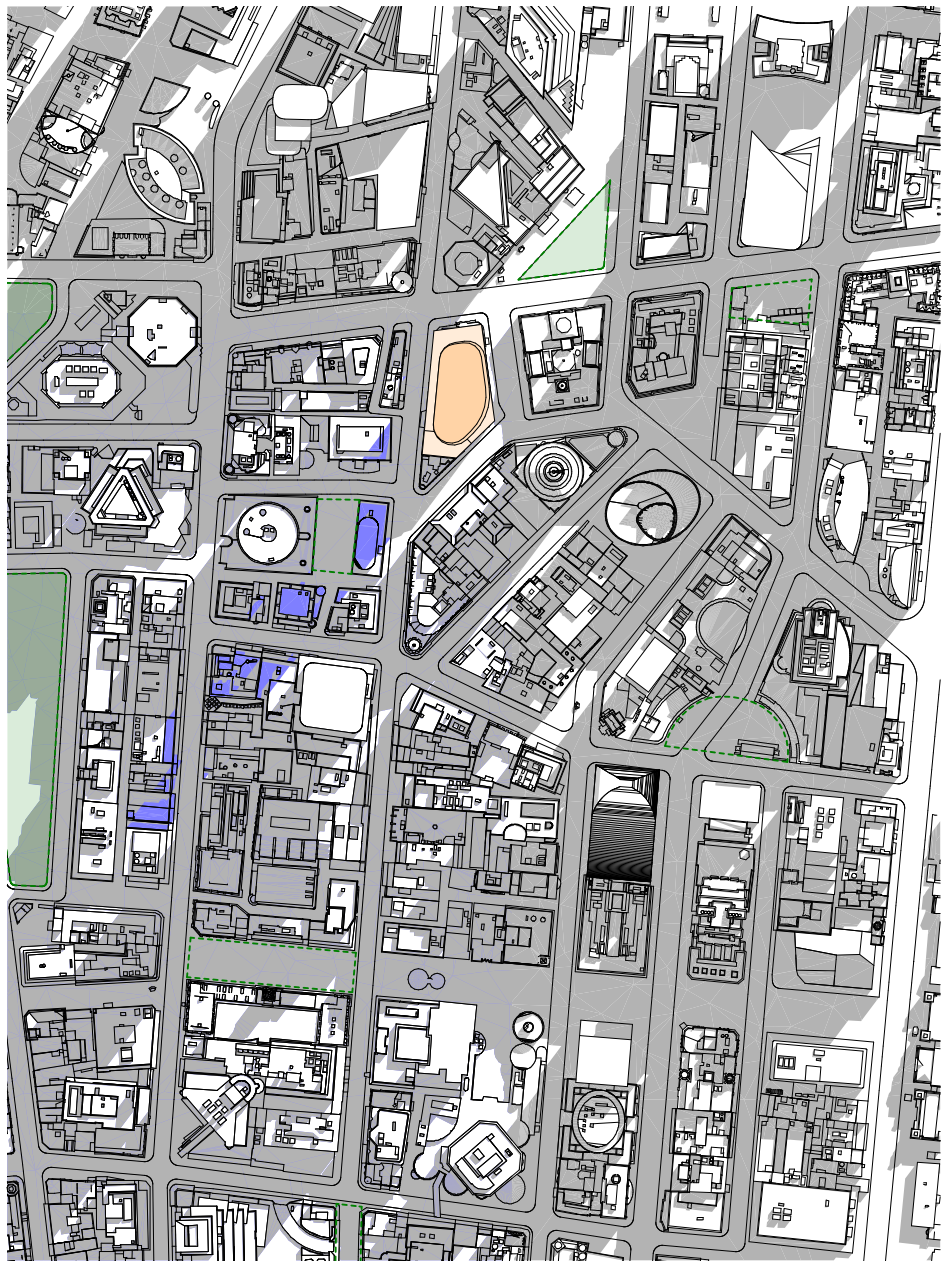
CSPS Map of Sites protected by No additional Overshadowing
Now embedded into Section 5 DCP 2012

Subject Site

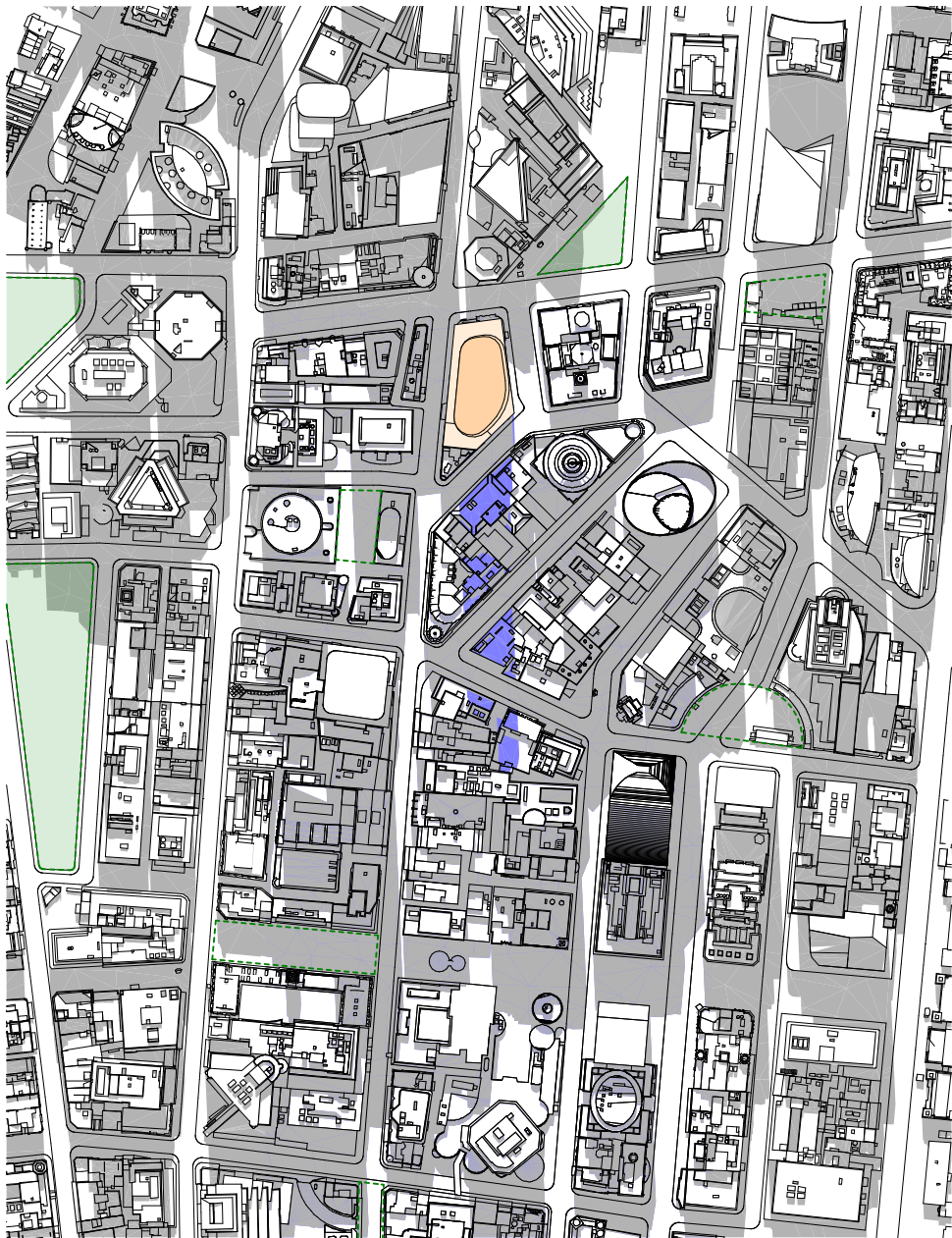
14 April 10am, 12pm and 2pm

- Existing shadow
- Additional shadow
- Locations requiring no additional overshadowing as per the current and form LEP Controls (under CSPS)

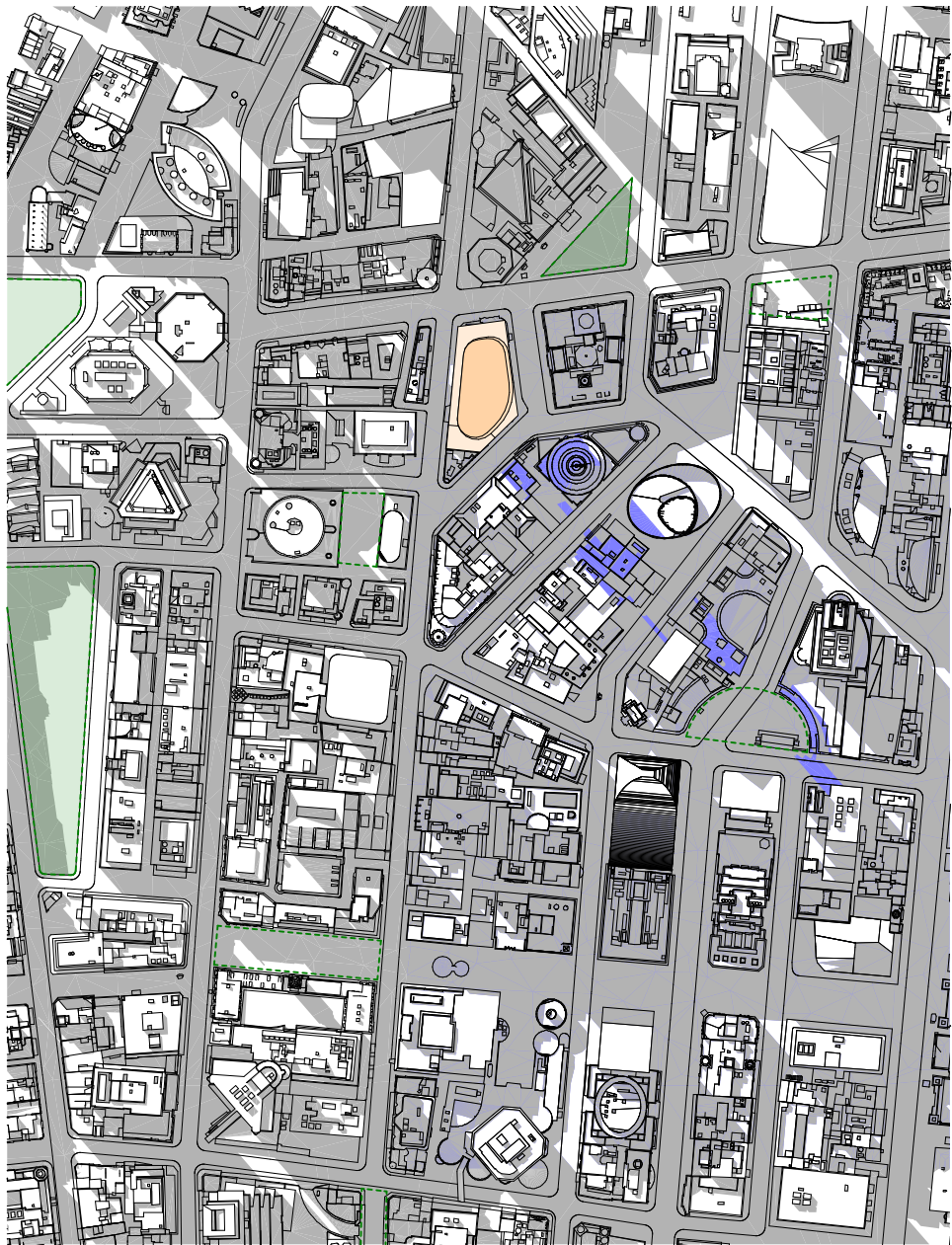
-Australia Square, Chifley Square, Martin Place West Pitt St Mall



April 14 10:00



April 14 12:00

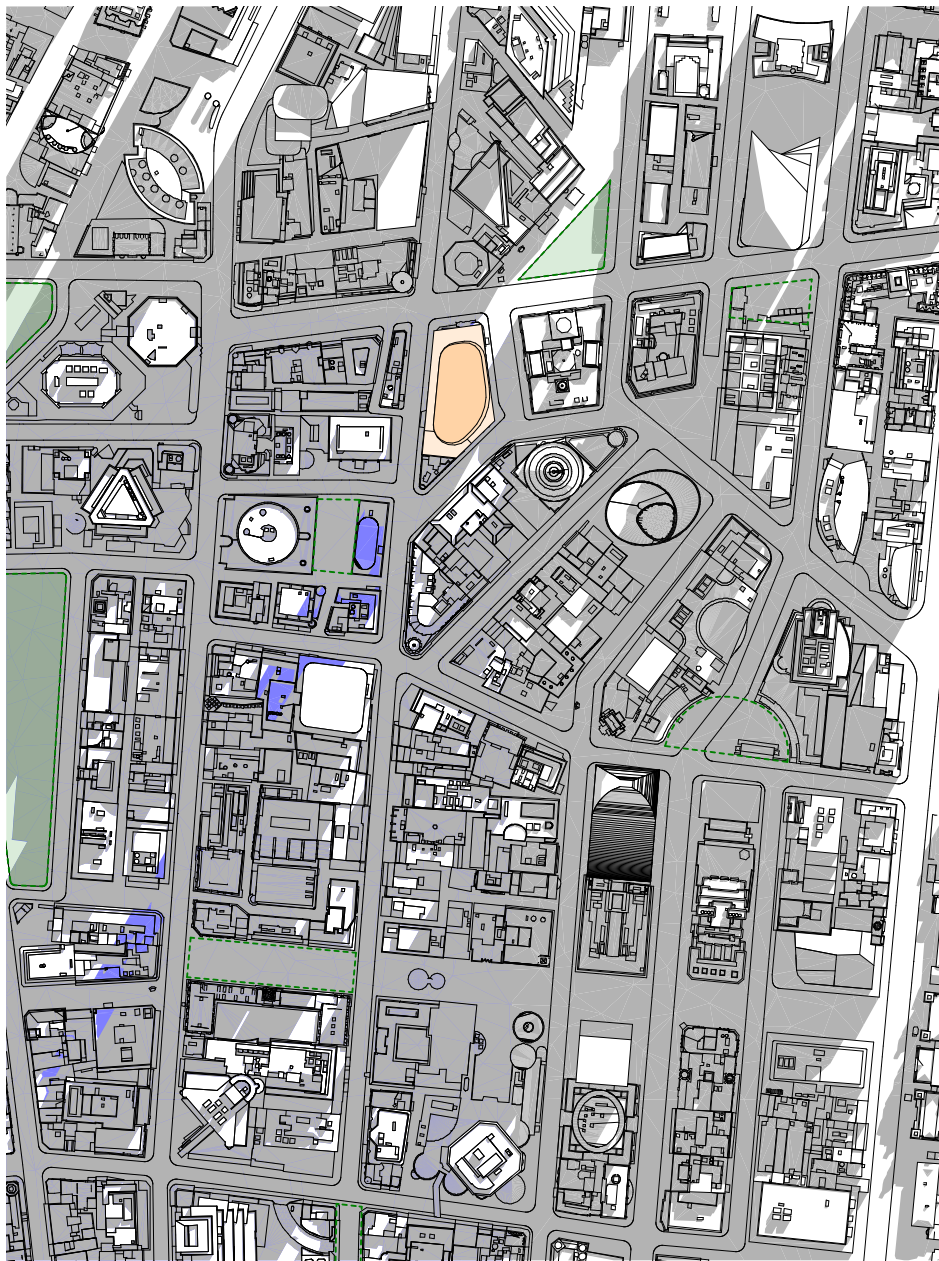


April 14 14:00

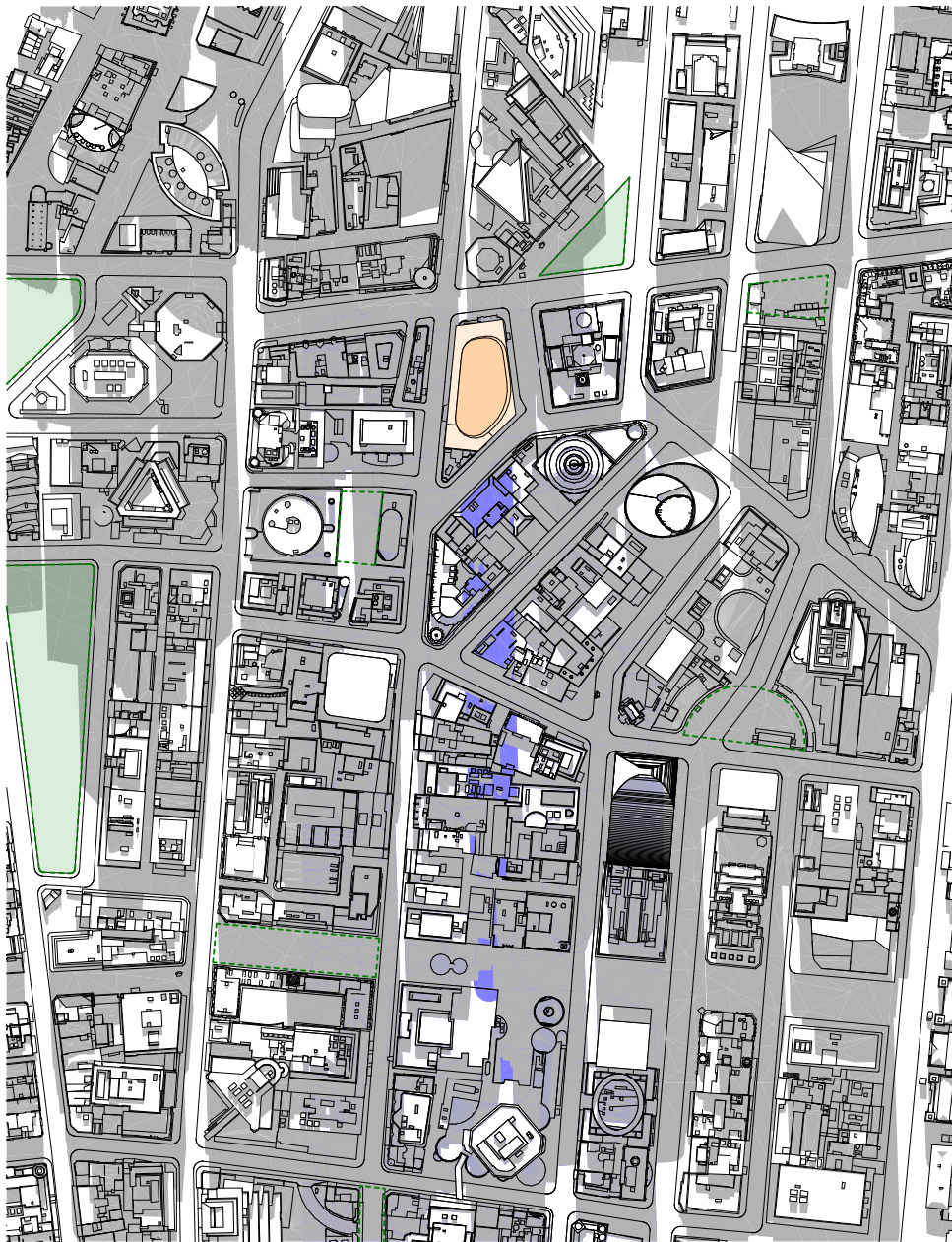
21 June 10am, 12pm and 2pm

- Existing shadow
- Additional shadow
- Locations requiring no additional overshadowing as per the current and form LEP Controls (under CSPS)

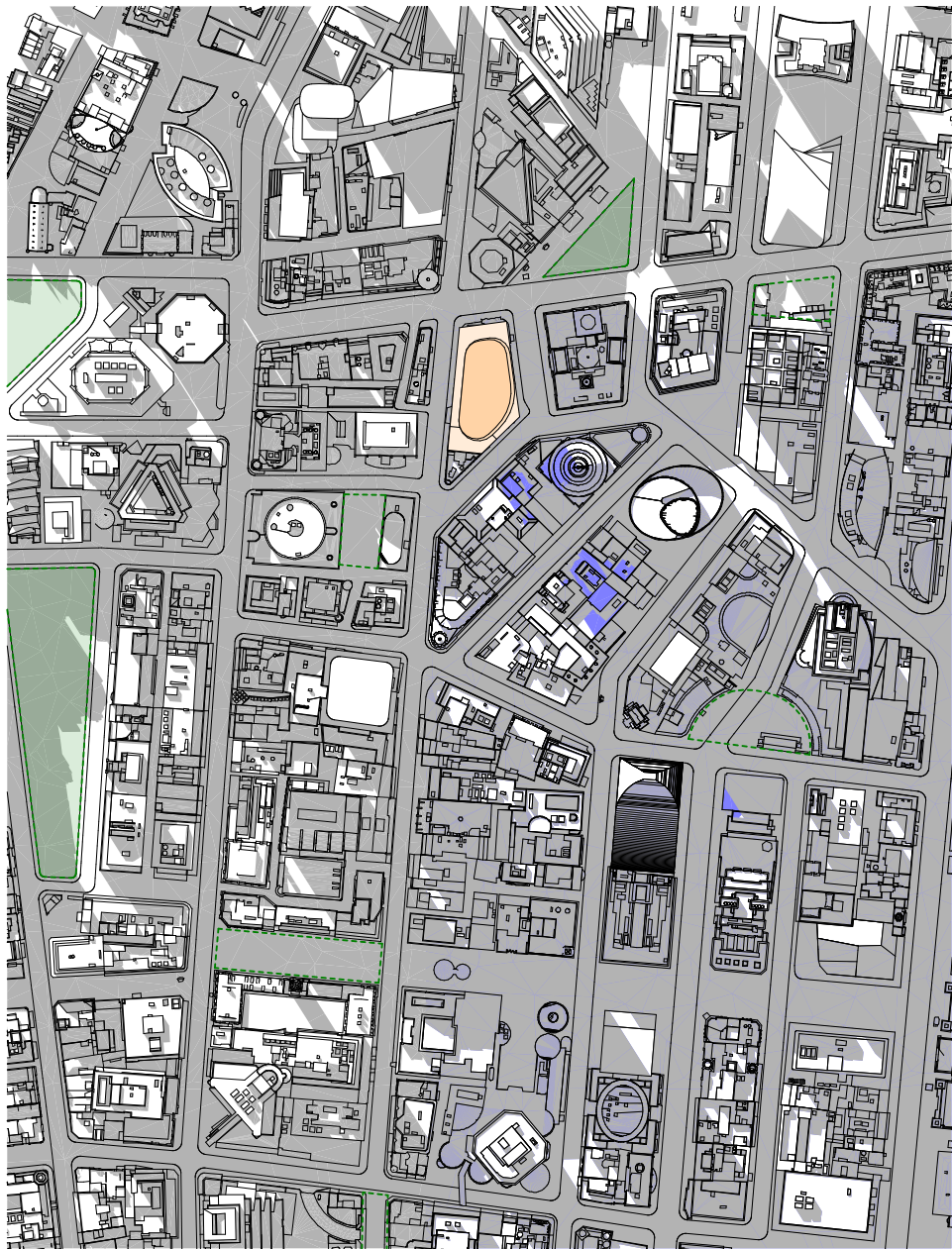
-Australia Square, Chifley Square, Martin Place West Pitt St Mall



June 21 10:00



June 21 12:00

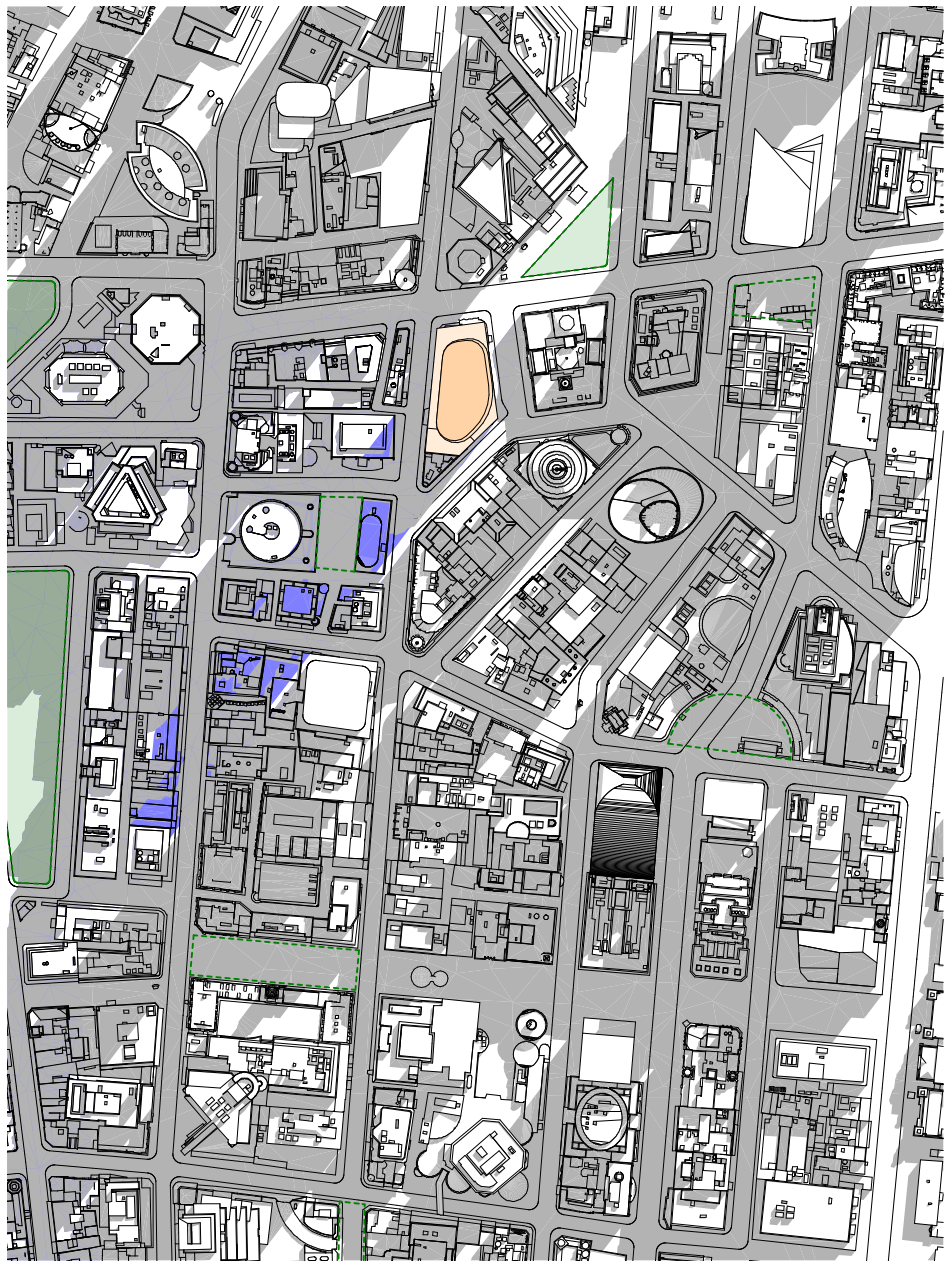


June 21 14:00

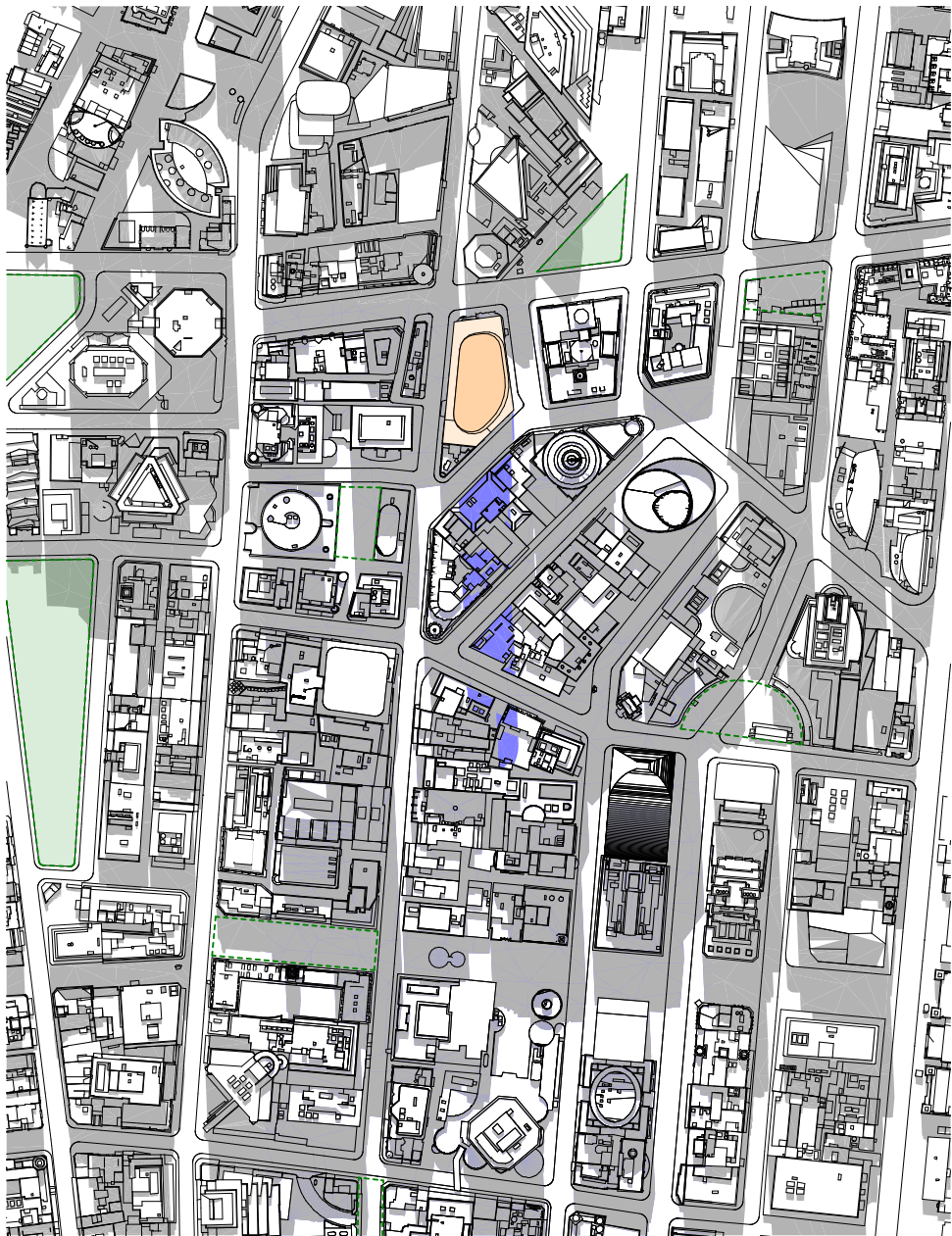
31 August 10am, 12pm and 2pm

- Existing shadow
- Additional shadow
- Locations requiring no additional overshadowing as per the current and form LEP Controls (under CSPA)

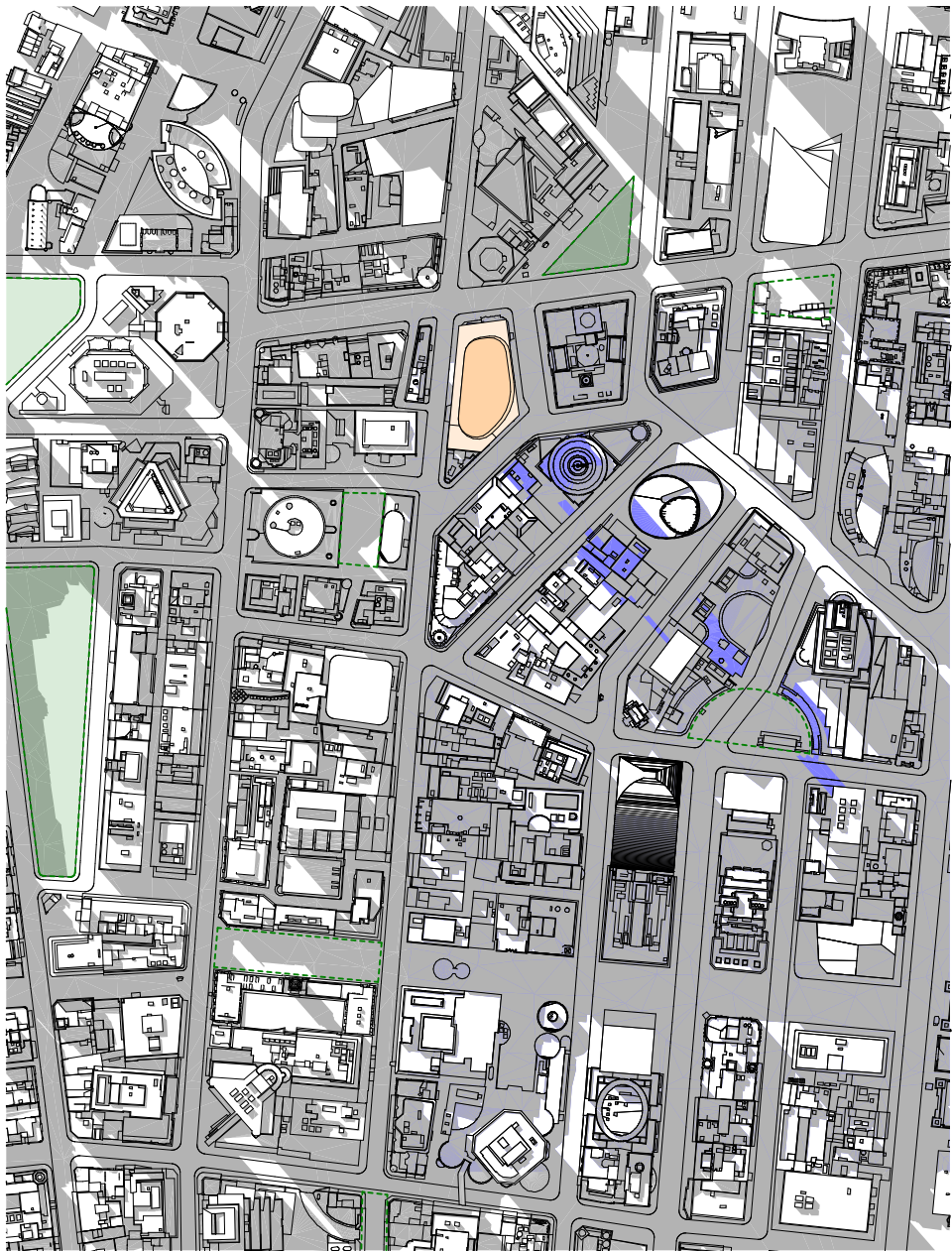
-Australia Square, Chifley Square, Martin Place West Pitt St Mall



August 31 10:00



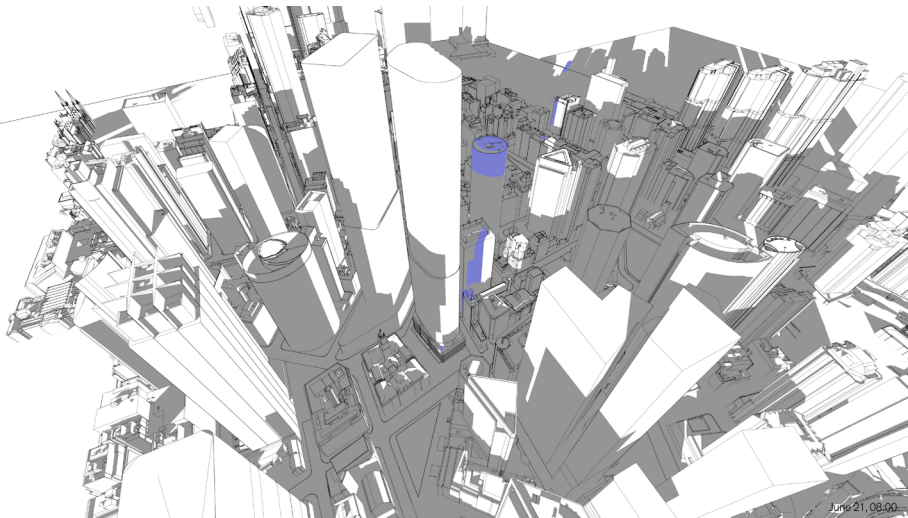
August 31 12:00



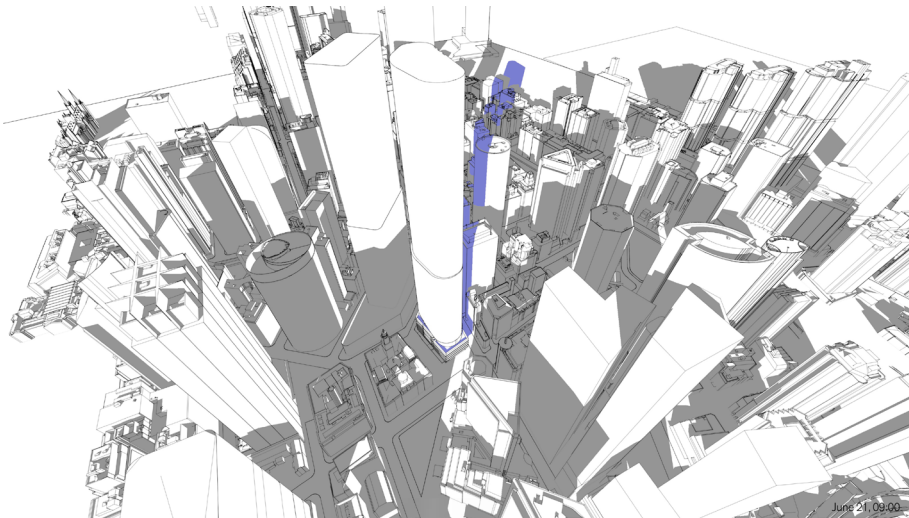
August 14 14:00

Solar access - Adjacent Heritage Façades

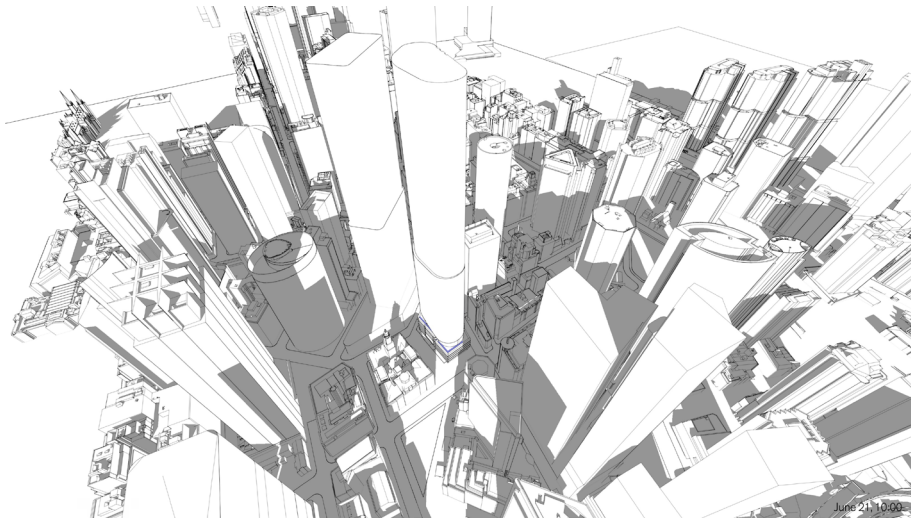
The DAP queried the shadow impact of Pitt and Bridge on adjacent heritage façades. The following study shows that there is no additional overshadowing of these adjacent heritage sandstone façades.



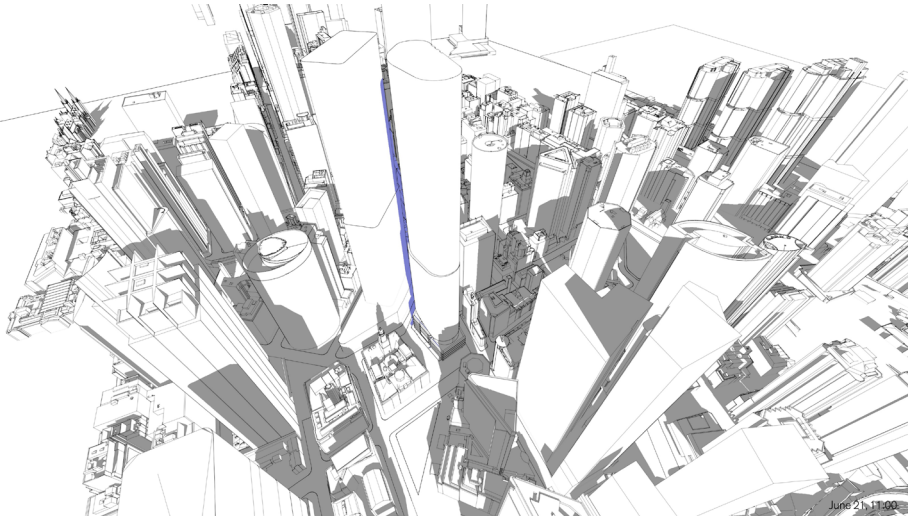
8 am



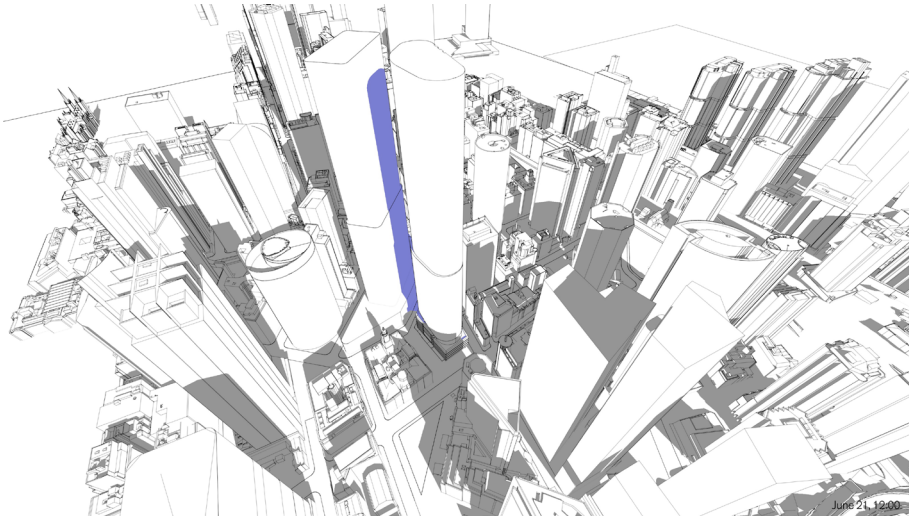
9 am



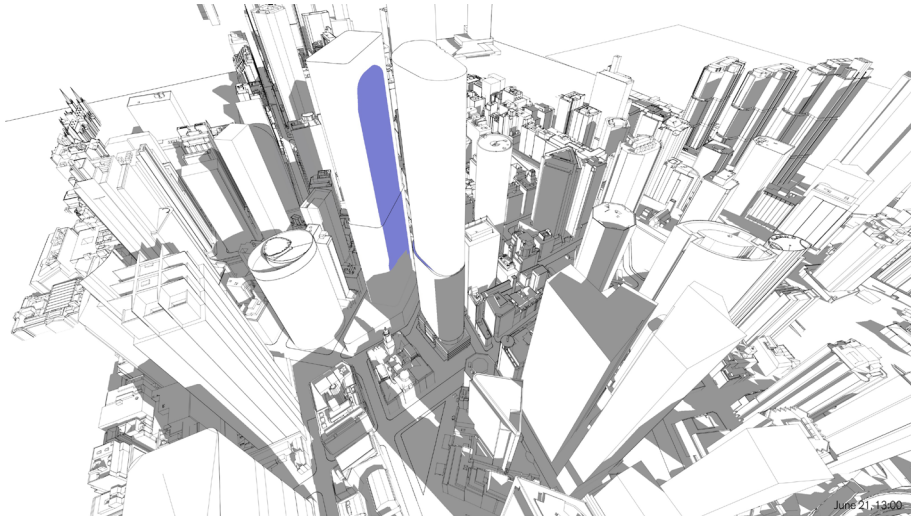
10 am



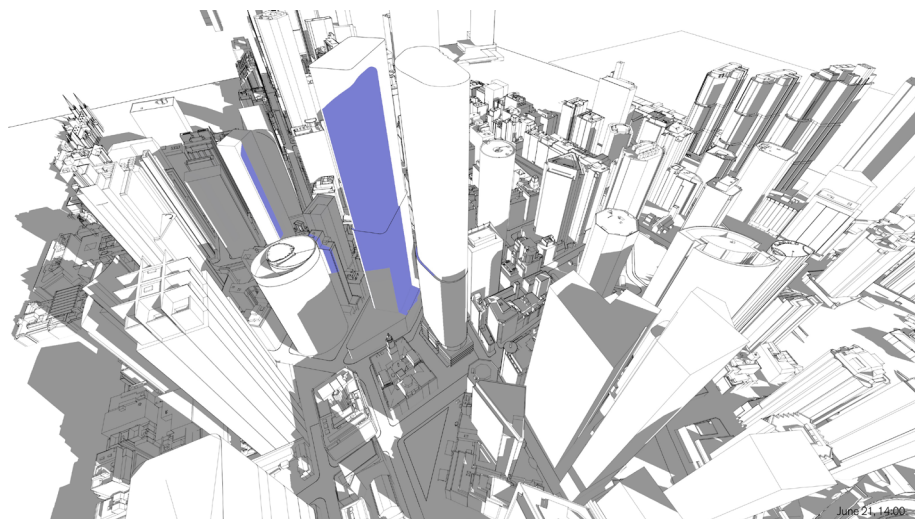
11 am



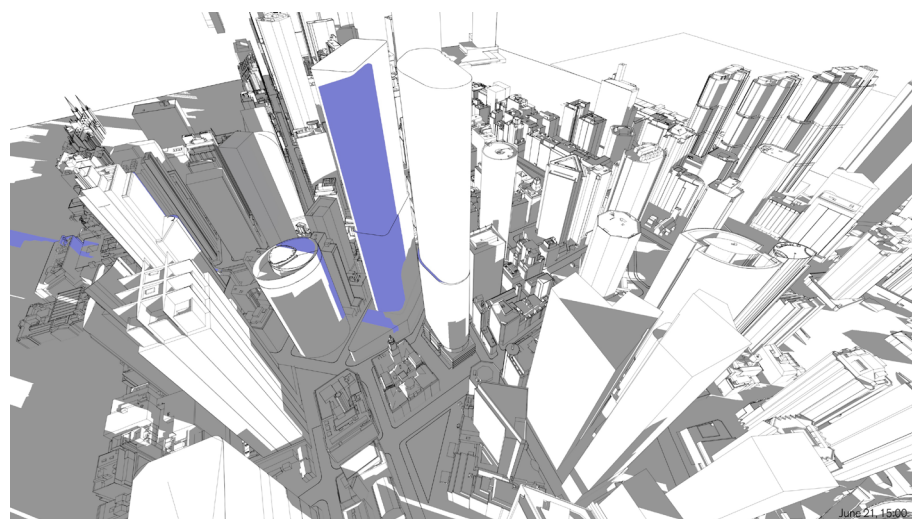
12 pm



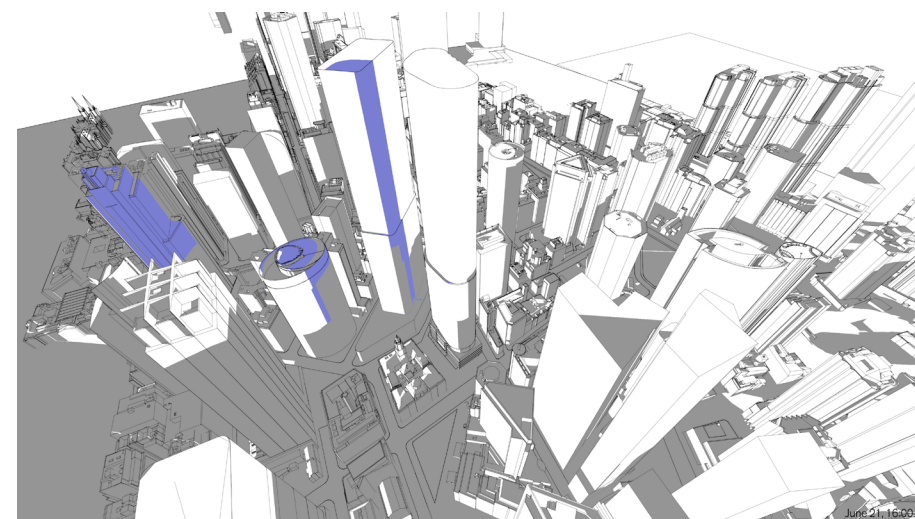
1 pm



2 pm



3 pm



4 pm

Solar access - Residential impact

Analysis

A sun-eye analysis was conducted to assess if the proposed envelope impacts solar access to surrounding residential receivers between 9:00am and 3:00pm on 21 June.

- The existing residential development north of the site will be unaffected by shadow cast by the proposed envelope at any time;
- The existing residential development west of the site is unaffected by shadow cast by the proposed envelope at 9:00am and throughout the remainder of the day;
- The existing residential development east of the site is unaffected by shadow cast by the proposed envelope at any time; and
- The proposed envelope does cast shadow on the existing residential development directly south of the site at 12:00pm.

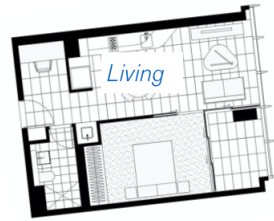
Affected residential development to the south / south-west.

The following pages investigate key residential properties that would be affected by shadows cast by the proposed development south of the site. It was determined that the nature and orientation of specific residential properties meant that they were unlikely to be adversely affected by the proposed development of 56 Pitt St.

- 1 161 Clarence Street
- 2 57 York Street
- 3 1 Hosking Place
- 4 16 O'Connell Street
- 5 4 Bridge Street
- 6 254 George Street
- 7 2 York Street
- 8 5 York Street
- 9 104 Clarence St



- 161 Clarence Street
Arc by Crown development - residential with East and West facing apartments.



N↑ 1602/161 Clarence St

- 57 York Street
Residential building with East and West facing apartments



N↑ 7/57 York St

- 1 Hosking Place
Predominantly short-stay apartments managed by Adina. South and West facing apartments not impacted by proposed development



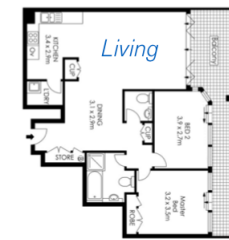
N↑ 2805/161 Clarence St

- 16 O'Connell Street
Two residential apartments have been created in an otherwise Commercial strata building

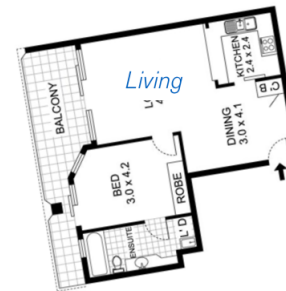


N↑ 1808/161 Clarence St

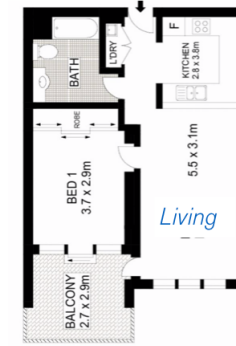
Living Spaces in the sub-penthouse and penthouse face South & East and would not be affected by development to the North-west..



N↑ 32/57 York St



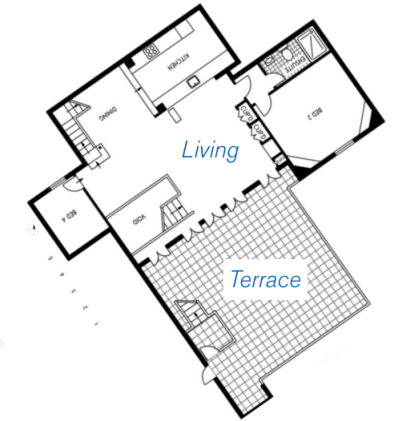
N↑ 3/57 York St



N↑ 2707/1-5 Hosking Place



N↑ 806/1 Hosking Place



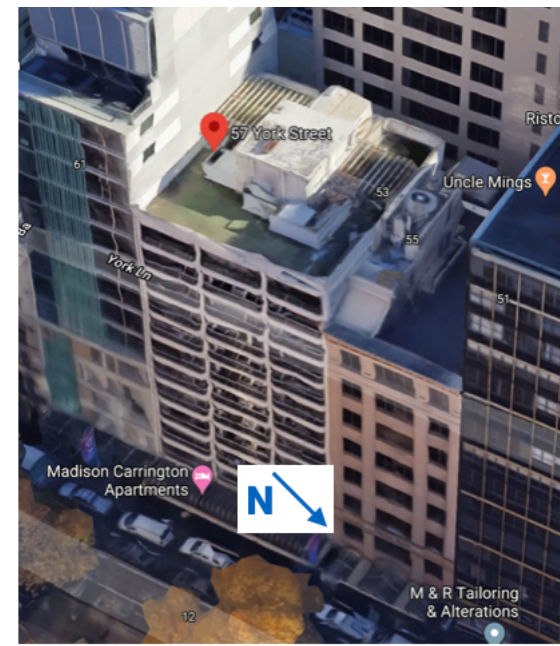
N↑ 17/16 O'Connell St Penthouse



N↑ 16/16 O'Connell St Sub-penthouse



161 Clarence Street typical floor plans



57 York Street typical floor plans

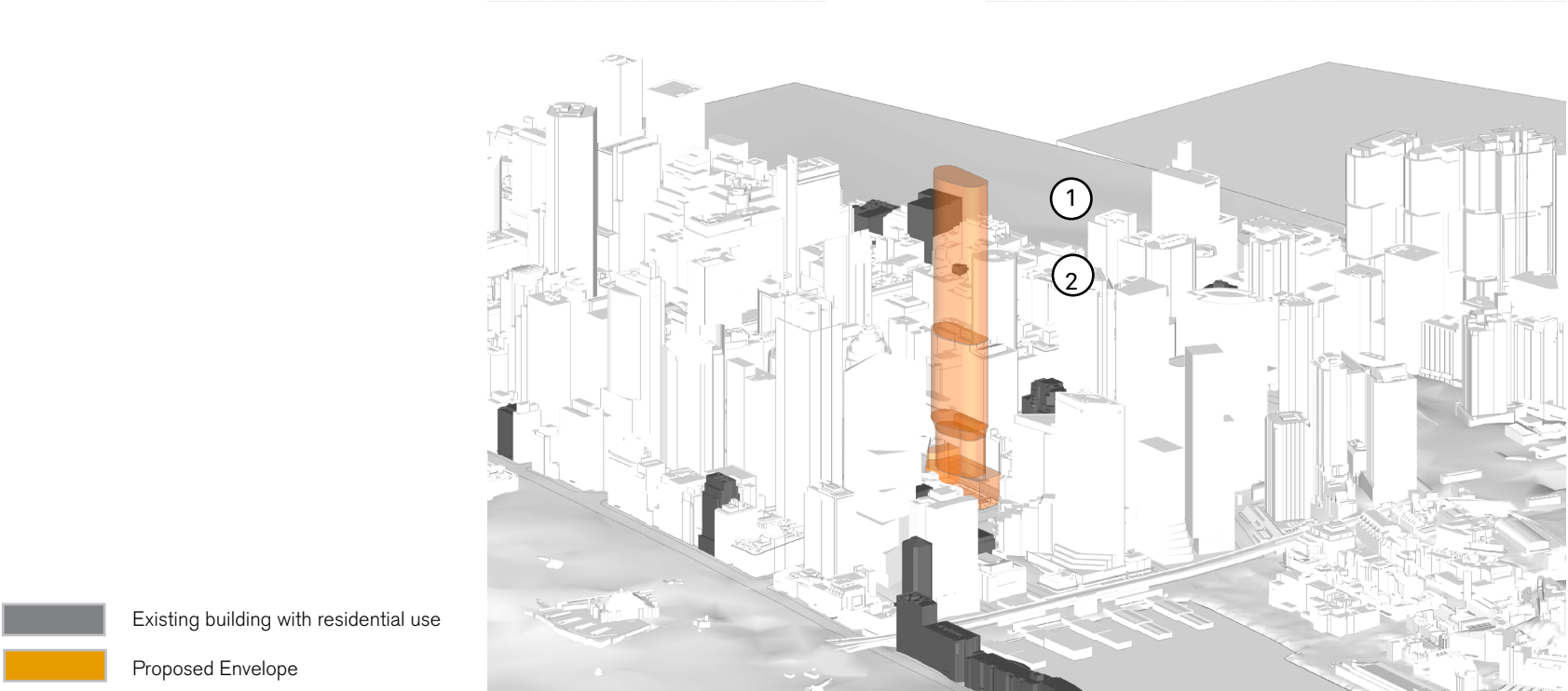


1 Hosking Place typical floor plans



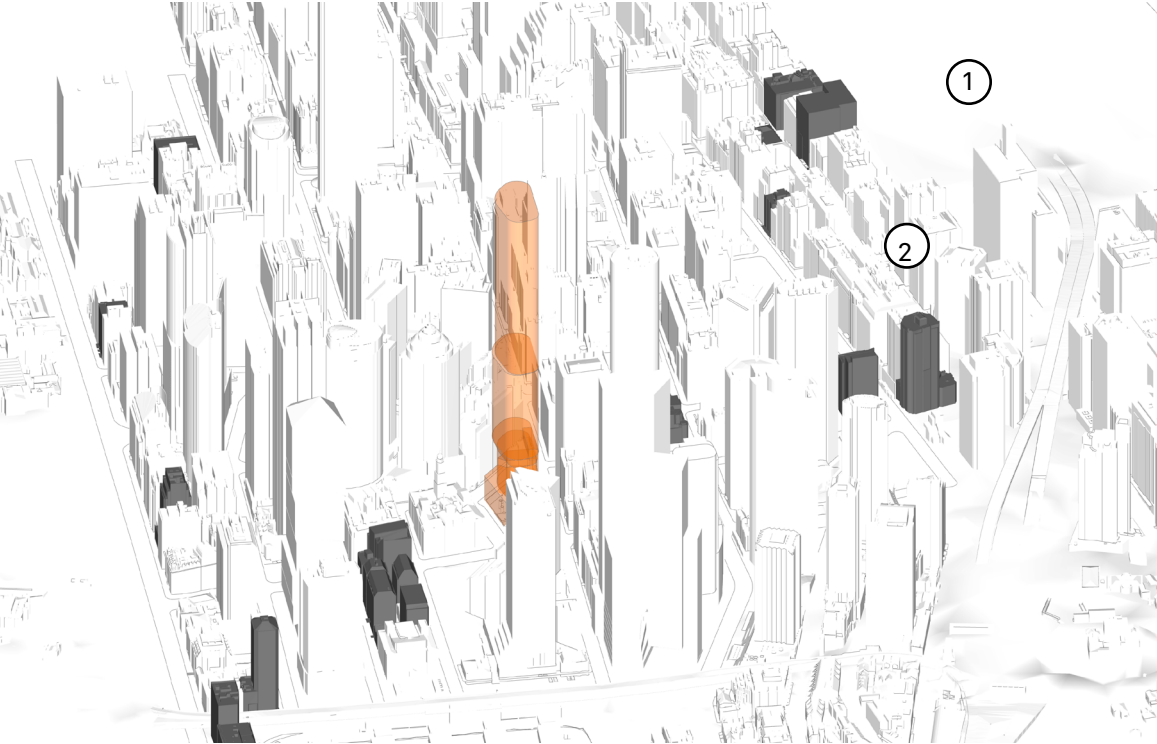
16 O'Connell Street typical floor plans

Solar access - (Sun Eye Diagrams)

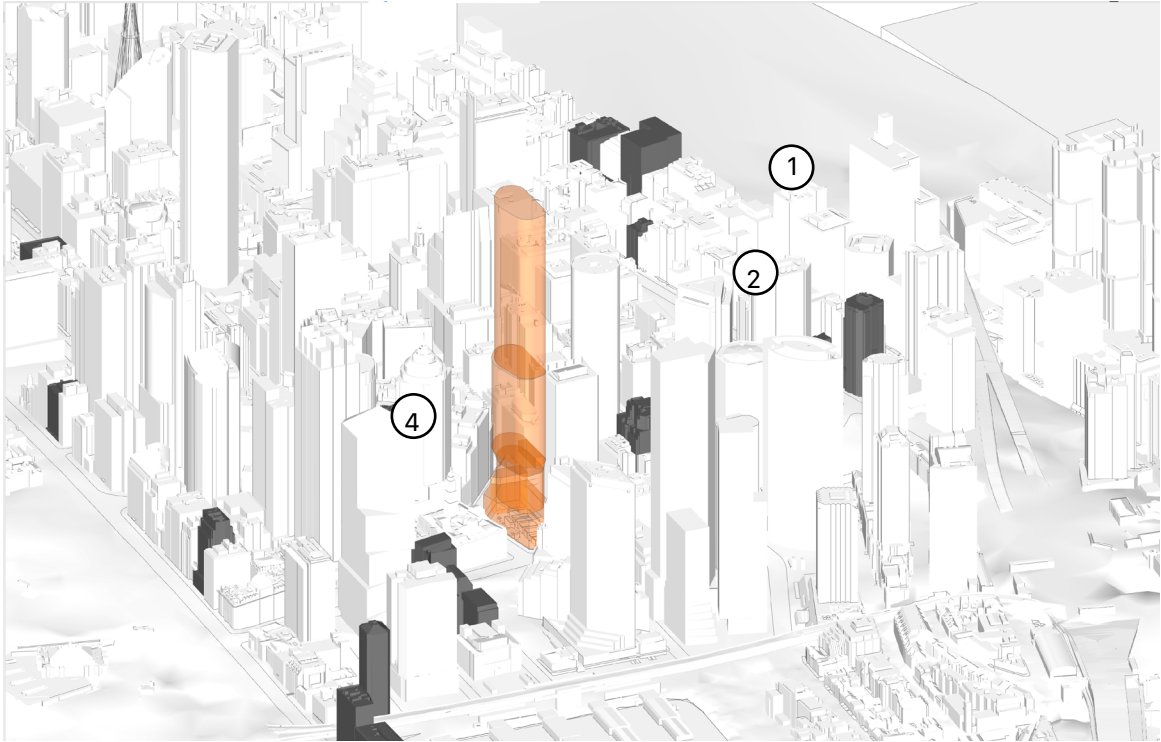


21 June 9am

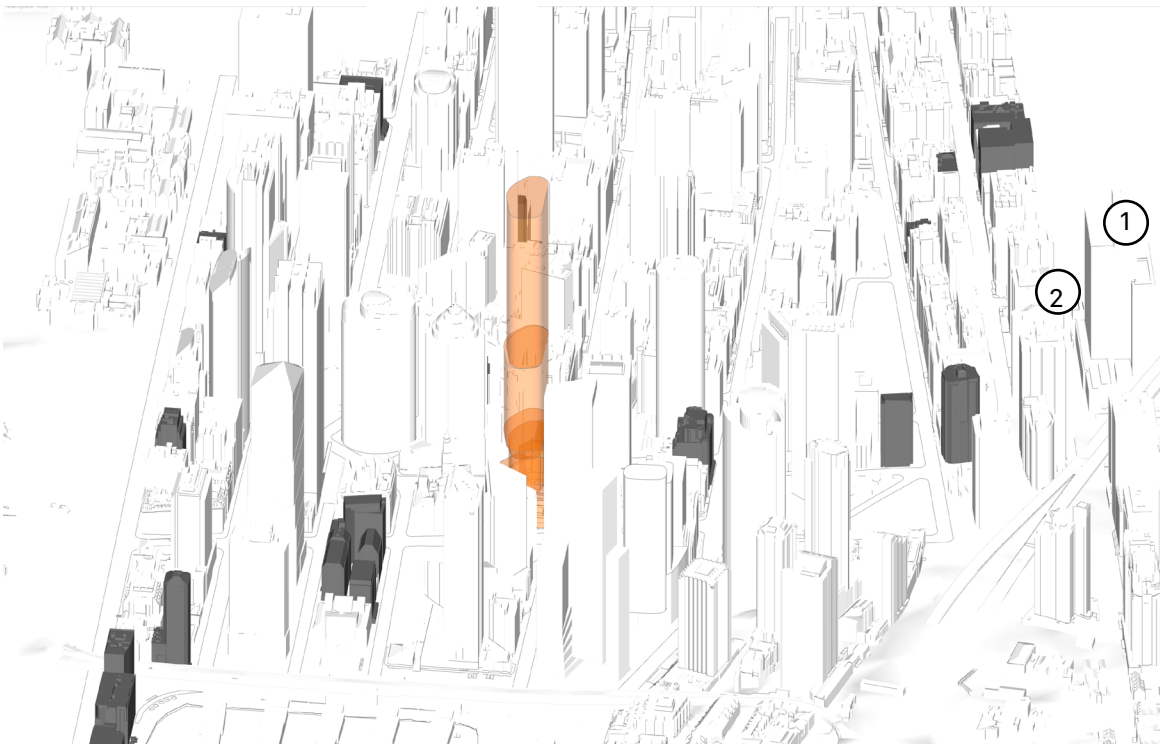
- ① 161 Clarence Street
- ② 57 York Street
- ③ 1 Hosking Place
- ④ 16 O'Connell Street



21 June 11am

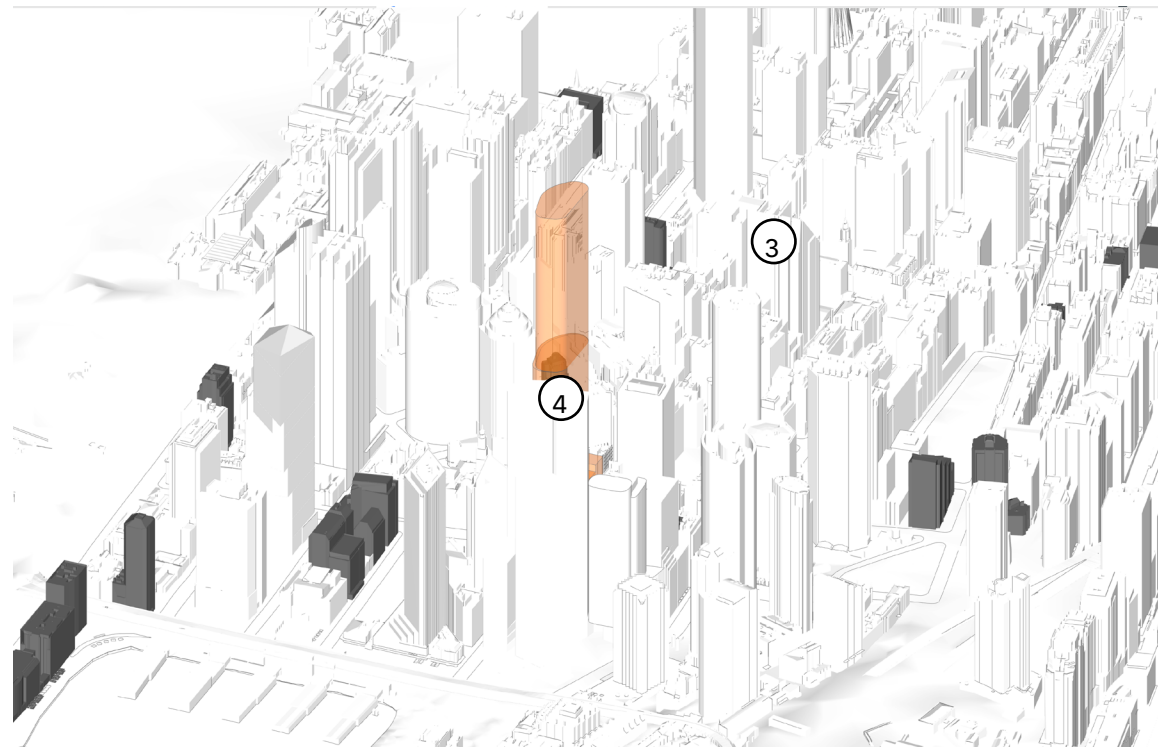


21 June 10am

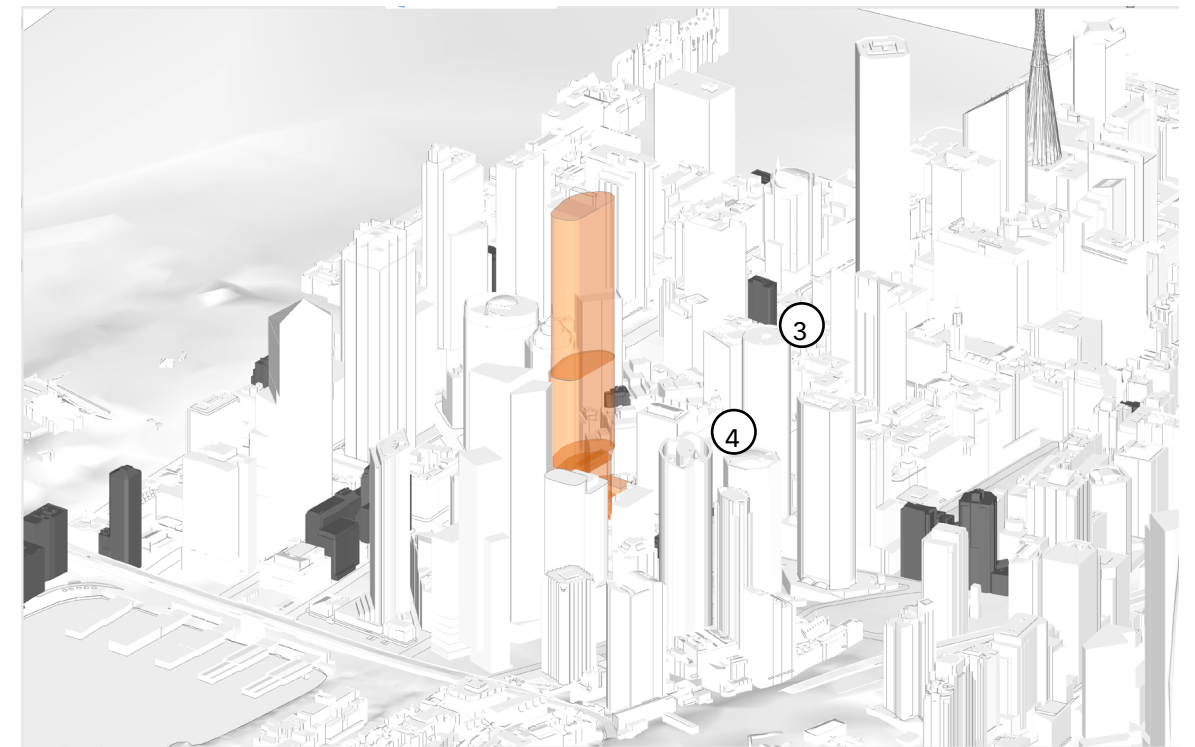


21 June 12pm

- Existing building with residential use
- Proposed Envelope

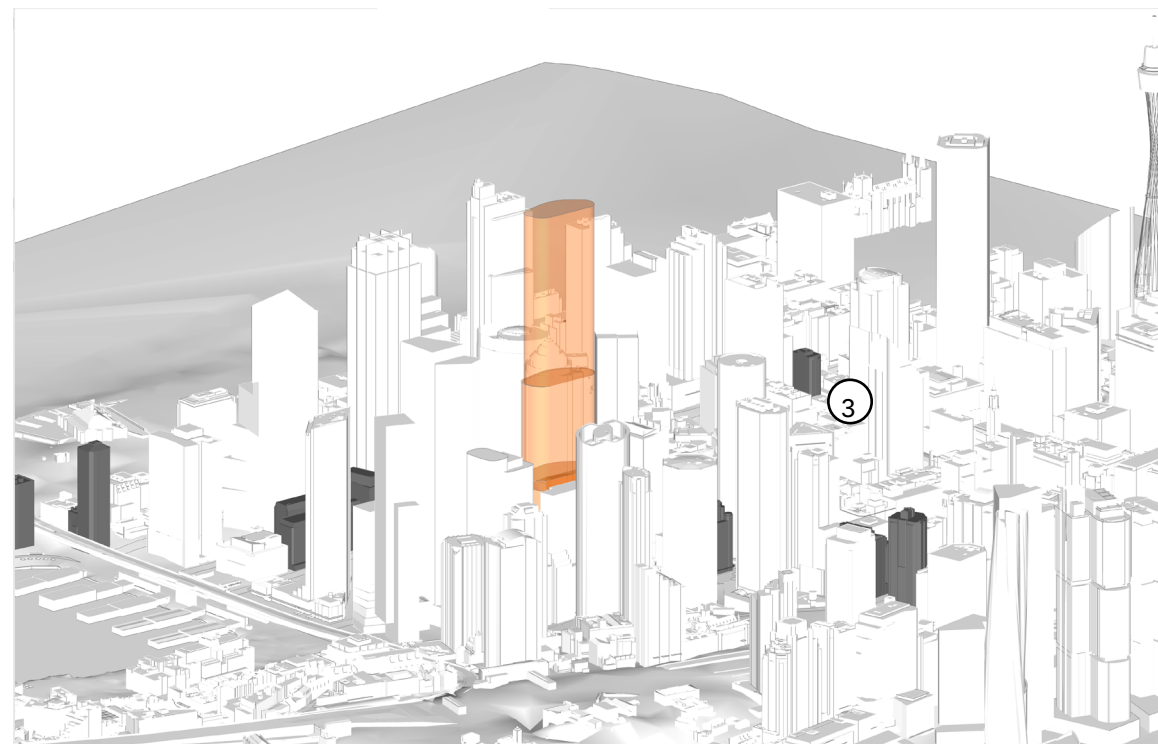


21 June 1pm



21 June 2pm

- 161 Clarence Street
- 57 York Street
- 1 Hosking Place
- 16 O'Connell Street



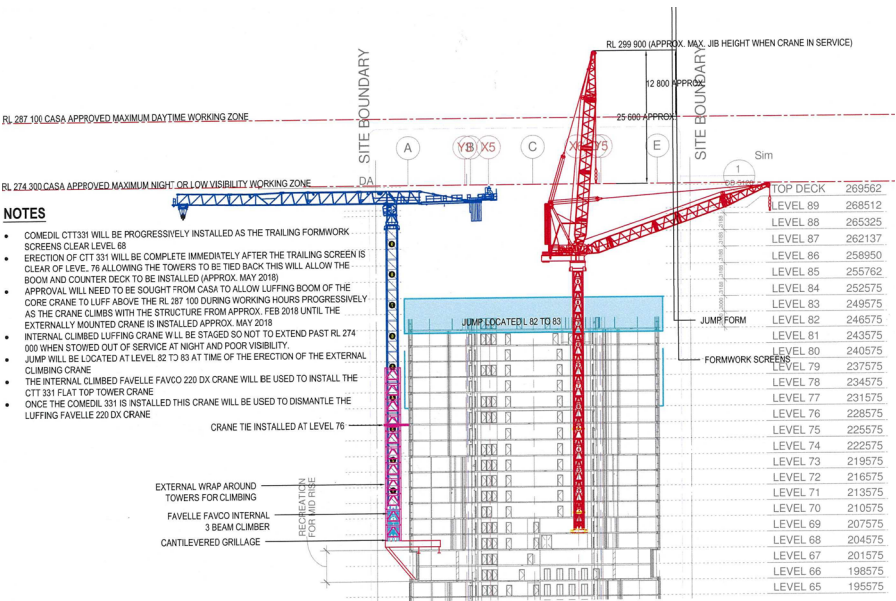
21 June 3pm

Tall tower construction methodology

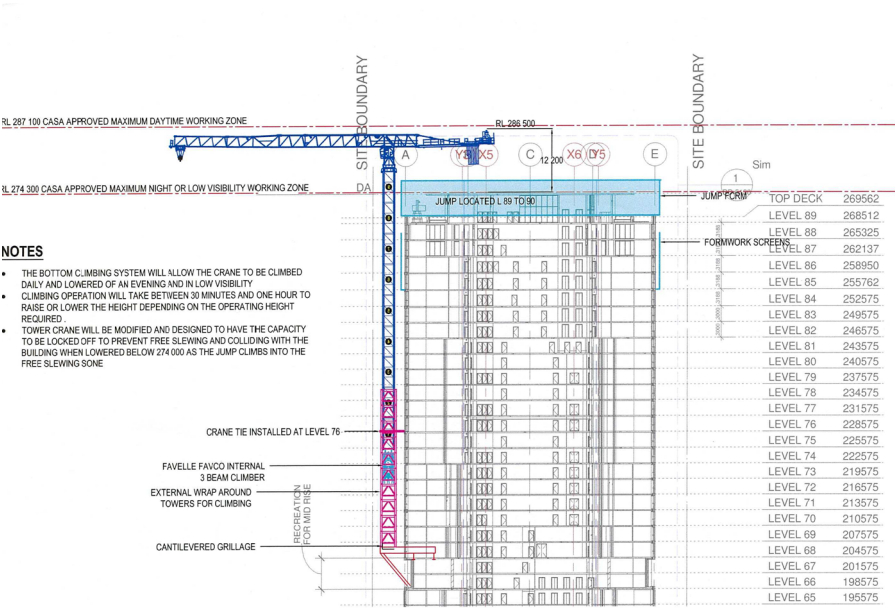
Construction advice from the industry has been that a 12m tolerance below PANSOPS can be managed with technology similar to the cranes used by Hutchison builders for Brisbane's 90 story Skyview Tower.

Skyview Tower, Brisbane developed a crane system that allowed the team to construct the top of the building up to maximum height (aircraft surfaces) with a higher limit allowed for managed daylight crane operation

The proposed envelope has a 25m construction zone below PANSOPS (RL 335m) allowing adequate construction space.



Brisbane Sky Tower: COMEDIL 331 Flat top crane installed externally of the tower with the ability to climb up and down and stowed below when required.



Brisbane Sky Tower: CTT 331 Flat top mounted on cantilevered grillage will complete the upper tower levels, climbed daily to work within the CASA guidelines



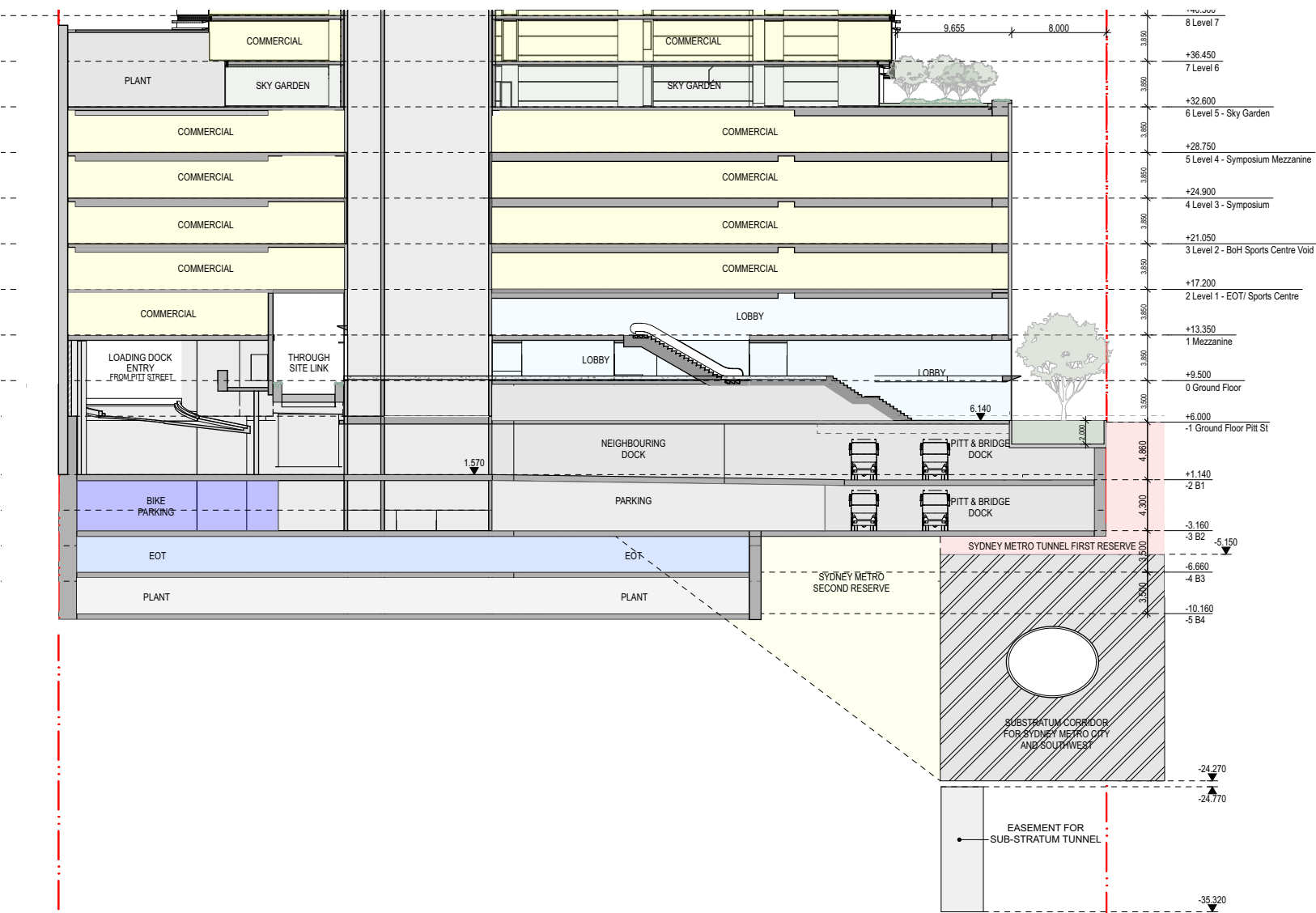
Brisbane Sky Tower 270m building height (pictured under construction) 12m construction zone beneath the PANSOPS limits or RL335 may be considered reasonable.

Sydney Metro

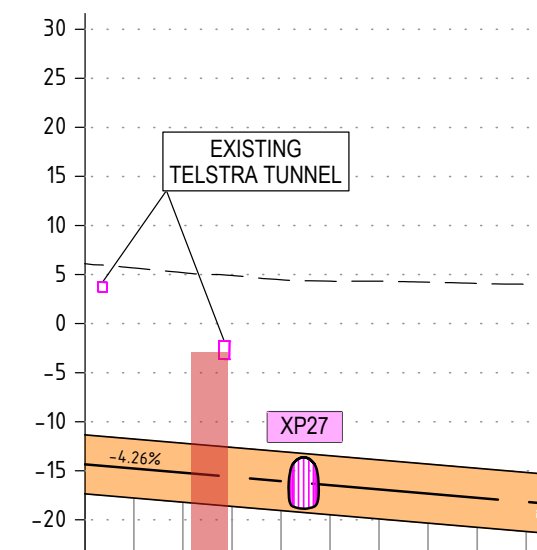
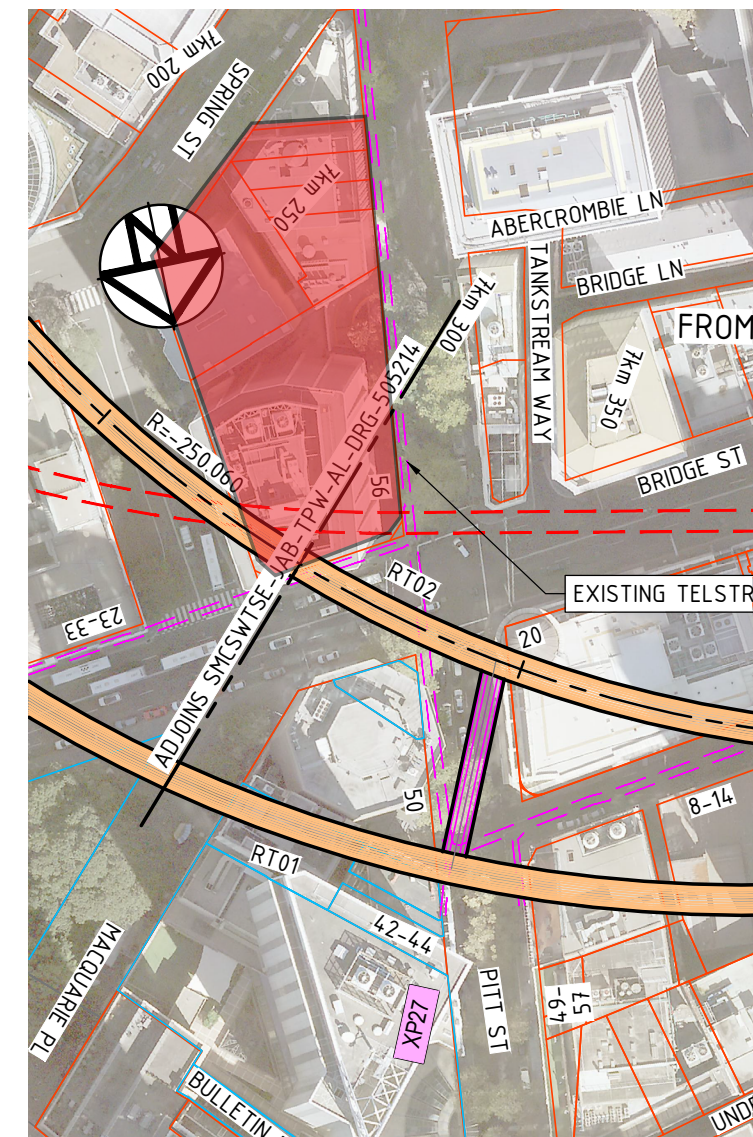
The planning proposal has considered the Sydney Metro tunnel (currently indicative and subject to design development).

The concept metro tunnel and corridor zone passes underneath the North East corner of the subject site at approximately 19-20m below ground.

The detailed design (in particular structural) takes into account the alignment of the Sydney Metro. The structure will need to be designed to accommodate this restrictive zone of influence. Structural elements will be restricted within the 1st reserve of the tunnel which will be up to 15m within the site boundary. Detailed studies will need to be completed and approved by Sydney Metro and other relevant authorities.

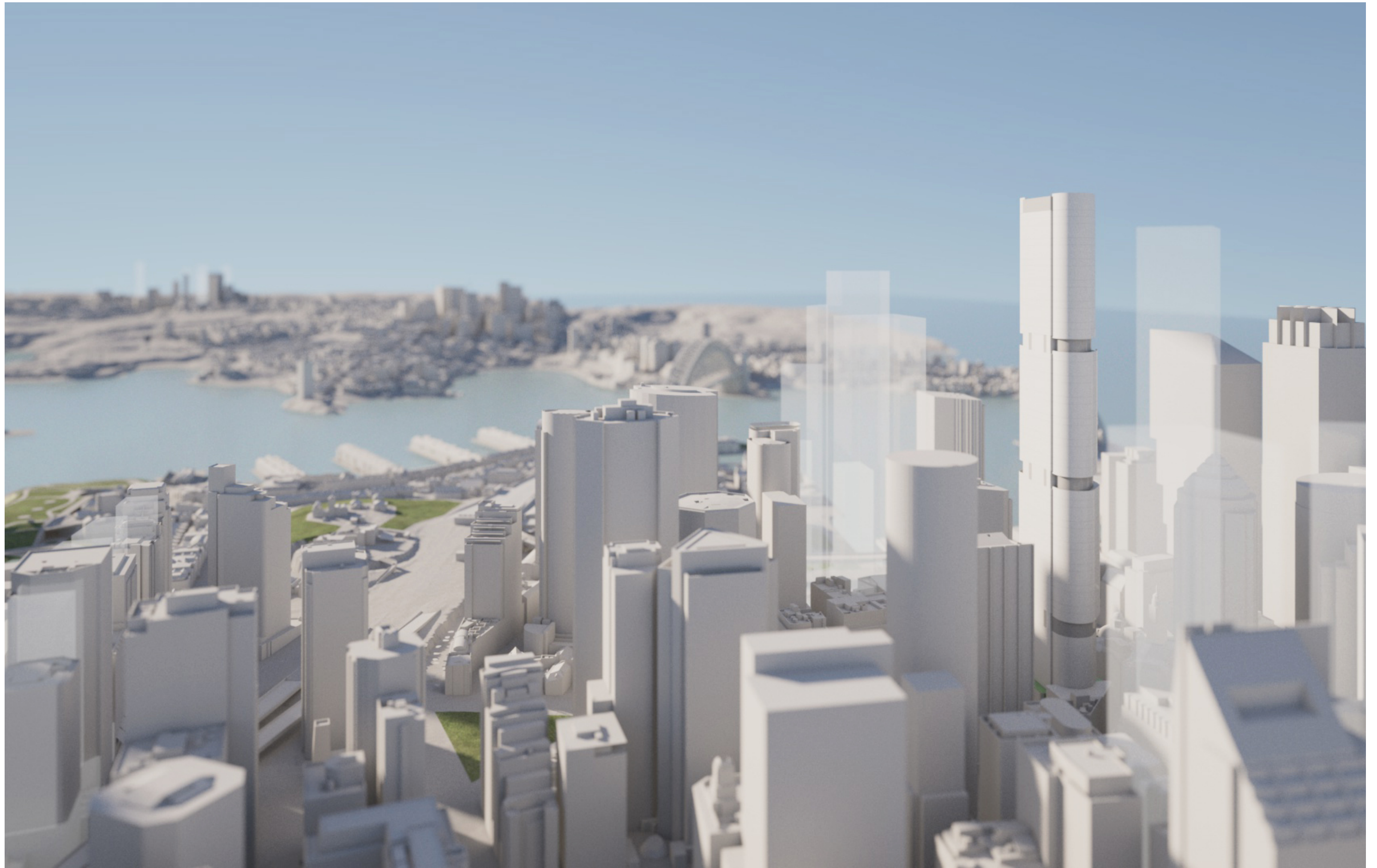


Diagrammatic section showing relation of metro tunnel to site





Aerial sketch view of North/South tower orientation from Botanic Gardens
Indicative tower design in context



Proposed Envelope

Proposed envelope

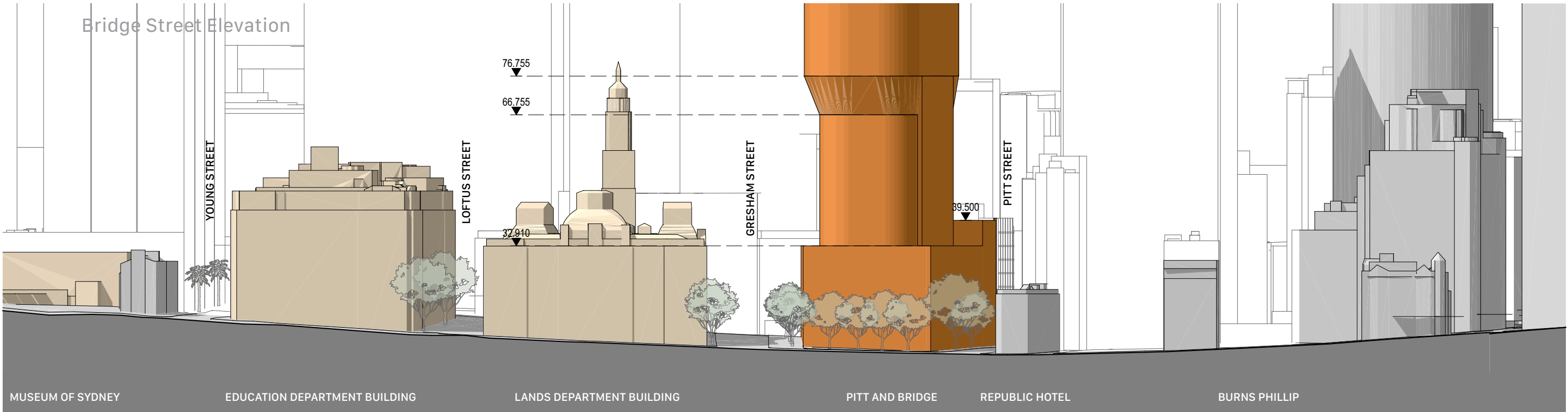
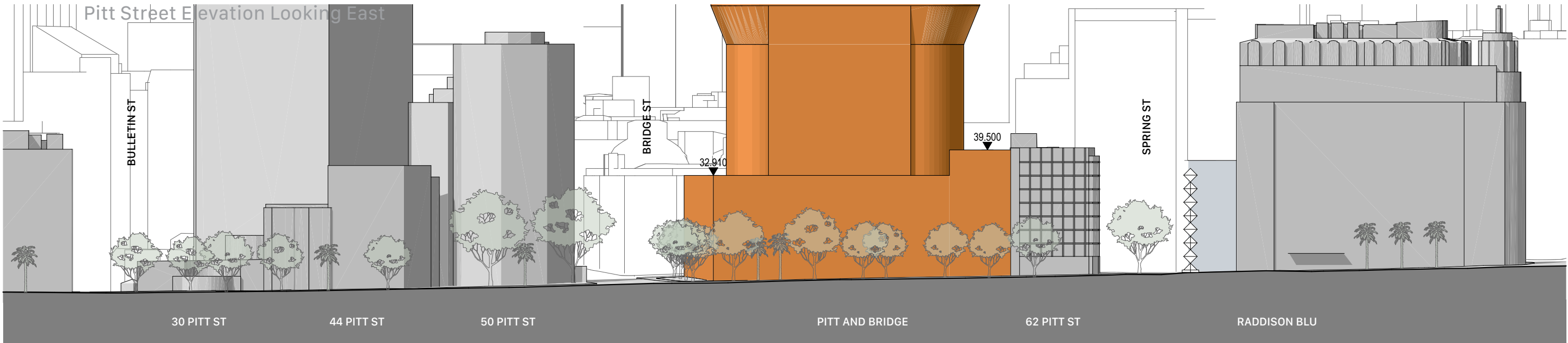
Podium Component

Tower Component

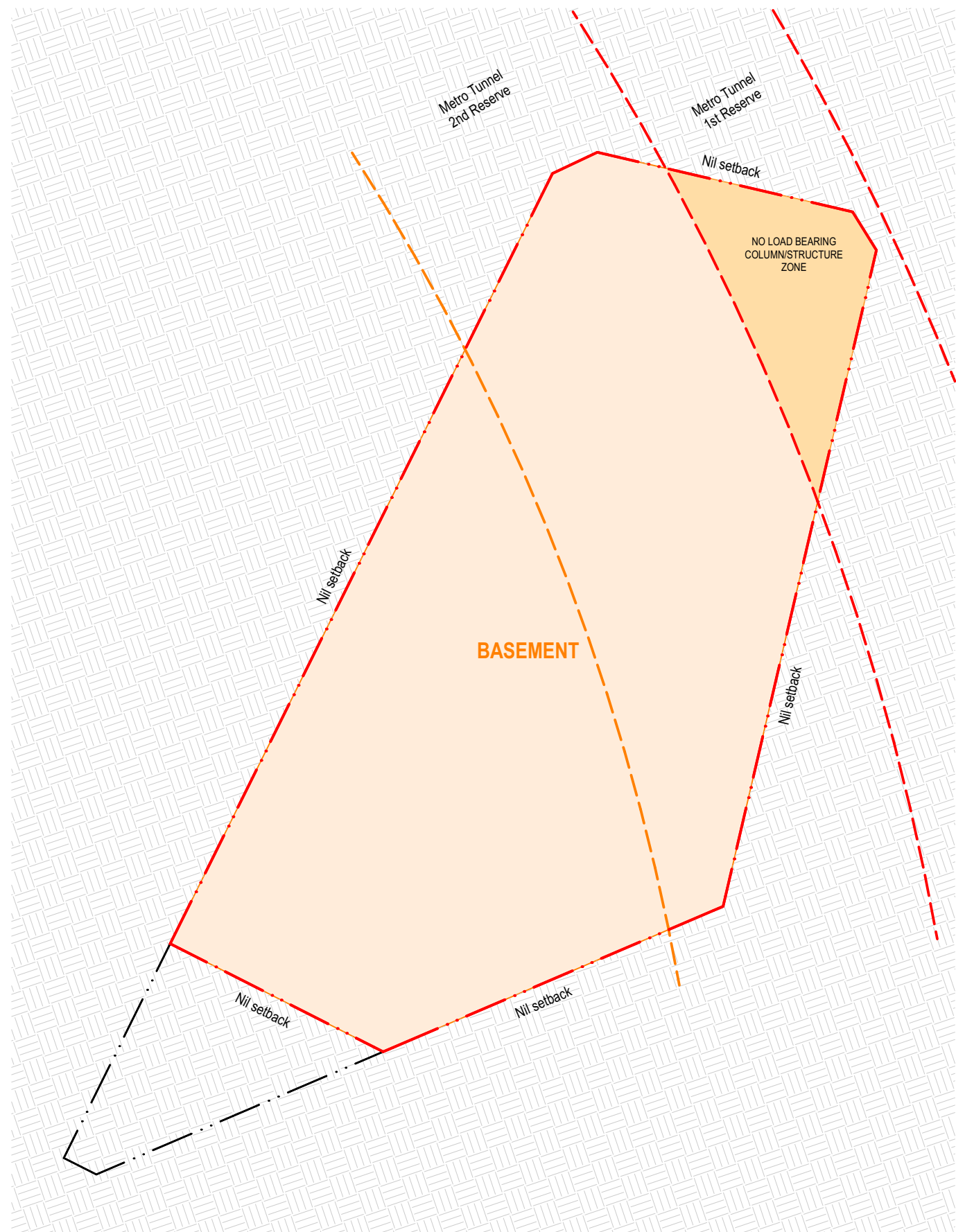
Tower Tapering
(refer to Envelope Tower Plan/Elevations for details)



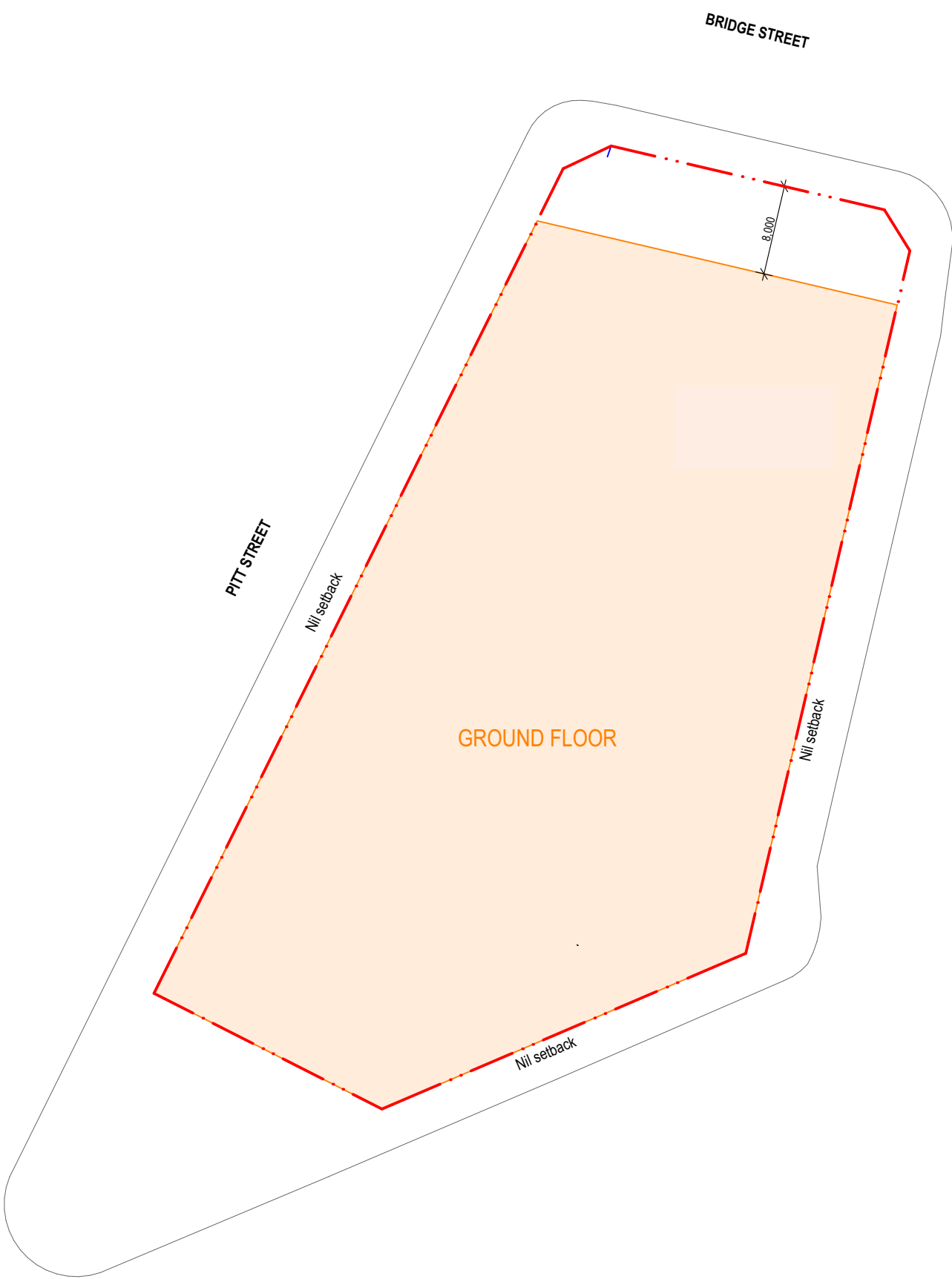
Proposed Envelope - Podium



Envelope Plans

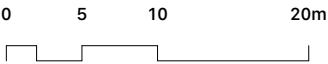


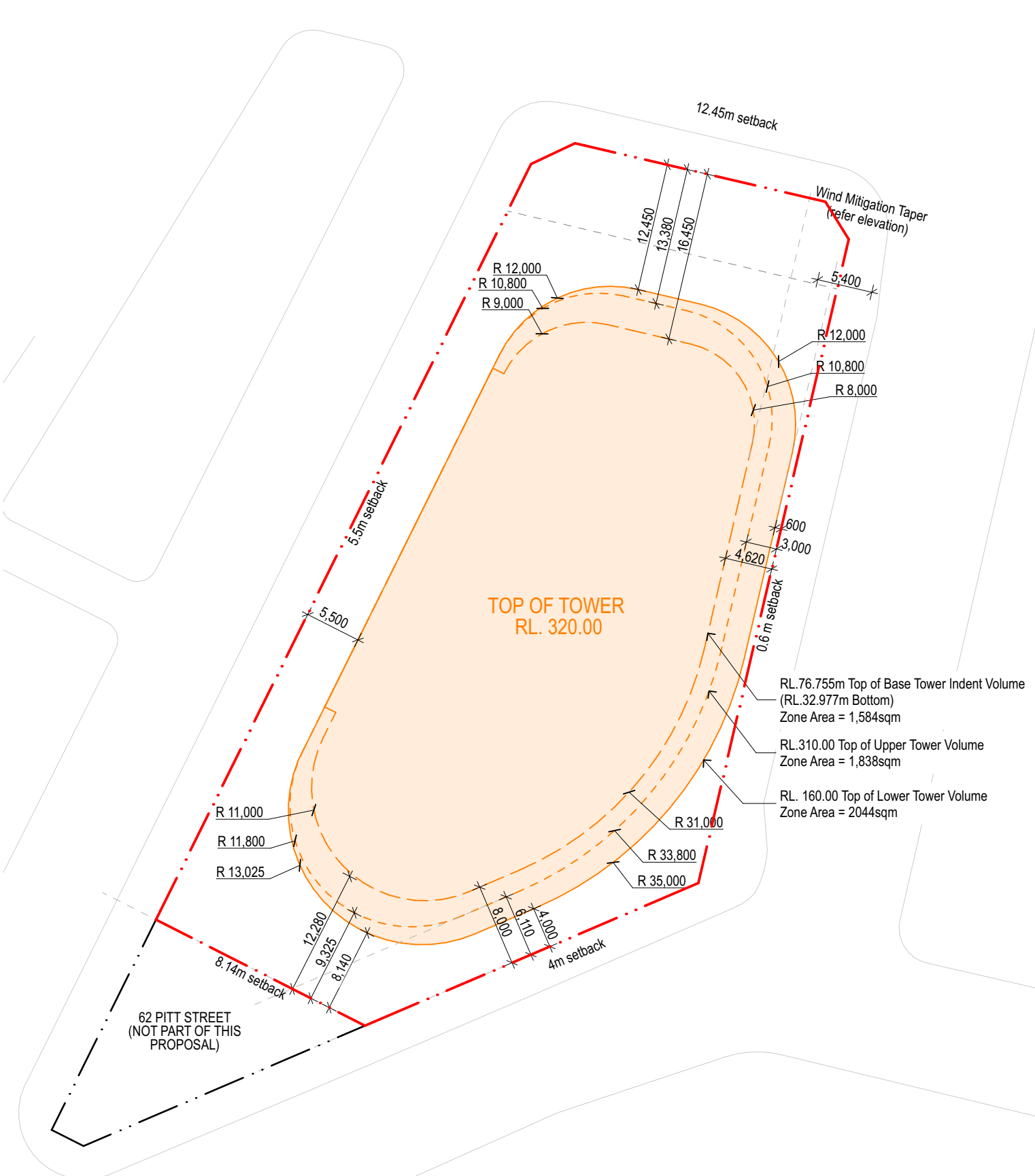
Basement Envelope Plan



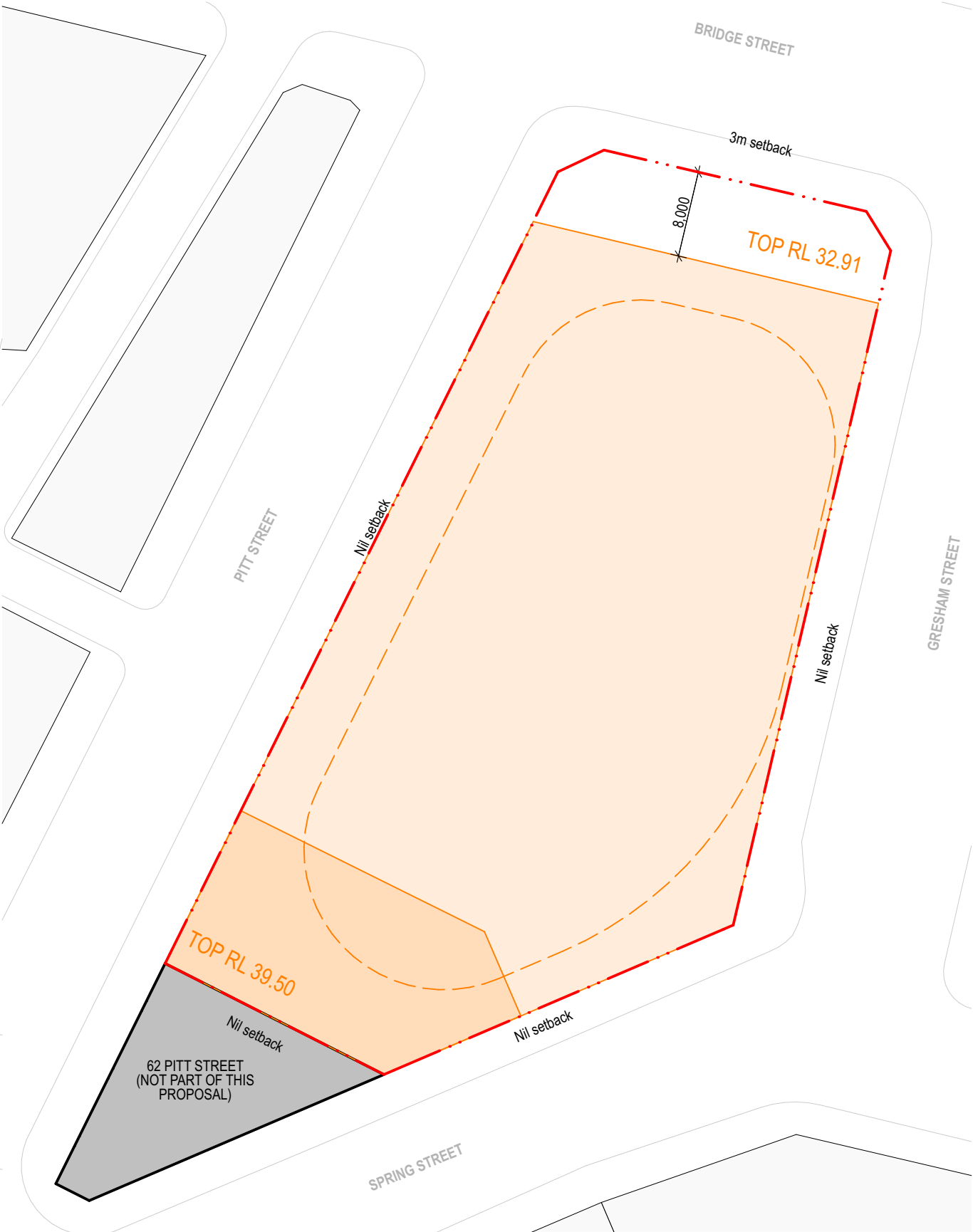
Ground Level Envelope Plan

Scale
1:500 @ A3



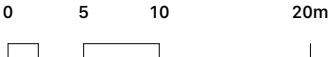


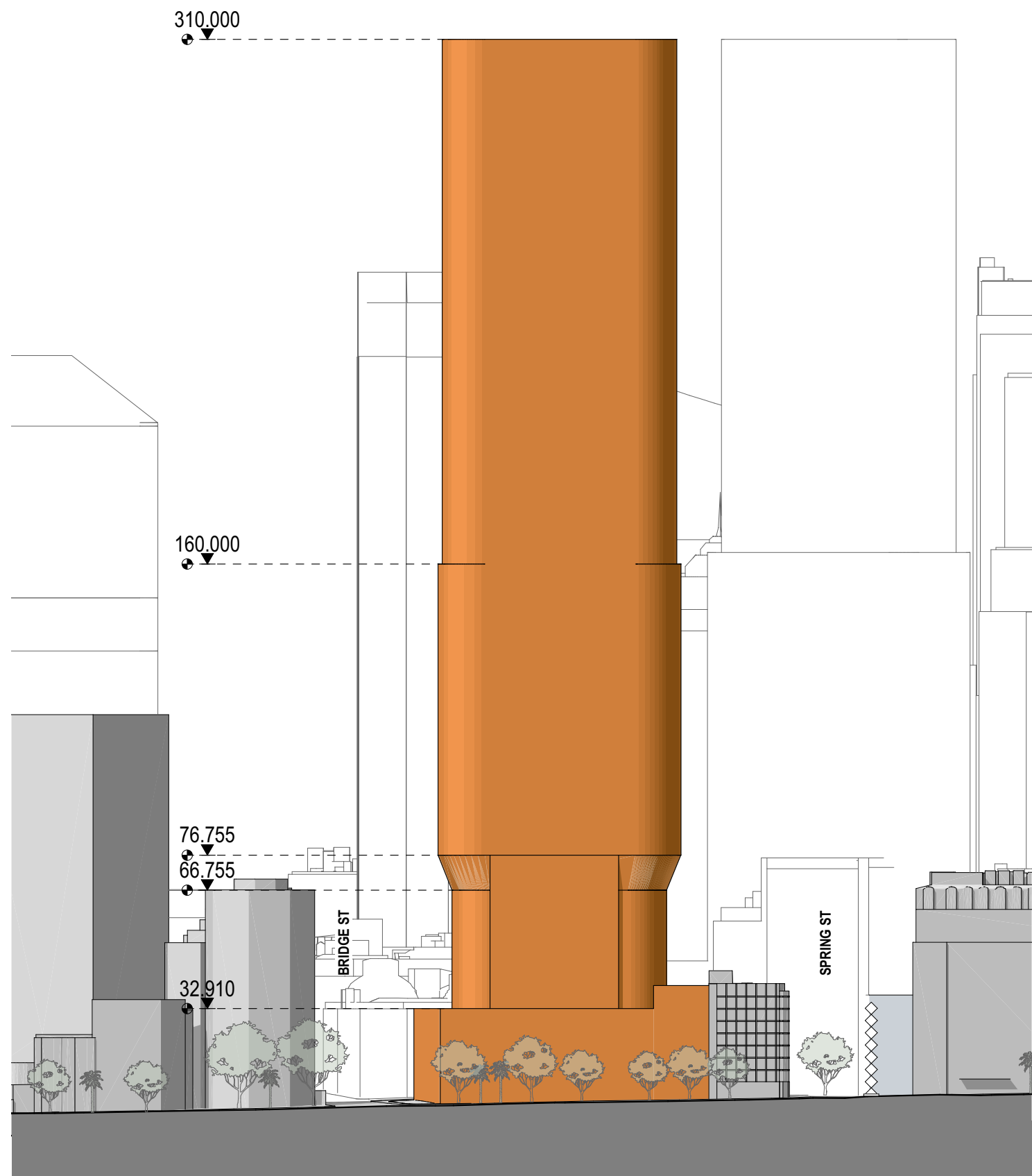
Tower Envelope Plan



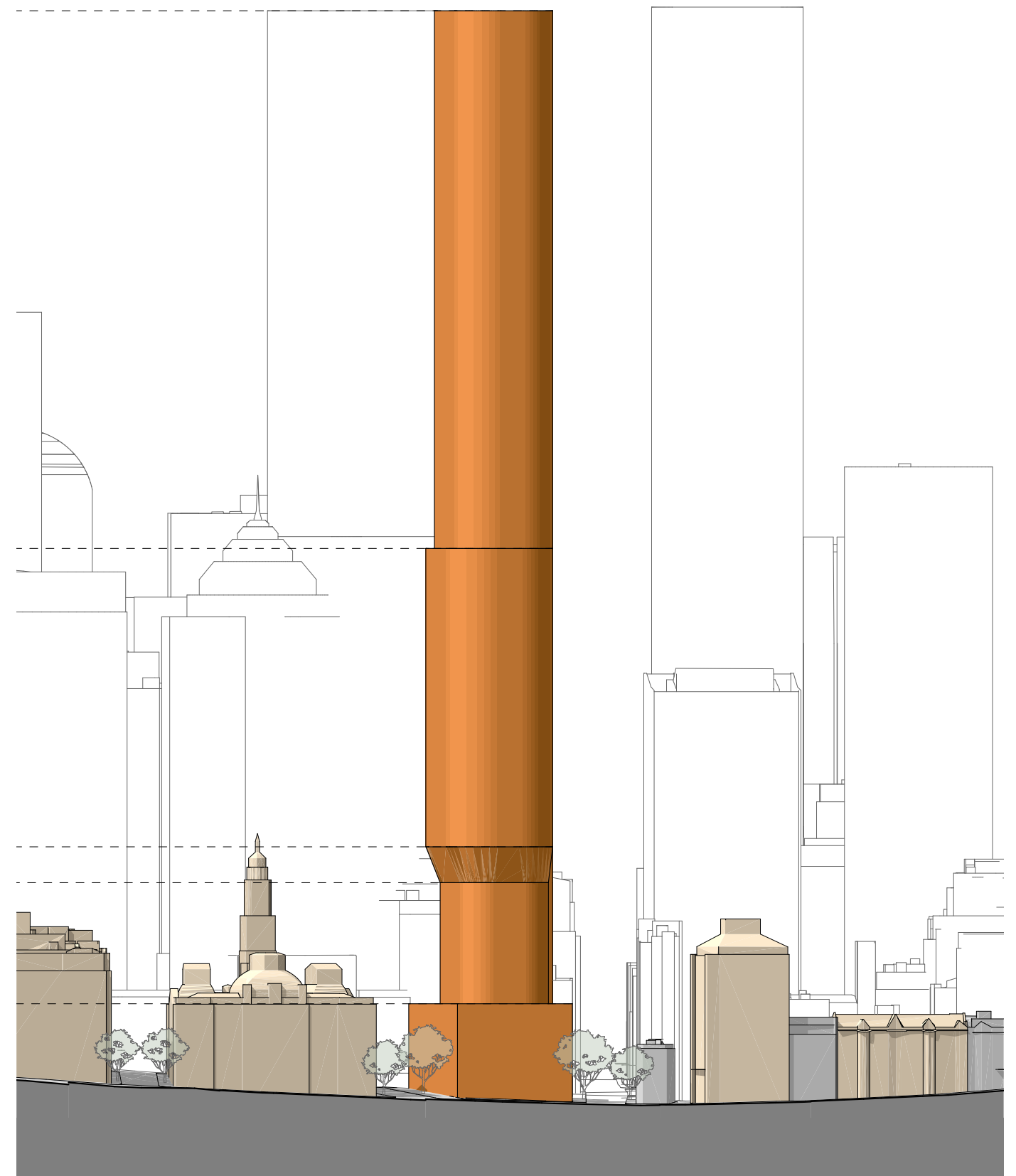
Podium Envelope Plan

Scale
1:500 @ A3

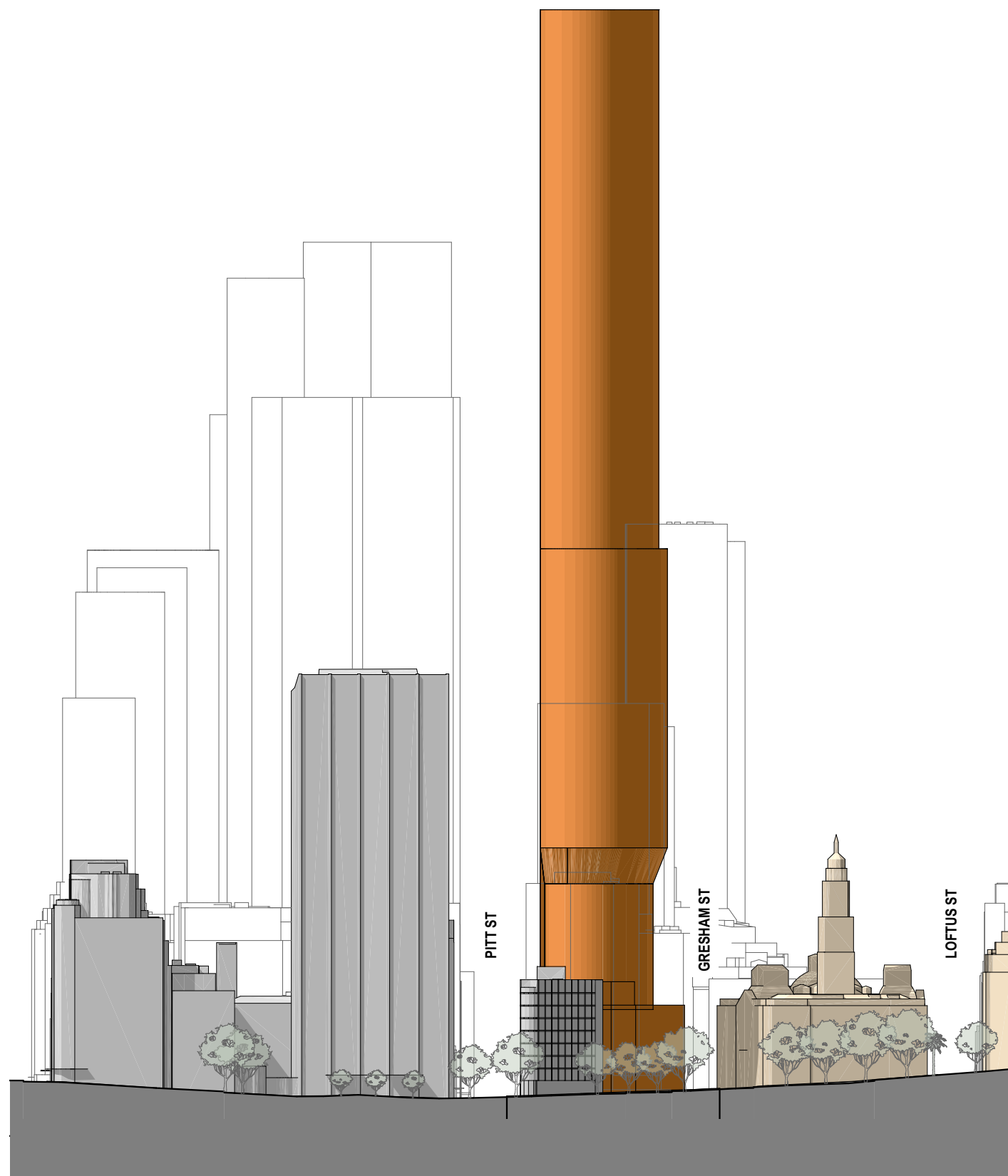




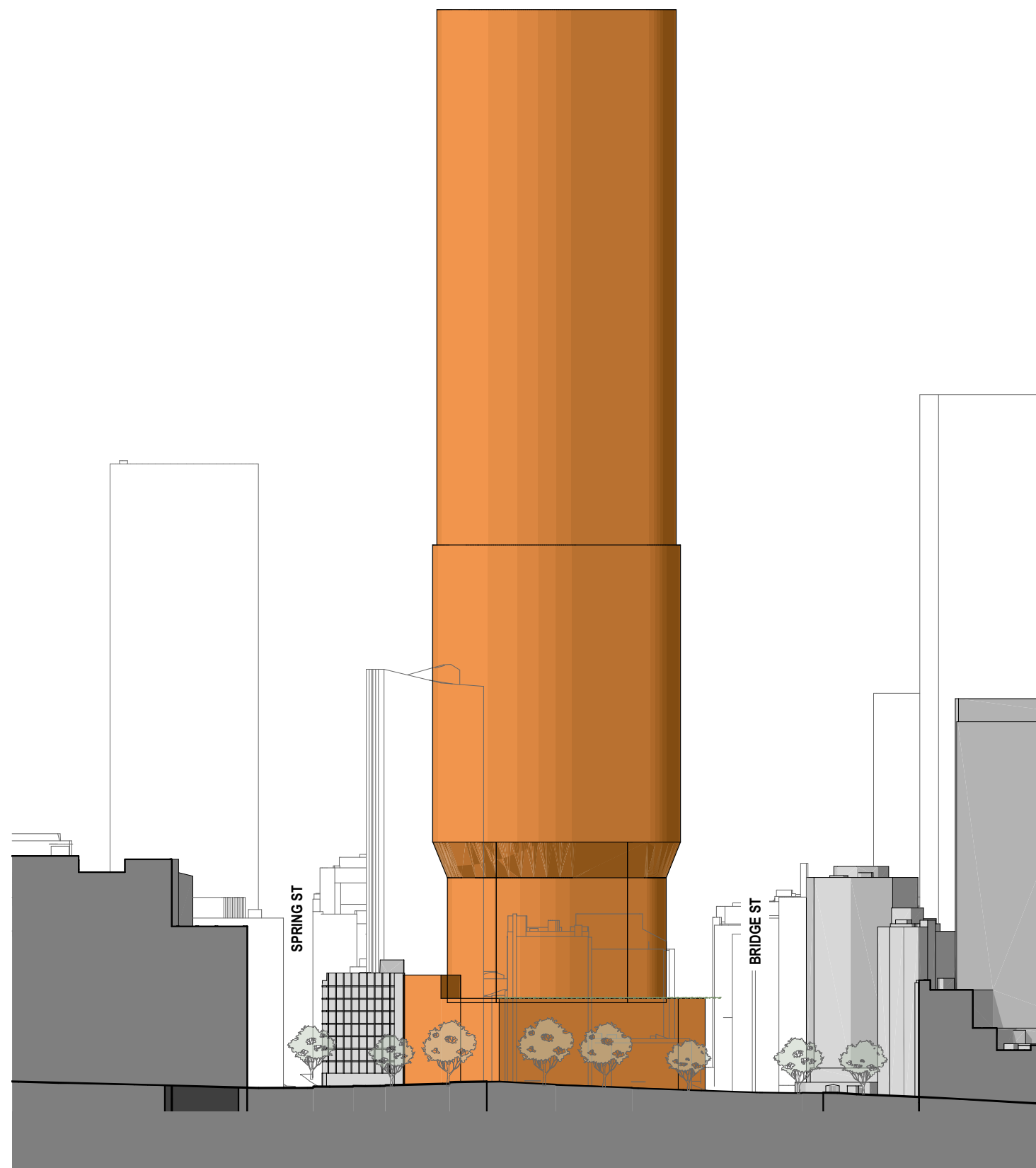
Envelope Elevation - West



Envelope Elevation - North

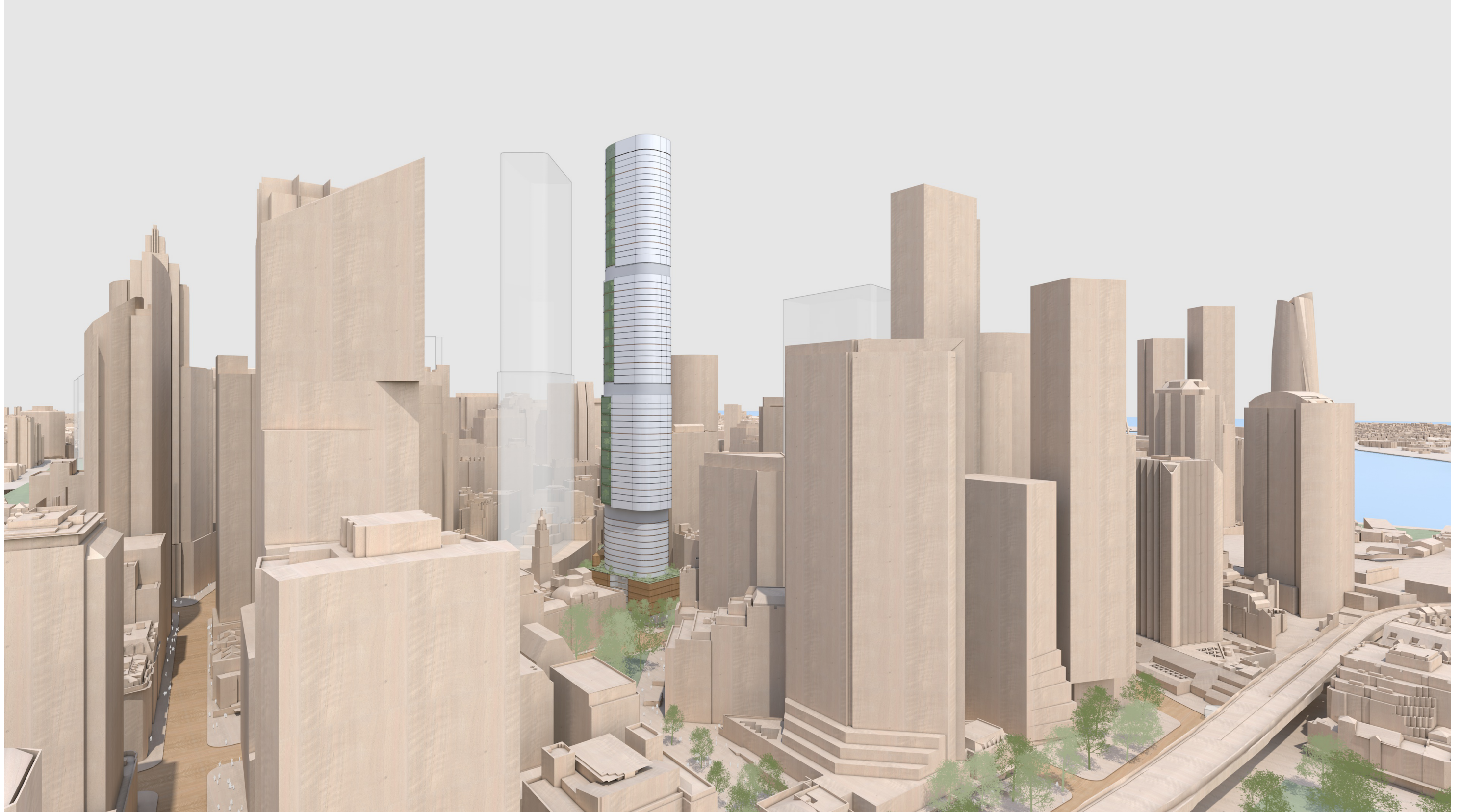


Envelope Elevation - South



Envelope Elevation - East

Reference design drawings



Birds eye view Circular Quay

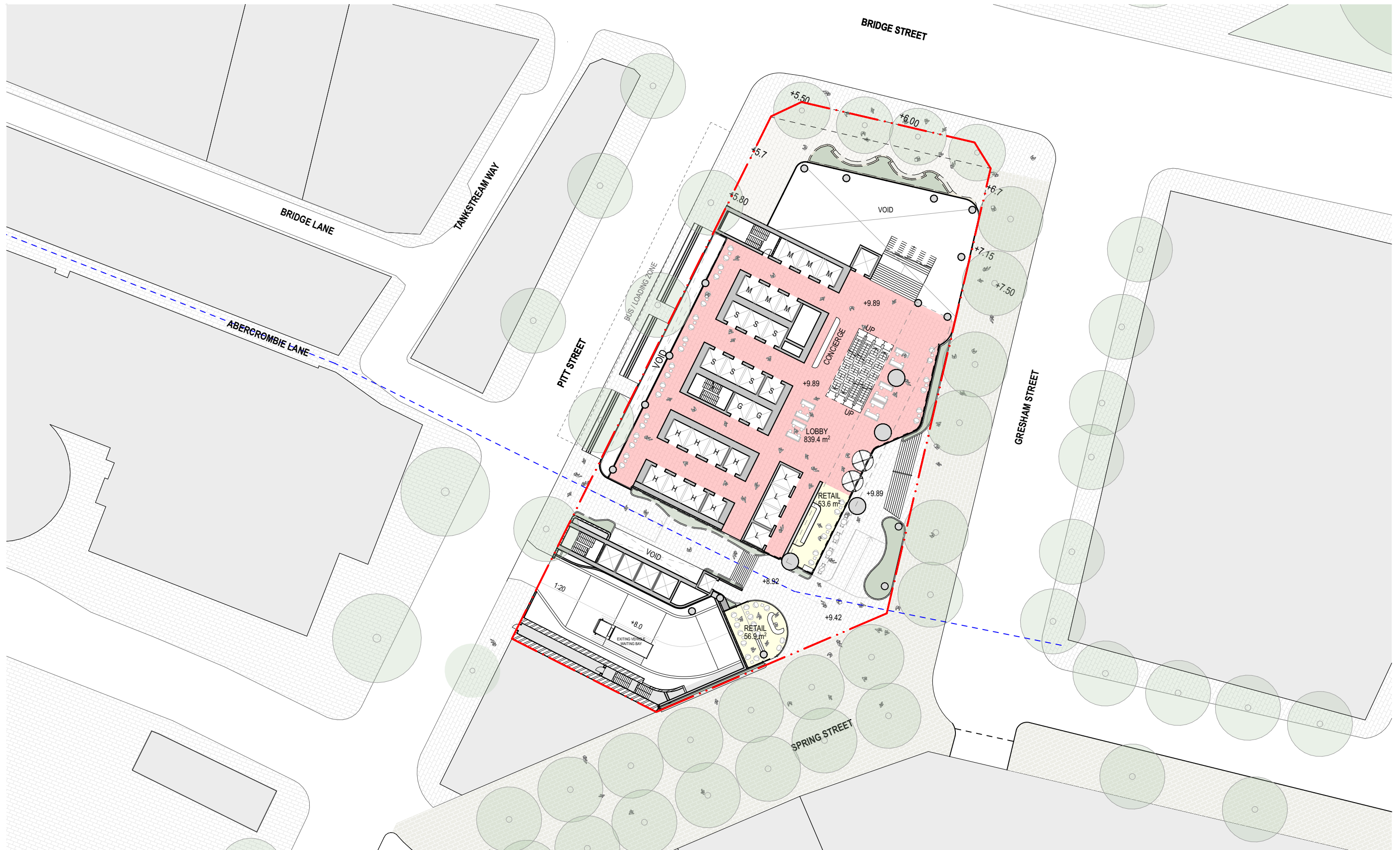


Lower Ground Level Floor Plan - Pitt Street

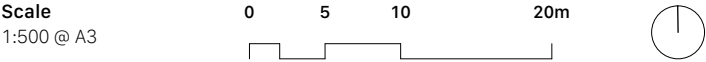
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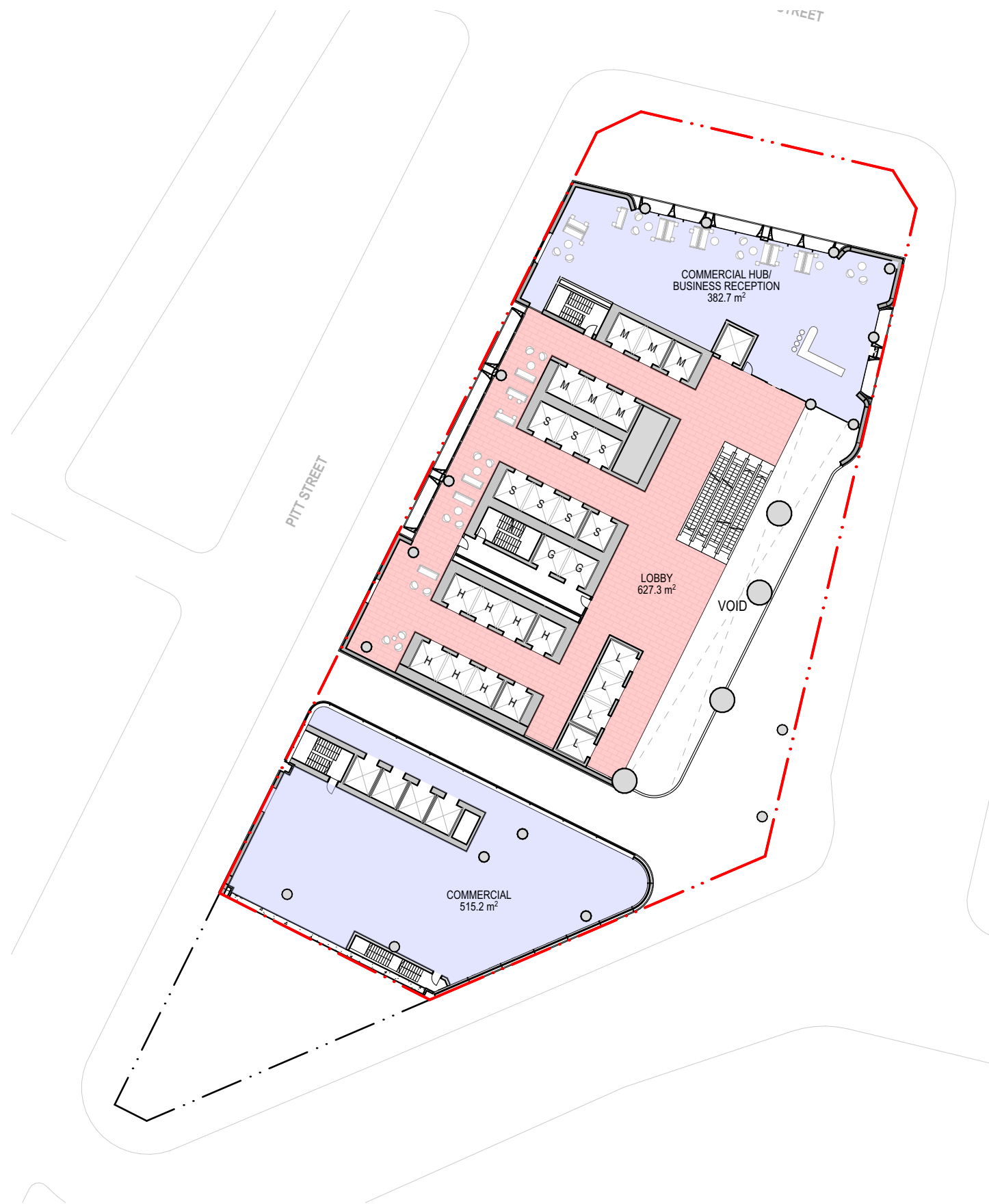
0 5 10 20m





Upper Ground Level Floor Plan





Podium Mezzanine



Level 1

Scale
1:500 @ A3

0 5 10 20m





Level 2

Level 3

Scale
1:500 @ A3

0 5 10 20m





Level 4

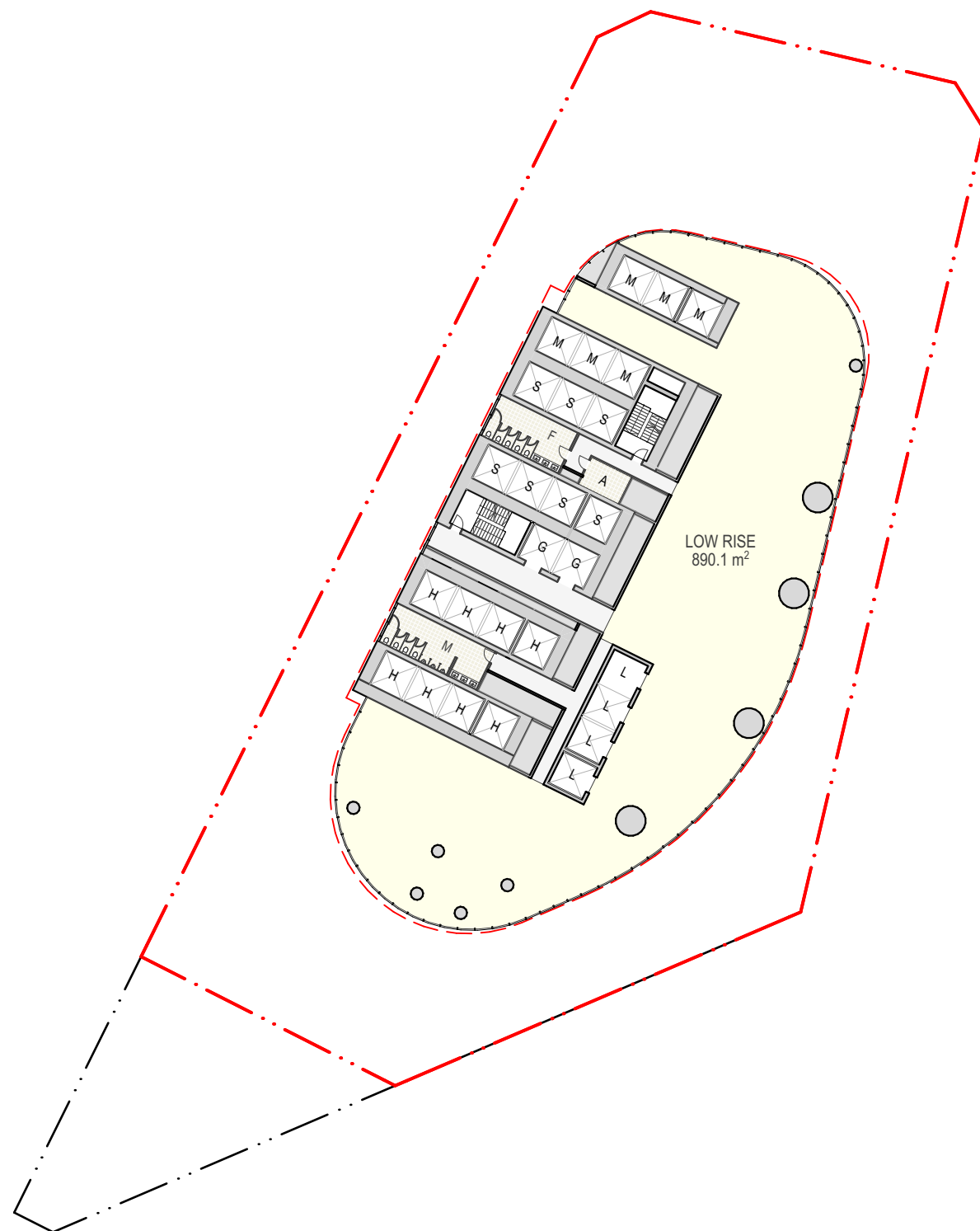


Level 5

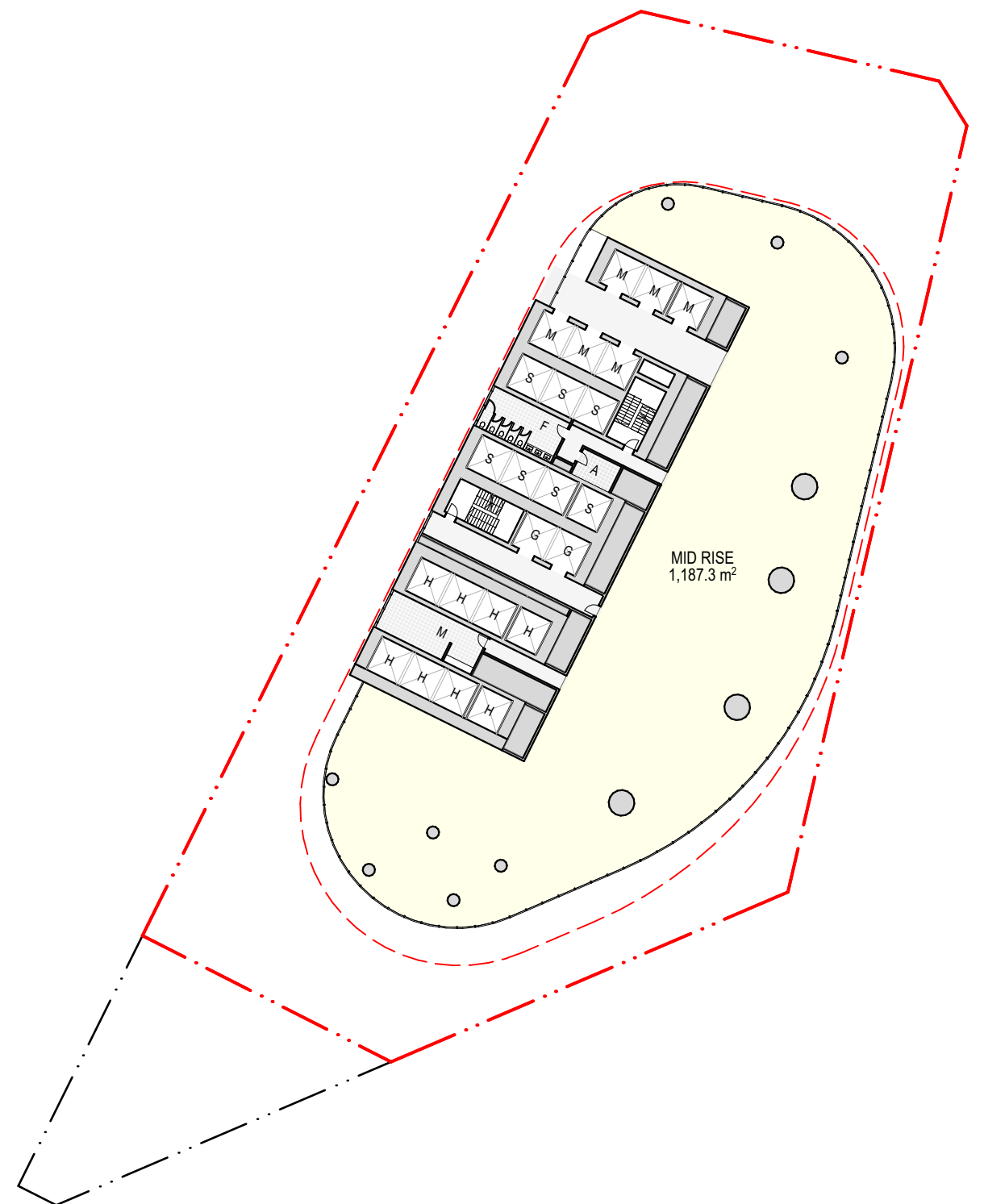
Scale
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0 5 10 20m





Typical Low Rise

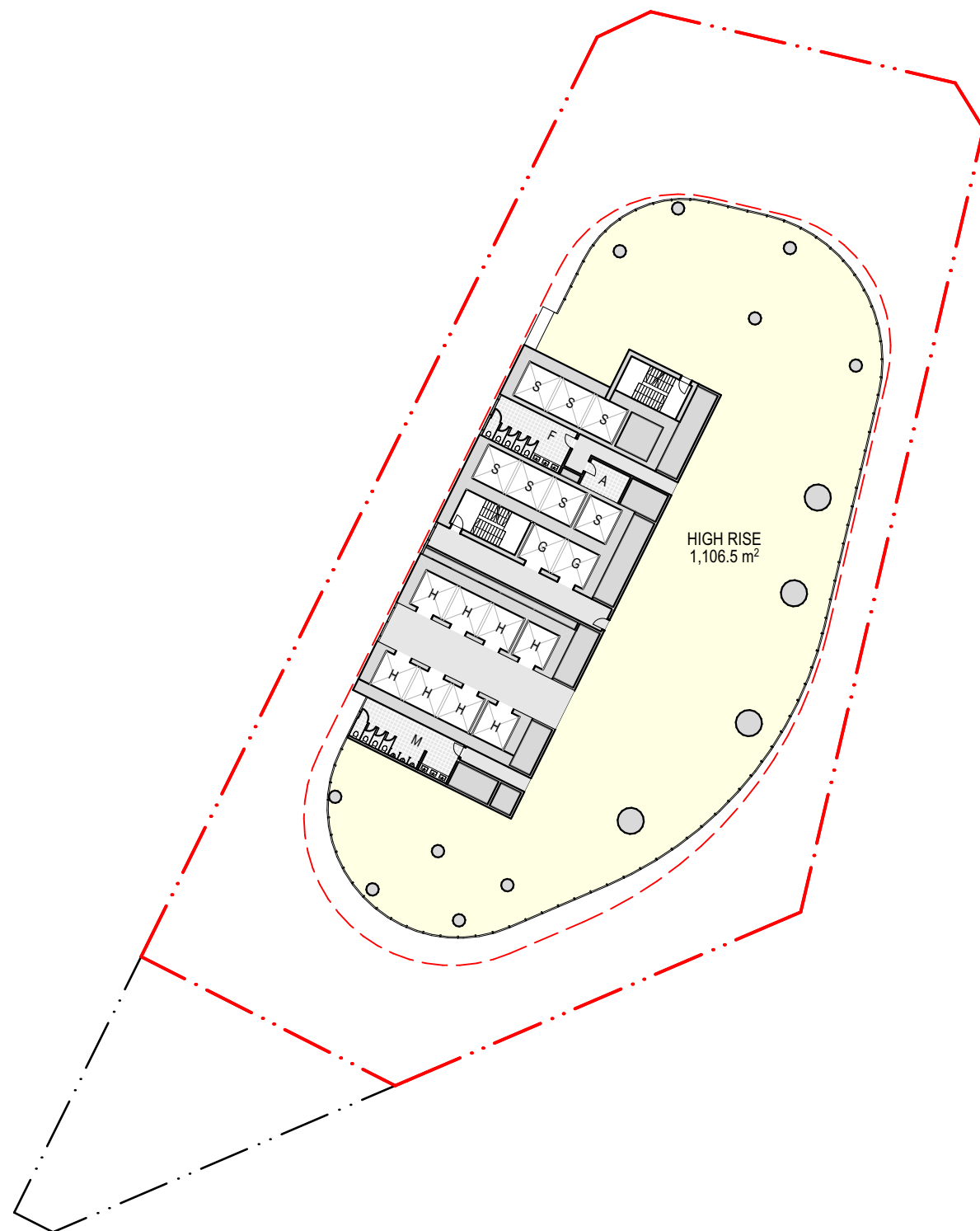


Typical Mid Rise

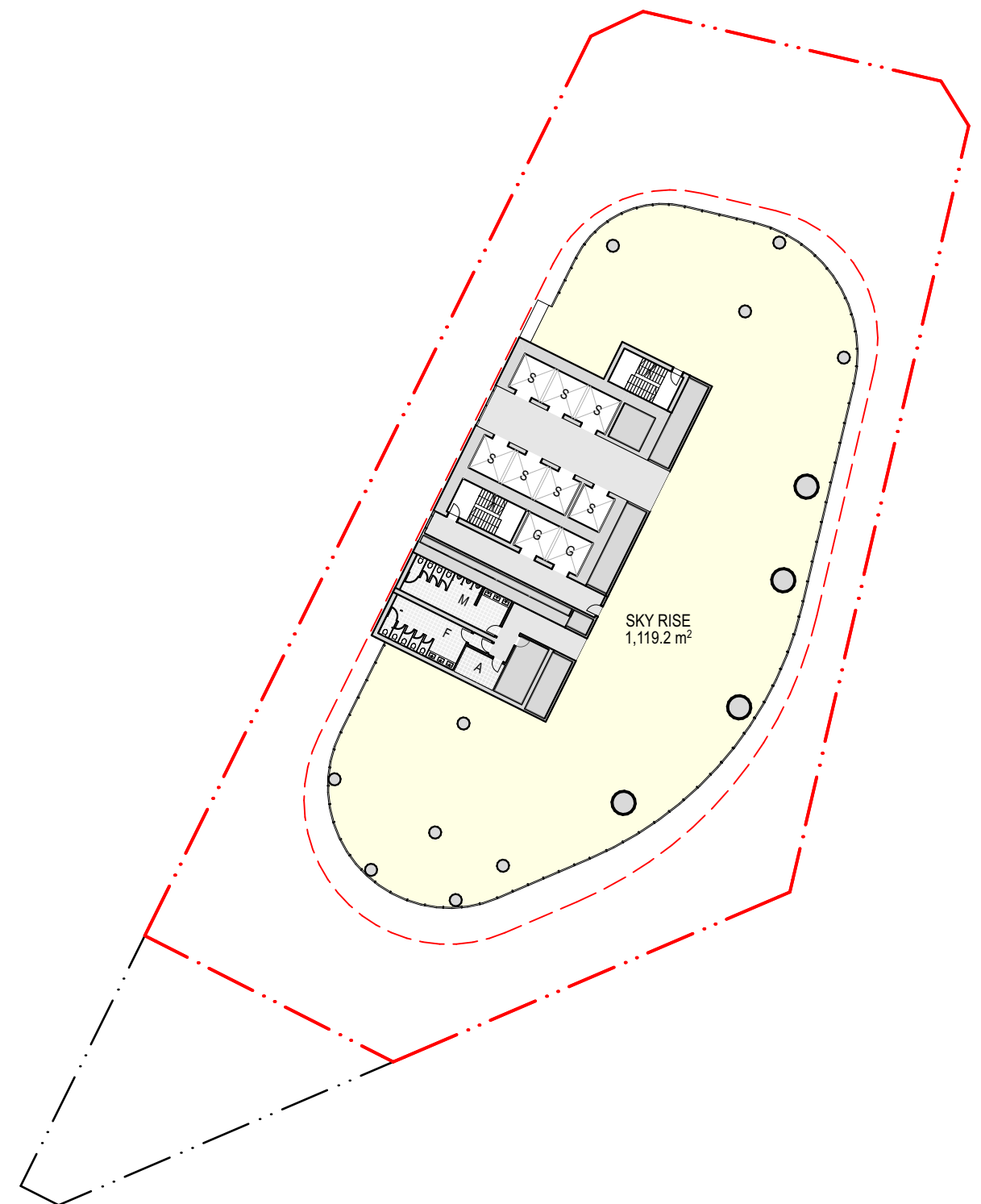
Scale
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0 5 10 20m



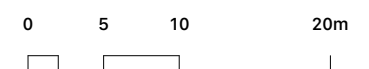


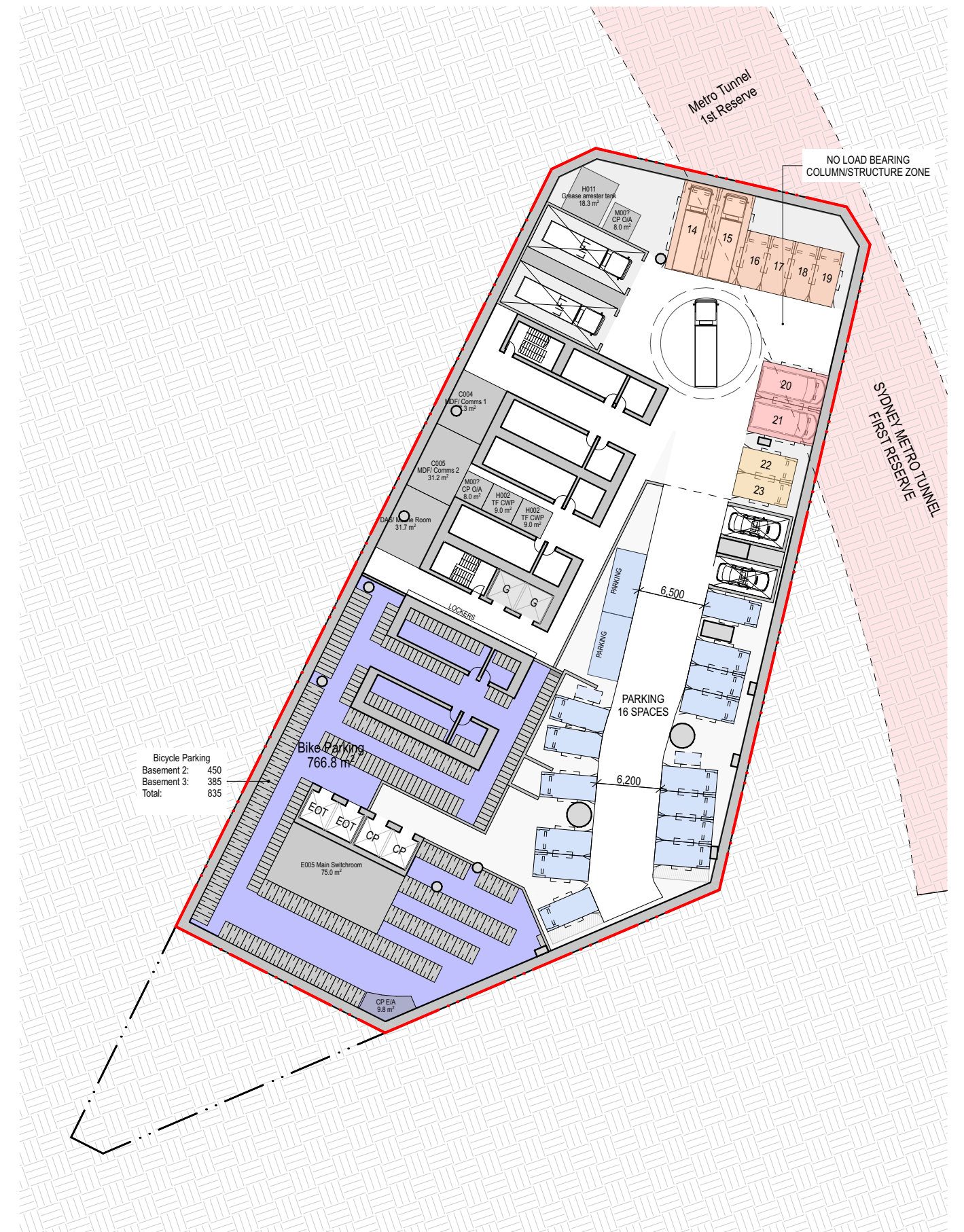
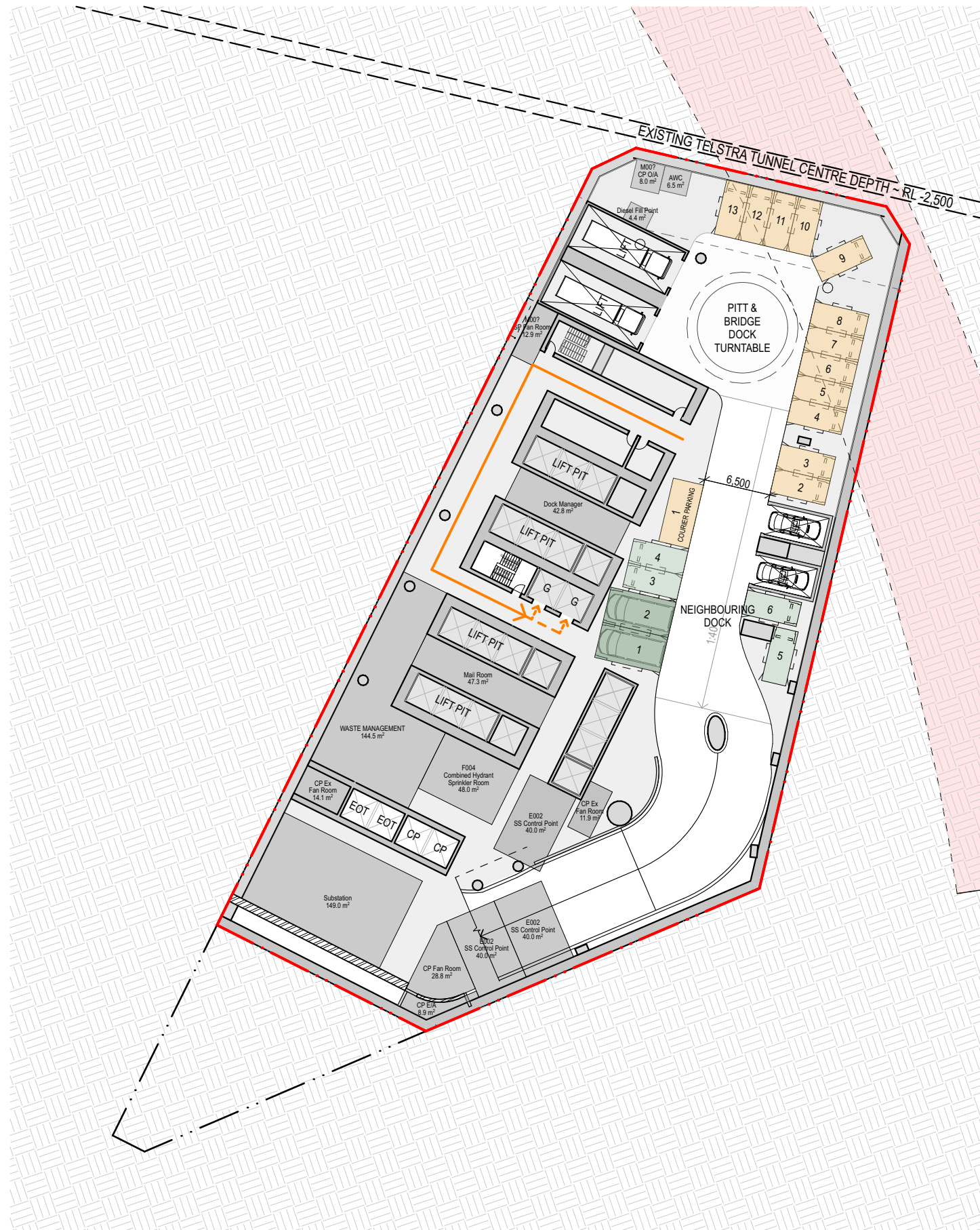
Typical High Rise



Typical Sky Rise

Scale
1:500 @ A3





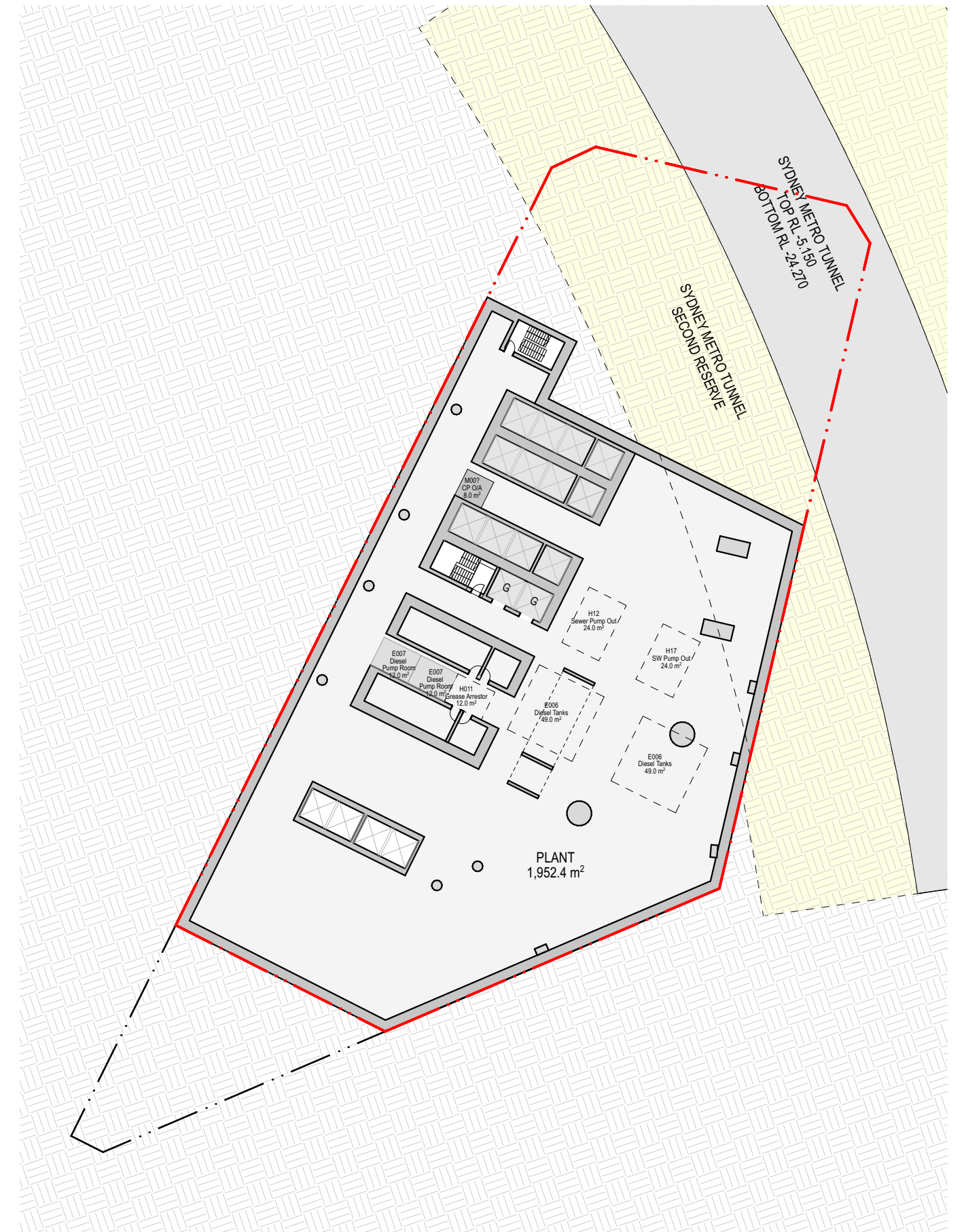
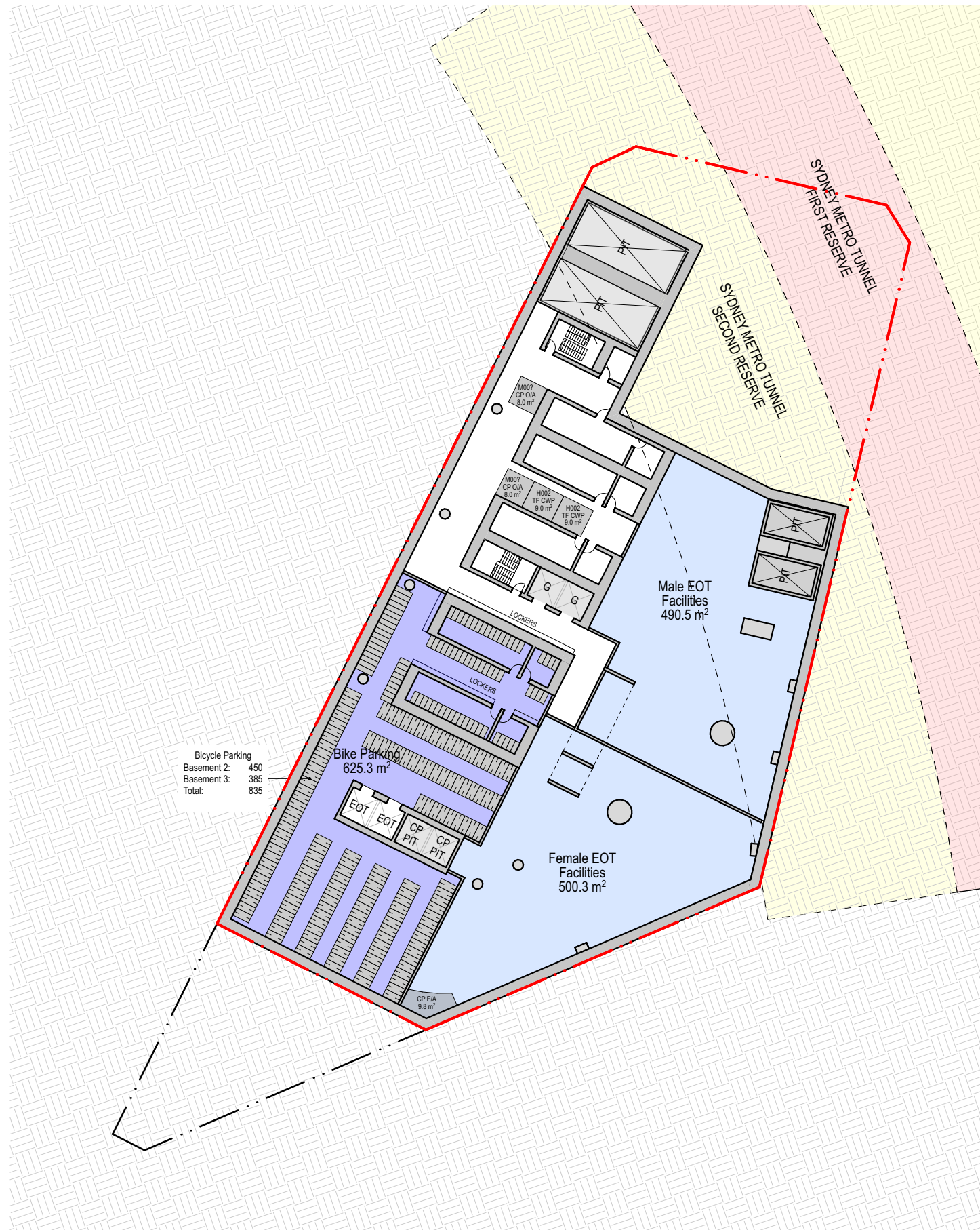
Basement 1

Basement 2

Scale
1:500 @ A3

0 5 10 20m





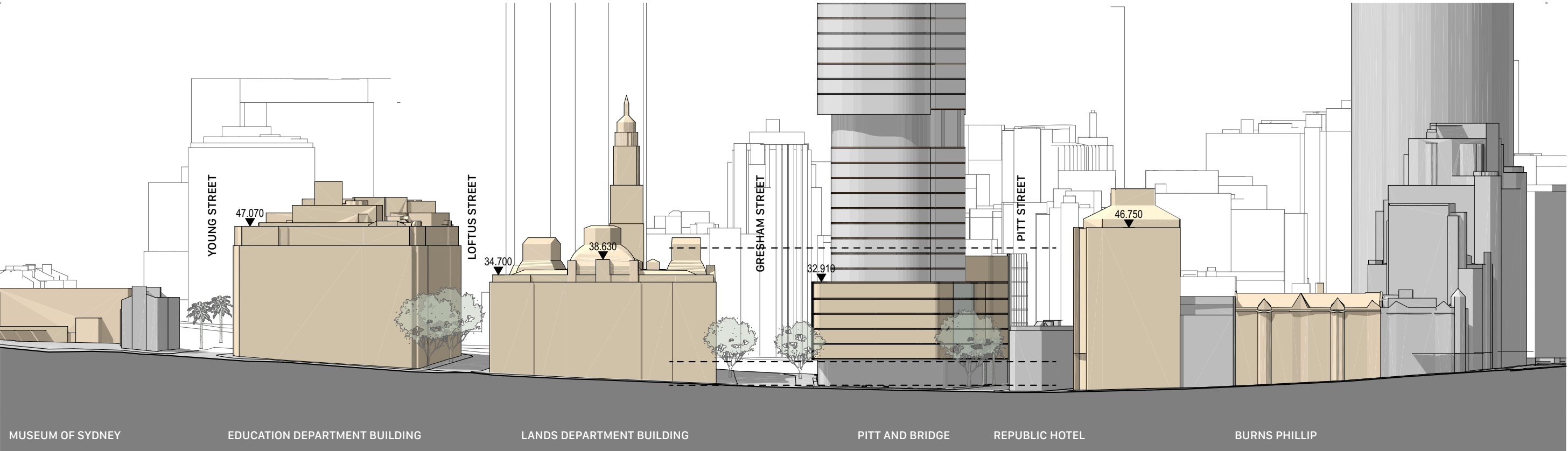
Basement 3

Basement 4

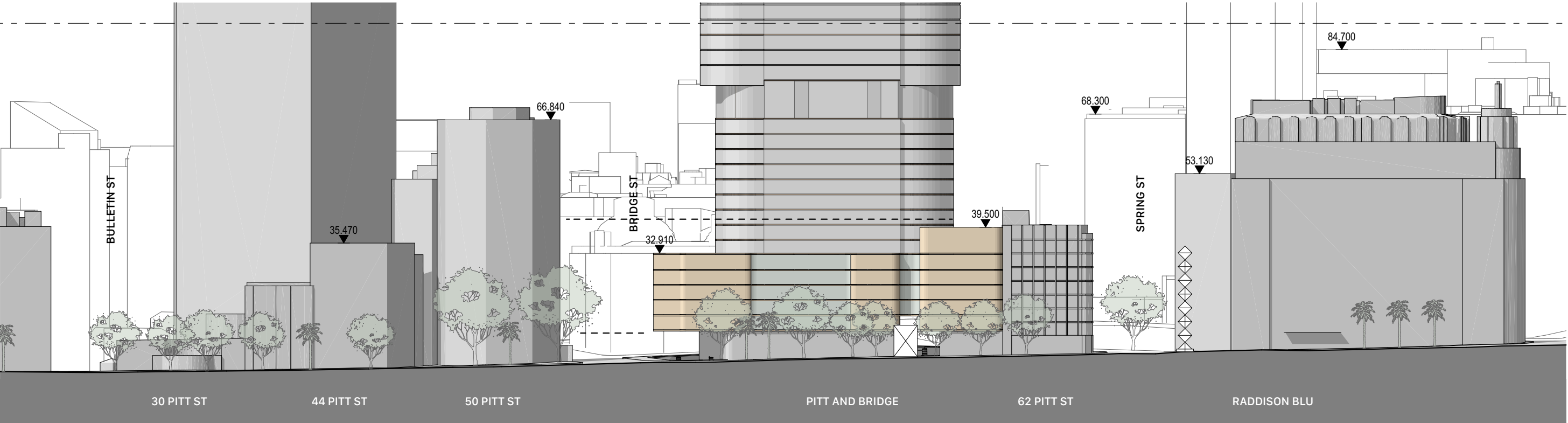
Scale
1:500 @ A3

0 5 10 20m

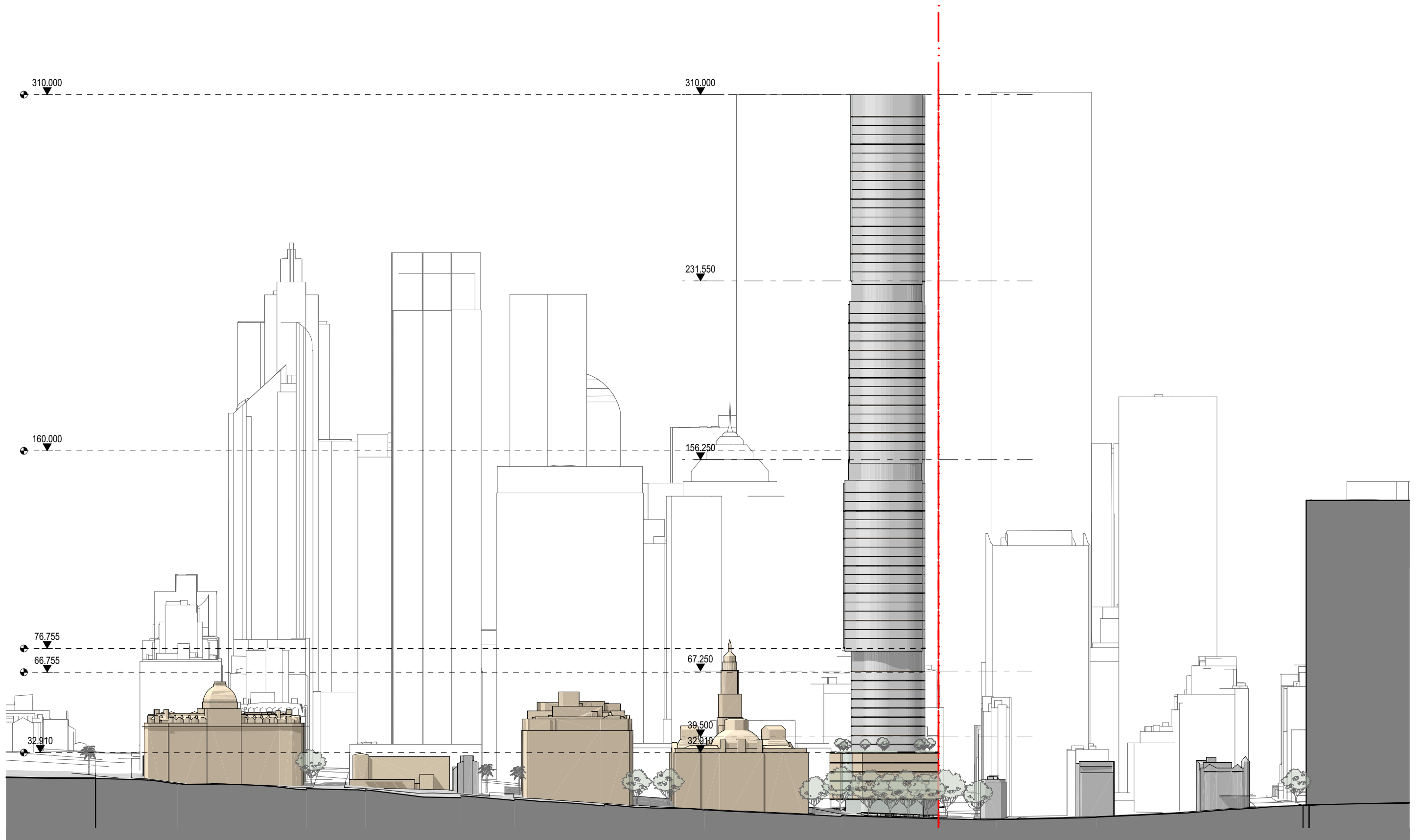




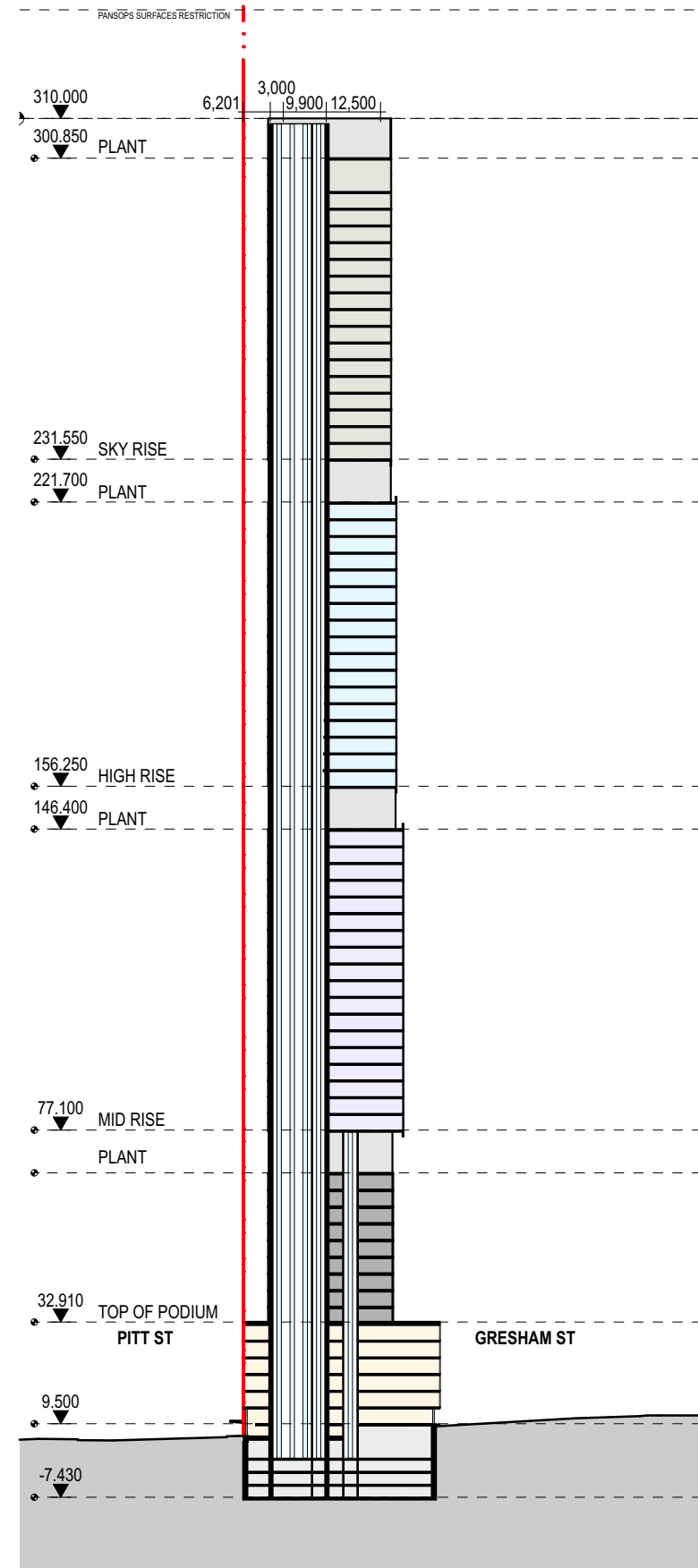
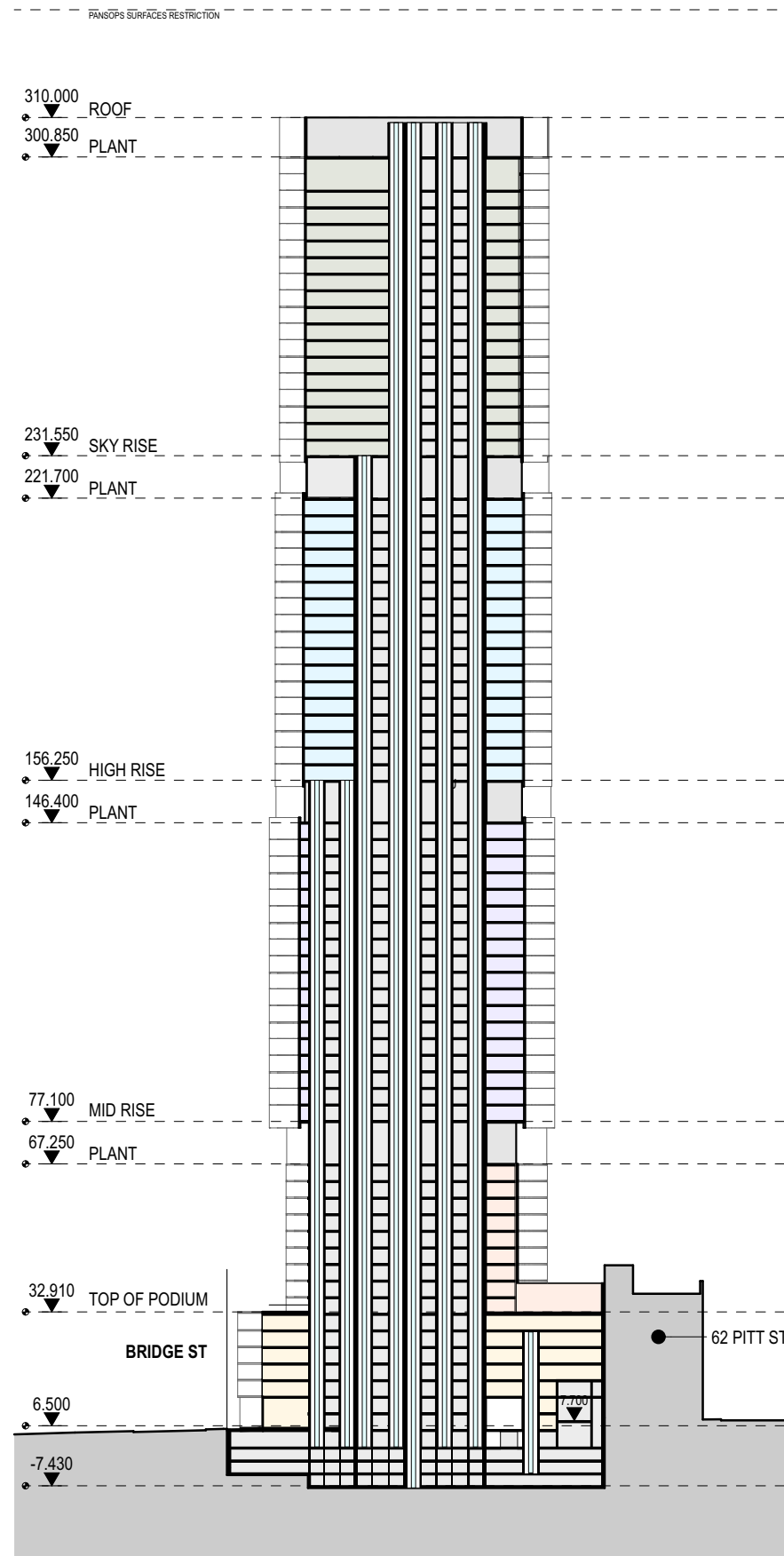
Bridge St Elevation
1:1000



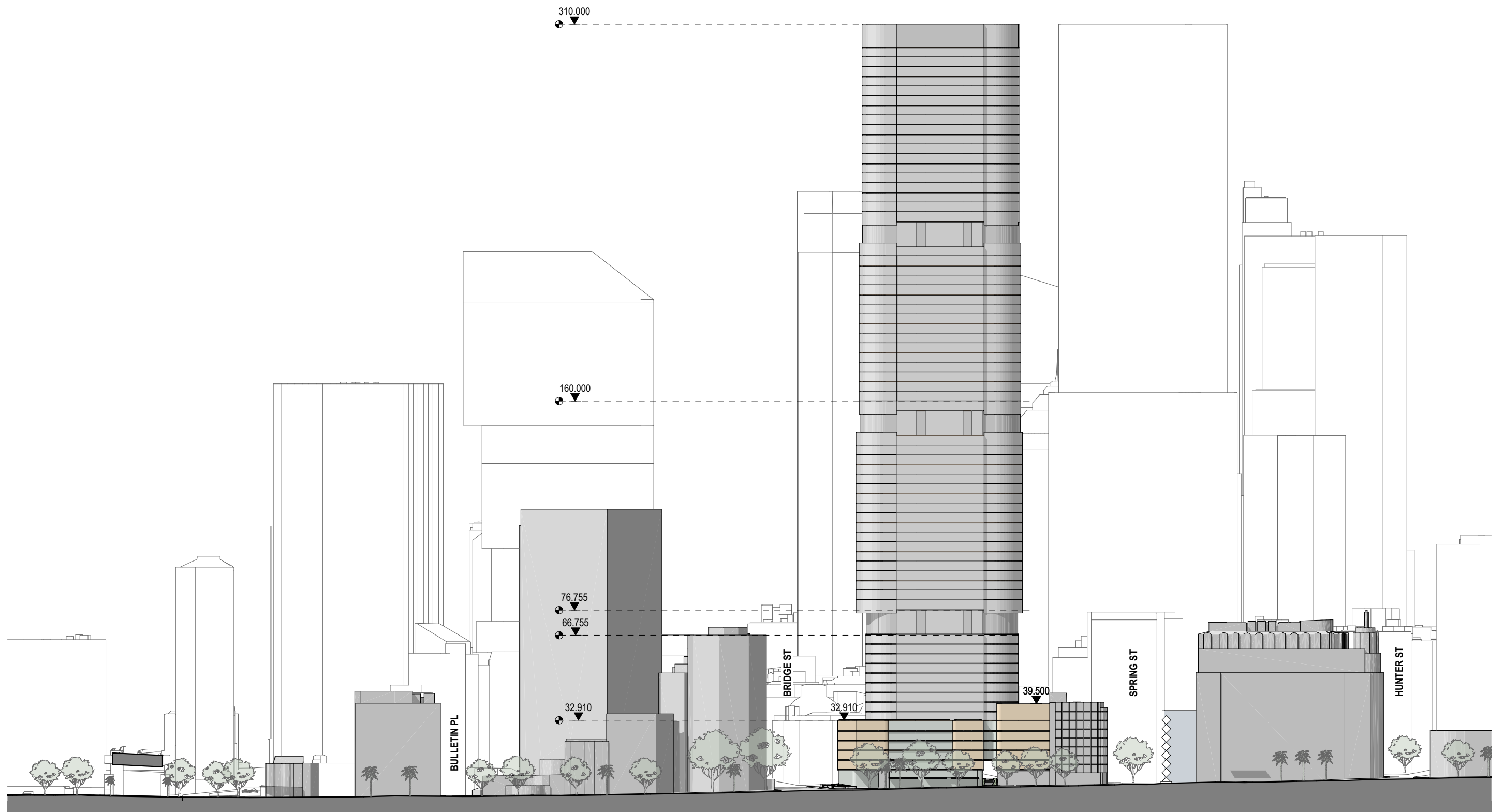
Pitt St Elevation
1:1000



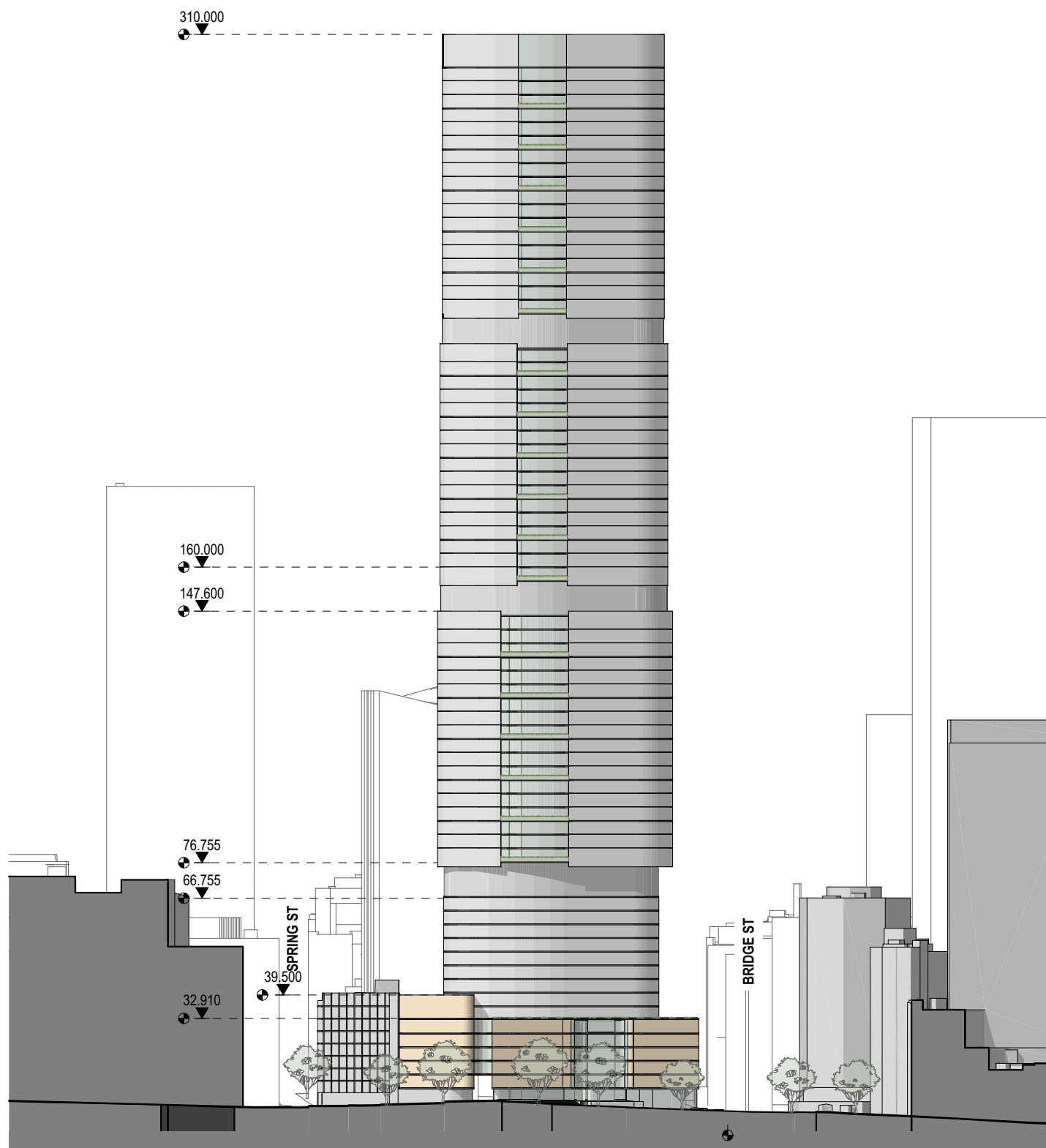
North Elevation



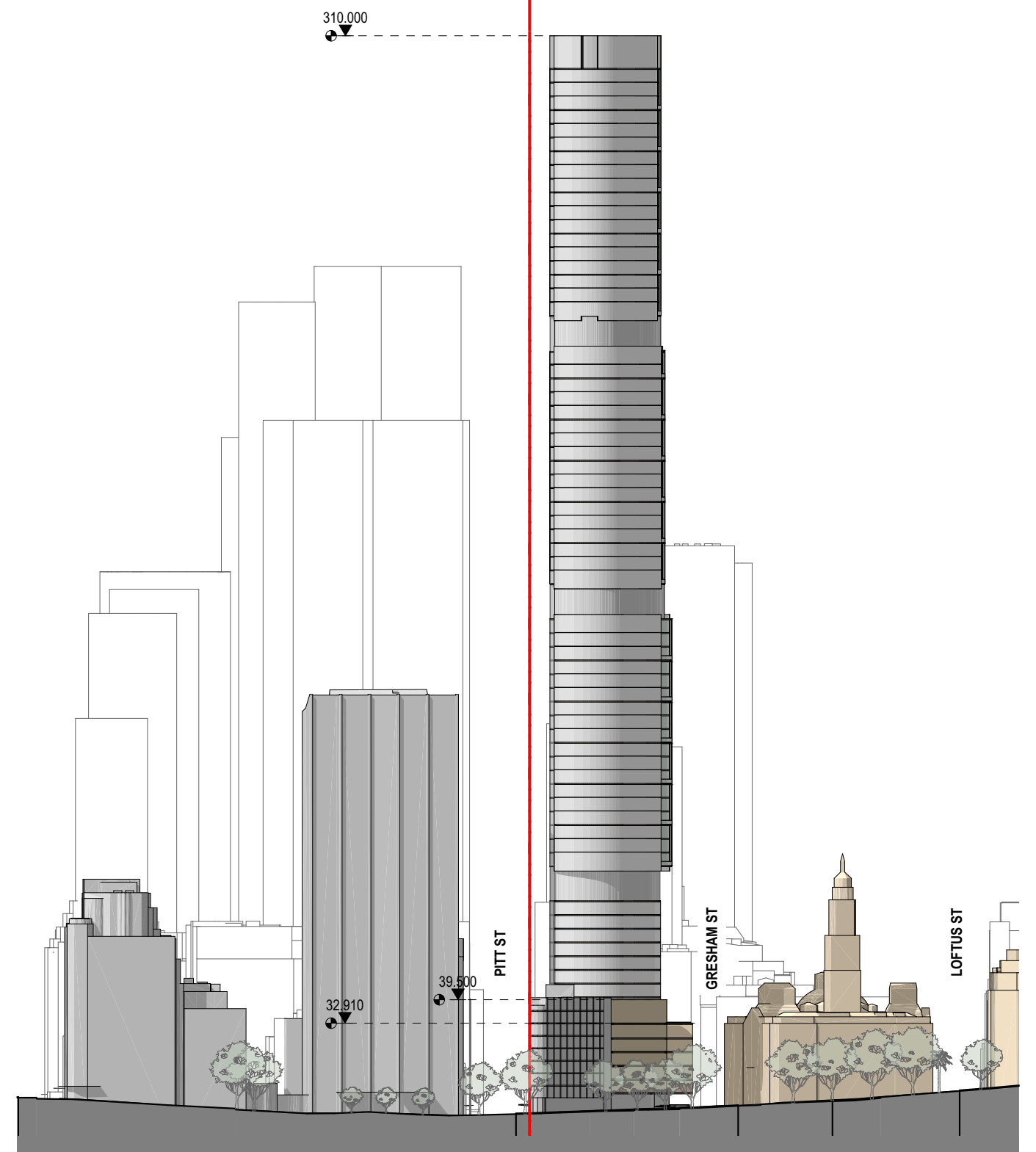
Tower Sections



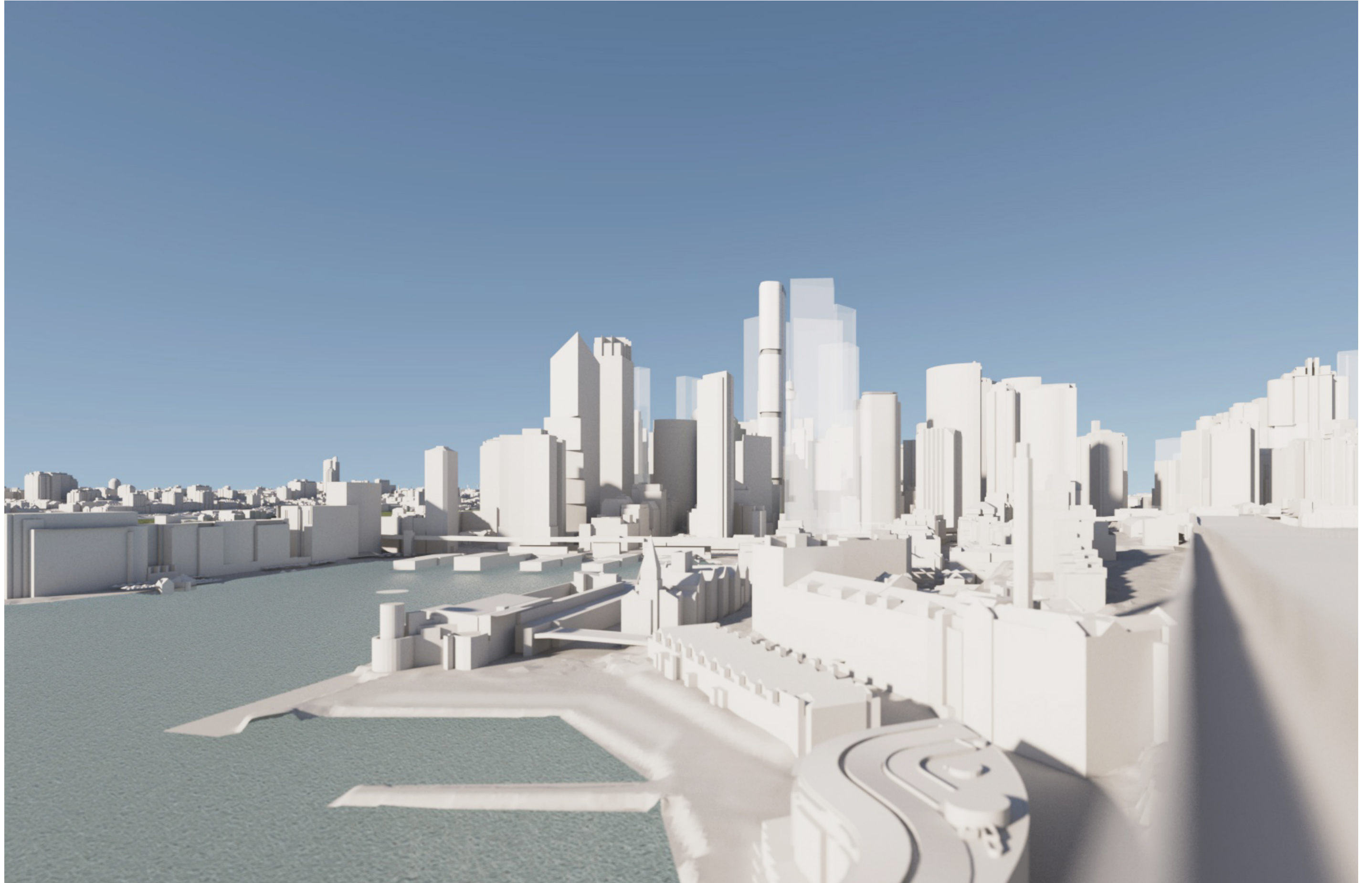
West Elevation



East Elevation



South Elevation



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