

4.0 Union Street Tower

4.2 Consideration of Environmental Impacts

- ii. Solar Access to Existing Residential Developments

Detailed Overshadowing Study to Affected Residential Developments

1 1-5 Harwood Street, north facade

2 17-21 Pyrmont Bridge Road

Site 1: 1-5 Harwood Street

Sun Eye View analysis indicates that six (6) north facing apartments, as marked to the right, have their solar access reduced to approximately 1 hour and 50 minutes.

Site 2: 17-21 Pyrmont Bridge Road

Sun Eye View analysis indicates that north facing apartments along Pyrmont Bridge Road will maintain greater than 2 hours solar access via a combination of morning and afternoon sun.



Current solar access to existing development



Impact of tower on solar access to existing development

4.0 Union Street Tower

4.2 Consideration of Environmental Impacts

- ii. Solar Access to Existing Residential Developments

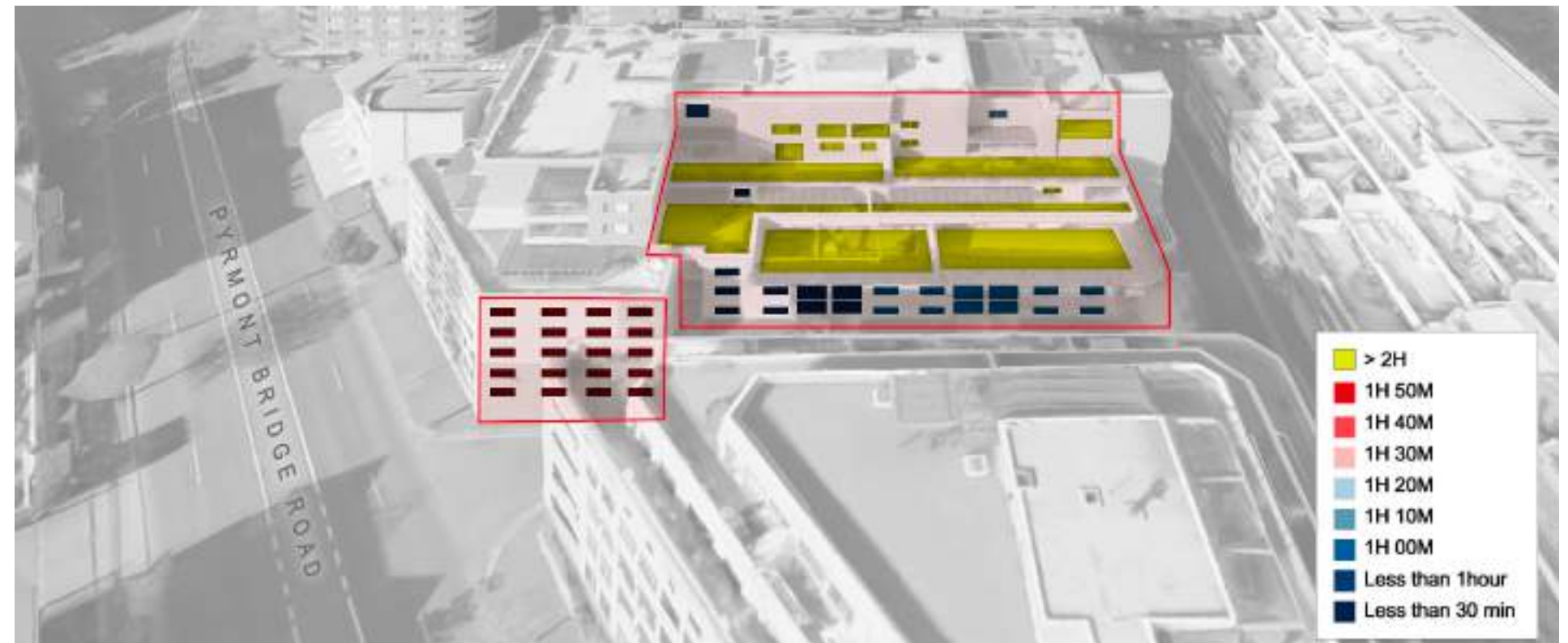
Detailed Overshadowing Study to Affected Residential Developments



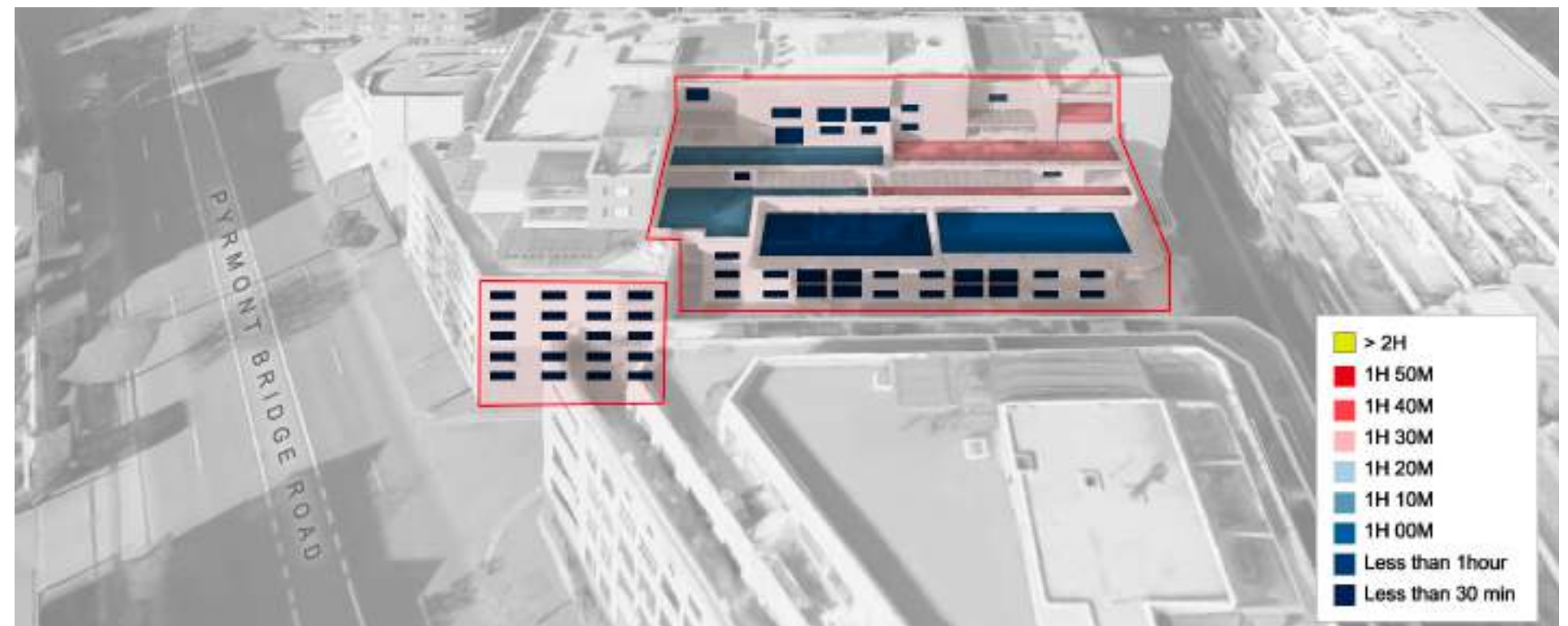
1 Site 1: 1-5 Harwood Street

1-5 Harwood Street has 89 apartments. The analysis to the right examines the impact of a tower on the western facing apartments and indicates approximately 11 apartments will have their solar access reduced from above 2 hours to under 2 hours in mid-winter.

In conjunction with the six (6) impacted north facing apartments, this gives a total of approximately 17 impacted apartments. This equates to 19% of apartments. These solar impacts should be considered in the context of future development strategies and the sub-precinct masterplan outcomes and recommendations.



Current solar access to existing development



Impact of tower on solar access to existing development

4.0 Union Street Tower

4.2 Consideration of Environmental Impacts

iii. Wind

- 1 Podium and tower setbacks have been established with consideration of wind impacts and pedestrian comfort. Tower / podium setbacks are considered generally appropriate to deal with southerly winds. In addition, a continuous awning that is at least 3m deep, to wrap around the critical corner of Pymont Bridge Road and Union Street, and if possible, along the perimeter of the building may be provided subject to more detailed testing.
- 2 The built form at the critical wind corner of Pymont Bridge Road and Union Street is recommended to be chamfered and set back from the footpath as much as possible to mitigate winds coming from the south in between existing buildings along Pymont Bridge Road.



Image: aerial showing existing site and context

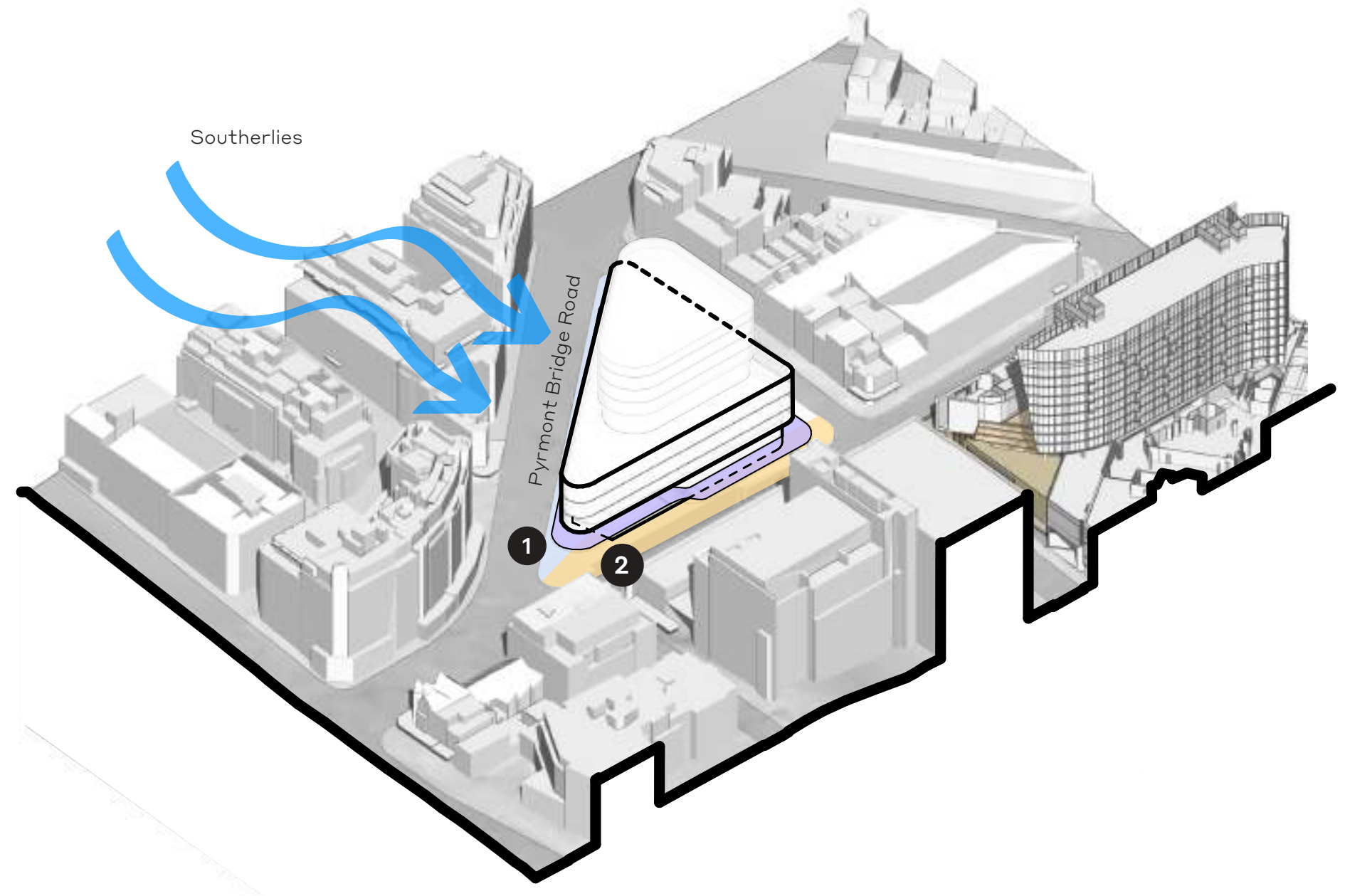


Diagram: Union Street tower site podium and awning

4.0 Union Street Tower

4.3 Urban Response

Existing Context and Built Form

The existing urban fabric of this area consist primarily of 5-7 storey residential buildings with ground floor retail/shopfronts.

Existing Controls

The Sydney LEP 2012 Height of Buildings Map stipulate that development on the Union Street tower site be capped at a height of 30m.

The Masterplan proposal being put forward seeks more height on this site for the following reasons:

1. The PPPS is anticipating and driving change
2. The impact needs to be considered against the desired future context for the Union Street tower site and surrounding sites - as sites capable of change
3. Future DAs will need to consider potential future forms for the above mentioned sites in more detail

Main Star Site

- 1 North Hotel Tower Site

T3 28m

Union Street

- 2 Southern Mixed-Use Tower Site

U1 30m



Top: Google Earth image showing existing Union Street tower site and surrounding context

Bottom Left: Sydney LEP 2012 Height of Buildings Map. | Bottom Right: focus to The Star Key Site

4.0 Union Street Tower

4.3 Urban Response

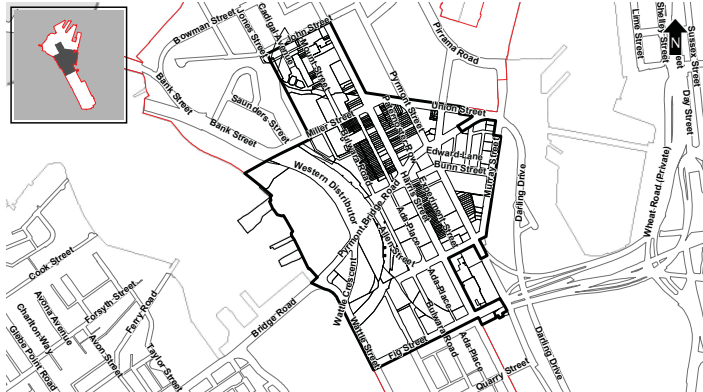
Existing Controls

The Union Street tower site is included in the Pymont Locality as identified by The City of Sydney DCP 2012.

Section 2

LOCALITY STATEMENTS

2.12.2 Pymont



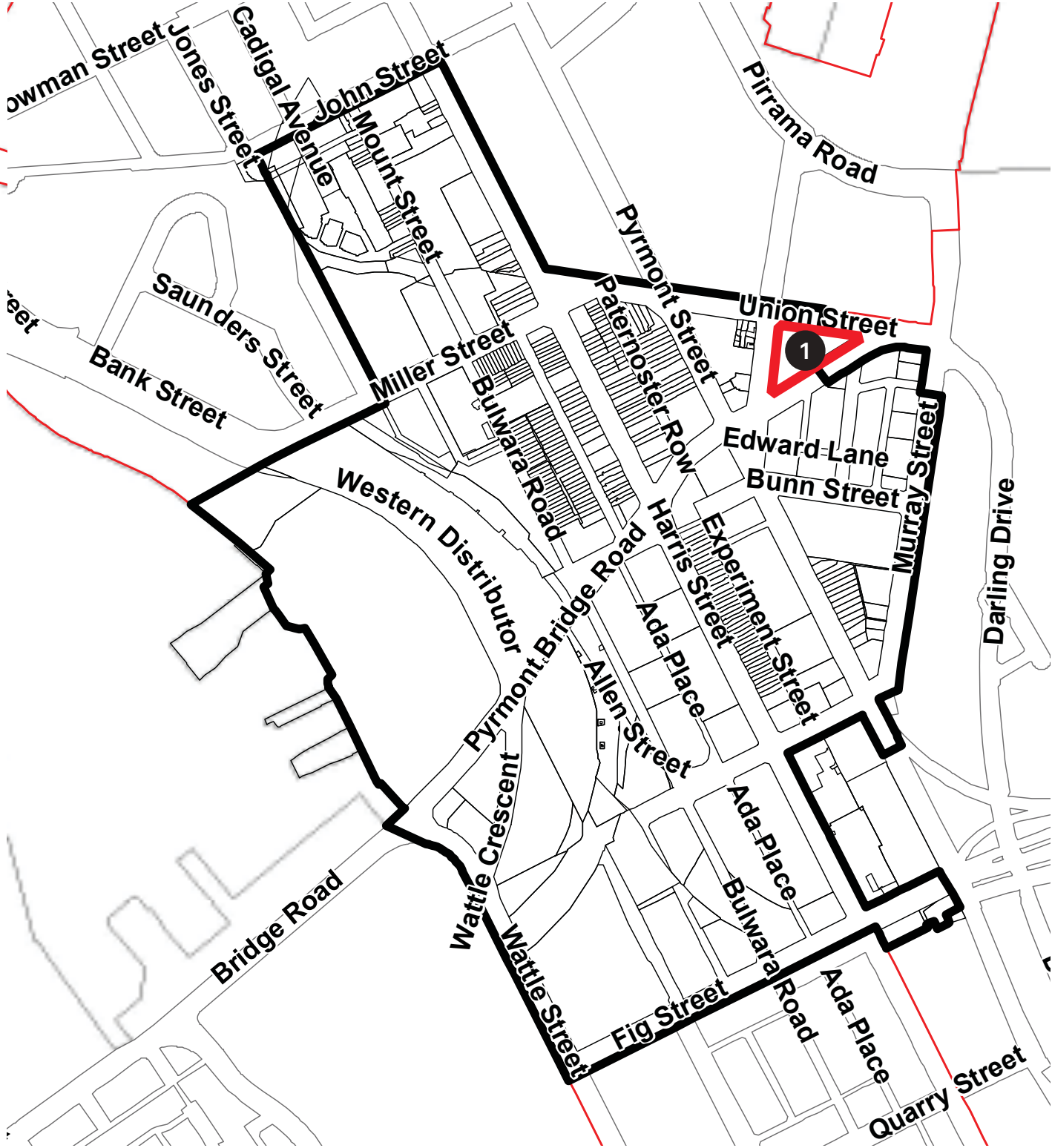
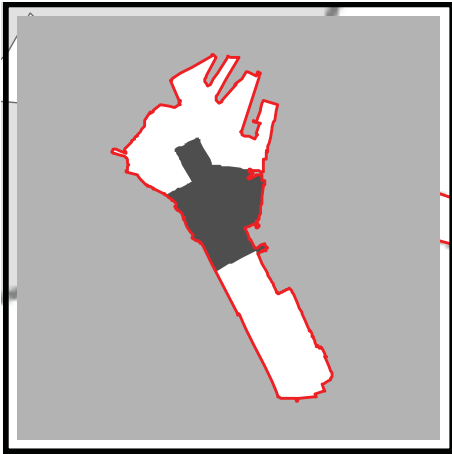
This locality is bounded by Fig Street to the south, Harris Street, Allen Street and Murray Street to the east and Union Street, Pymont Street and John Street to the north. The neighbourhood is bounded to the east by John Street in the north and the foreshore and Wattle Street in the south.

A strong physical definition of streets and public spaces by buildings is a predominant characteristic of the area and is to be maintained. New development is to align with the street, address the street and respond to the detail and character of existing historic buildings. A high quality public domain is encouraged with awnings and easily identifiable building entrances seen from the street. Driveways are to be minimised and located to not conflict with pedestrians.

Principles

- (a) Development must achieve and satisfy the outcomes expressed in the character statement and supporting principles.
- (b) Development is to respond to and complement heritage items and contributory buildings within heritage conservation areas, including streetscapes and lanes.
- (c) Maintain views and vistas from the public domain to the harbour, Central Sydney and surrounding areas.
- (d) Define and enhance the amenity of the public domain with awnings and buildings that align and address the street.
- (e) Retain historical low scale housing and large scale industrial buildings.
- (f) Use compatible materials including sandstone (where sustainable) and face brick.
- (g) Encourage café and restaurant street dining where footpath width permits.
- (h) Adaptively re-use historical buildings providing a mix of land uses in the distinctive built forms.

Extract from Sydney DCP 2012: Locality Statements



1 Union Street Tower Site

Extract from Sydney DCP 2012: Pymont Locality Plan

4.0 Union Street Tower

4.3 Urban Response

Existing Footpath

The existing footpath width around the perimeter of the site appear to be impractical for accommodating high volumes of pedestrian traffic, retail activation and active building edges which promote further foot traffic. For example, the image below shows the existing narrow footpath along Pyrmont Bridge Road.

The urban response for the proposed development on this site seeks to increase the footpath width while balancing with the podium overhang/awning to achieve adequate wind protection.

Podium Height in Context

The podium height has been designed to respect existing urban fabric and be mindful of immediate context.

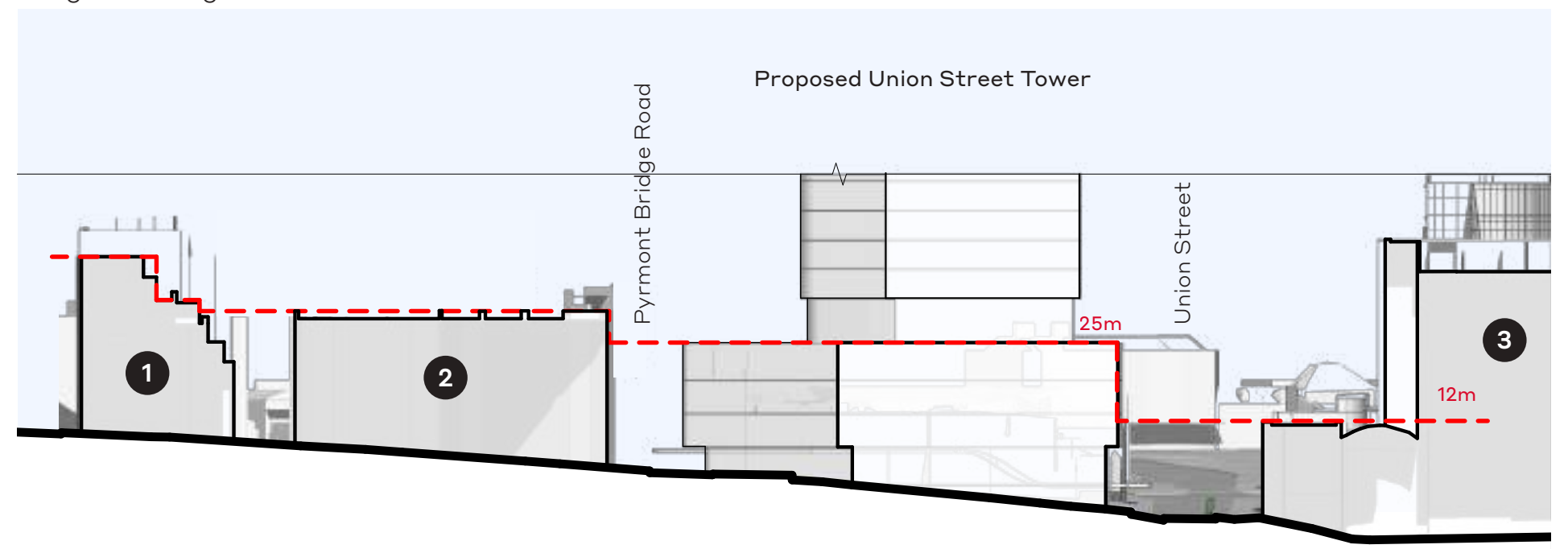
The section diagram to the right shows how the Union Street tower podium height sits within the context of the existing urban fabric. It helps with transitioning of heights from Pyrmont Bridge Road to Union Street.



Image: Pyrmont Bridge Road current street view



Image: Existing site and context



Section Diagram

4.0 Union Street Tower

4.3 Urban Response

Podium and Tower Setbacks

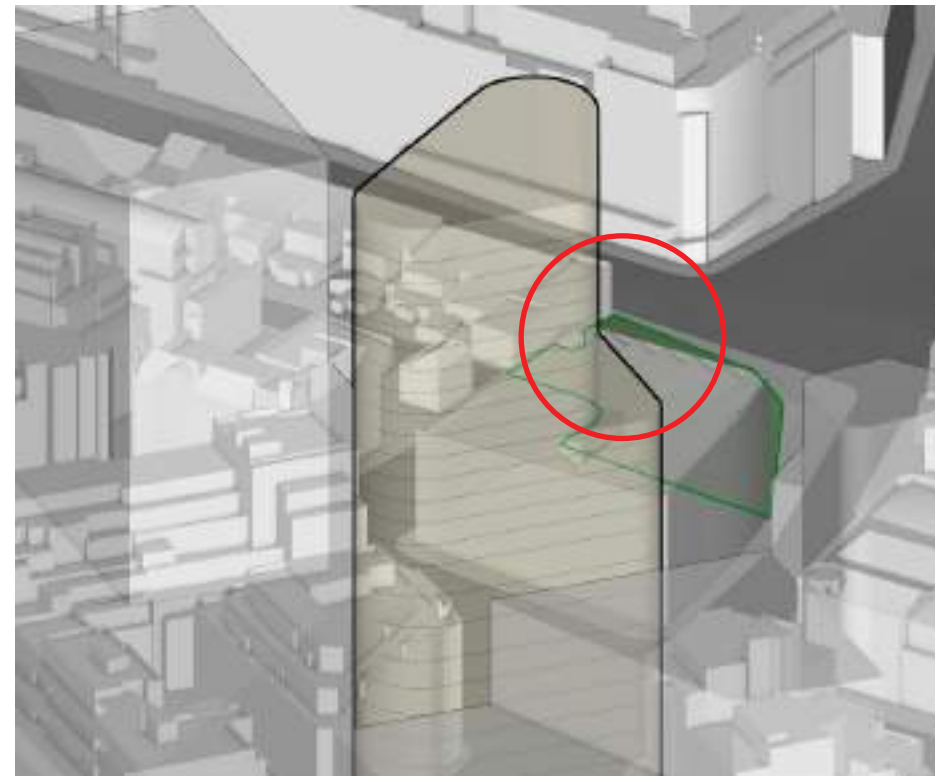
The tower setback along Union Street echos the predominant setbacks in the existing urban fabric of Union Street, denoted by the two red lines in the massing diagram to the right.

The tower is generally 5-7m setback from the podium. The setbacks limit the width of the tower to maximise solar access to the south.

Tower Form

The corners of the tower are filleted to reduce the perceived bulk and scale of the building from the surrounding context. The tower floorplates are proportionate and limited to under 1,000sqm GFA for each level.

The top of the tower form is shaped such that solar access to Elizabeth Healey Reserve may be preserved between 10am - 2pm on June 21.



Union Street Tower Sun Eye View - 10:00am

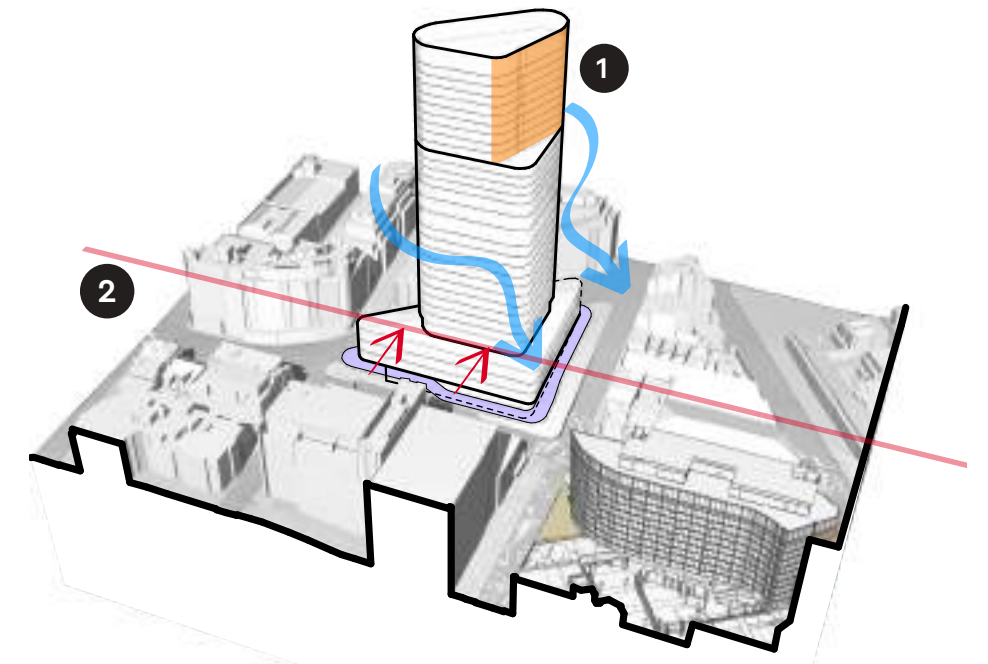
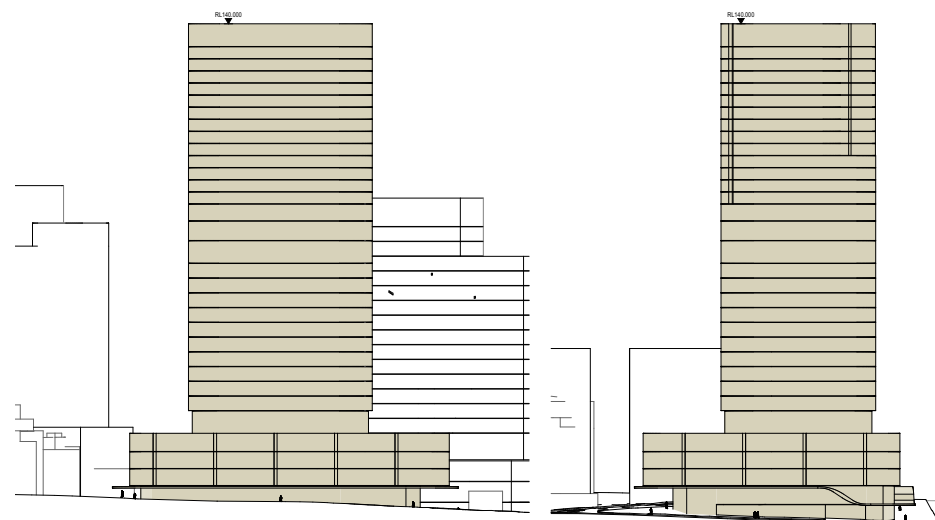
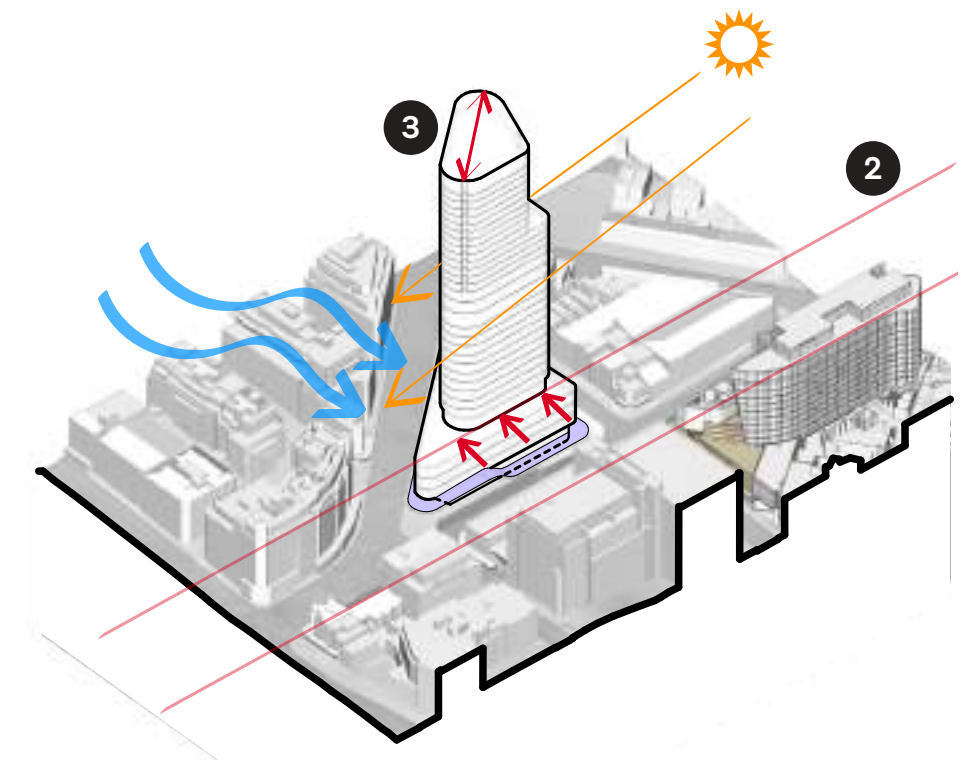


Diagram: Union Street Tower form

- 1 Tower form adjusted for winter solstice solar protection to Elizabeth Healey Reserve
- 2 Prioritise Union Street setbacks
- 3 Limit width to maximise solar access to the south



Pymont Bridge Road Elevation Union Street Elevation



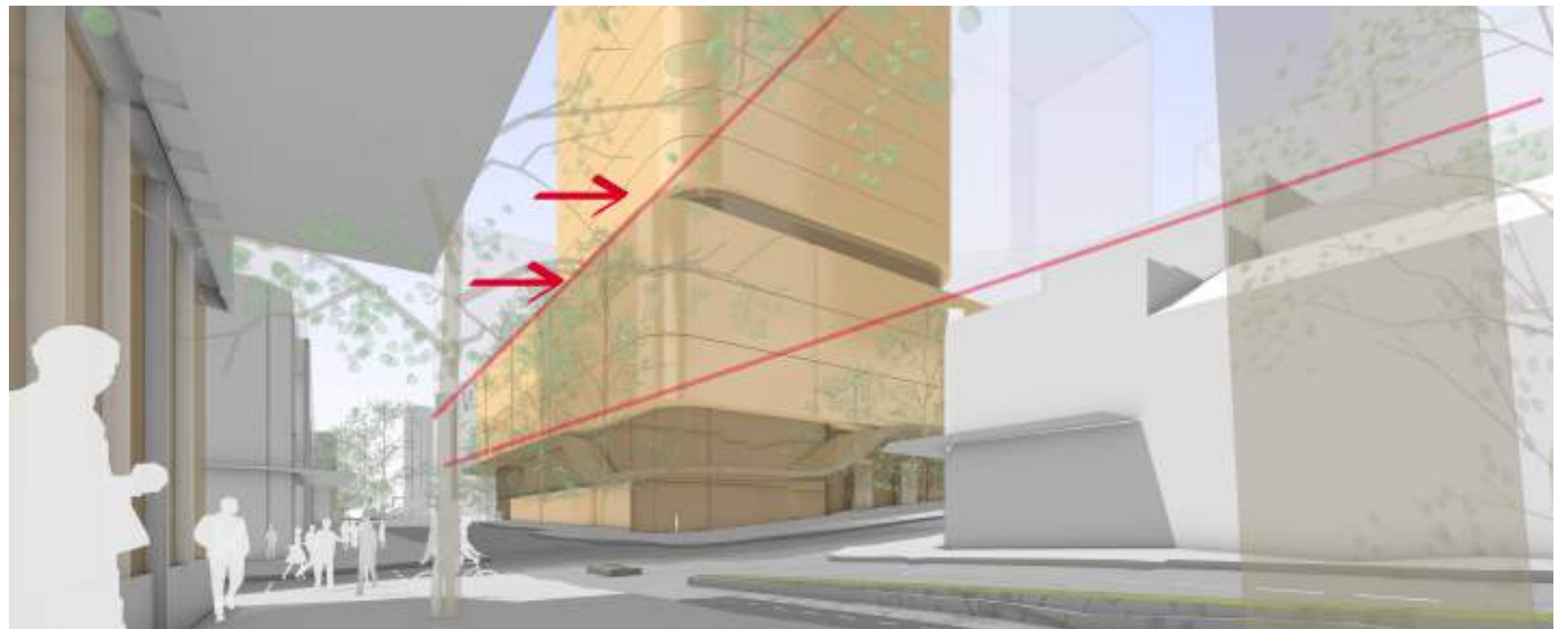
4.0 Union Street Tower

4.3 Urban Response

Streetscape views of the indicative Union Street tower form from Union Street and Edward Street.



Image: Existing Union Street



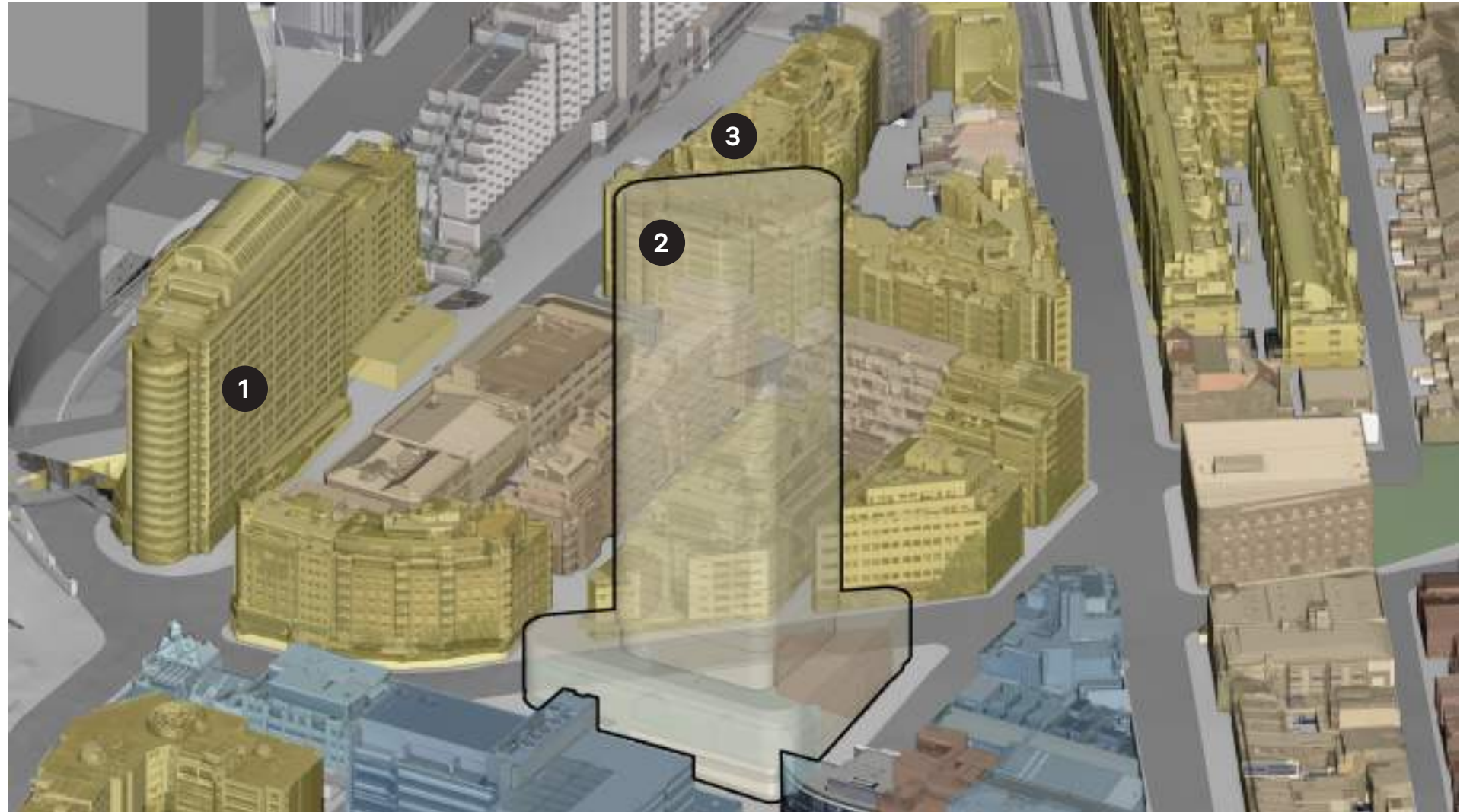
Top: Edward Street streetscape view | Bottom: Union Street streetscape view

4.0 Union Street Tower

4.4 View Sharing

Any future DA for this tower should include a detailed analysis for view impacts in consideration of existing residential buildings in the immediate context. Below are three sample images taken from select residential buildings in the immediate context illustrating view sharing with Union Street tower development.

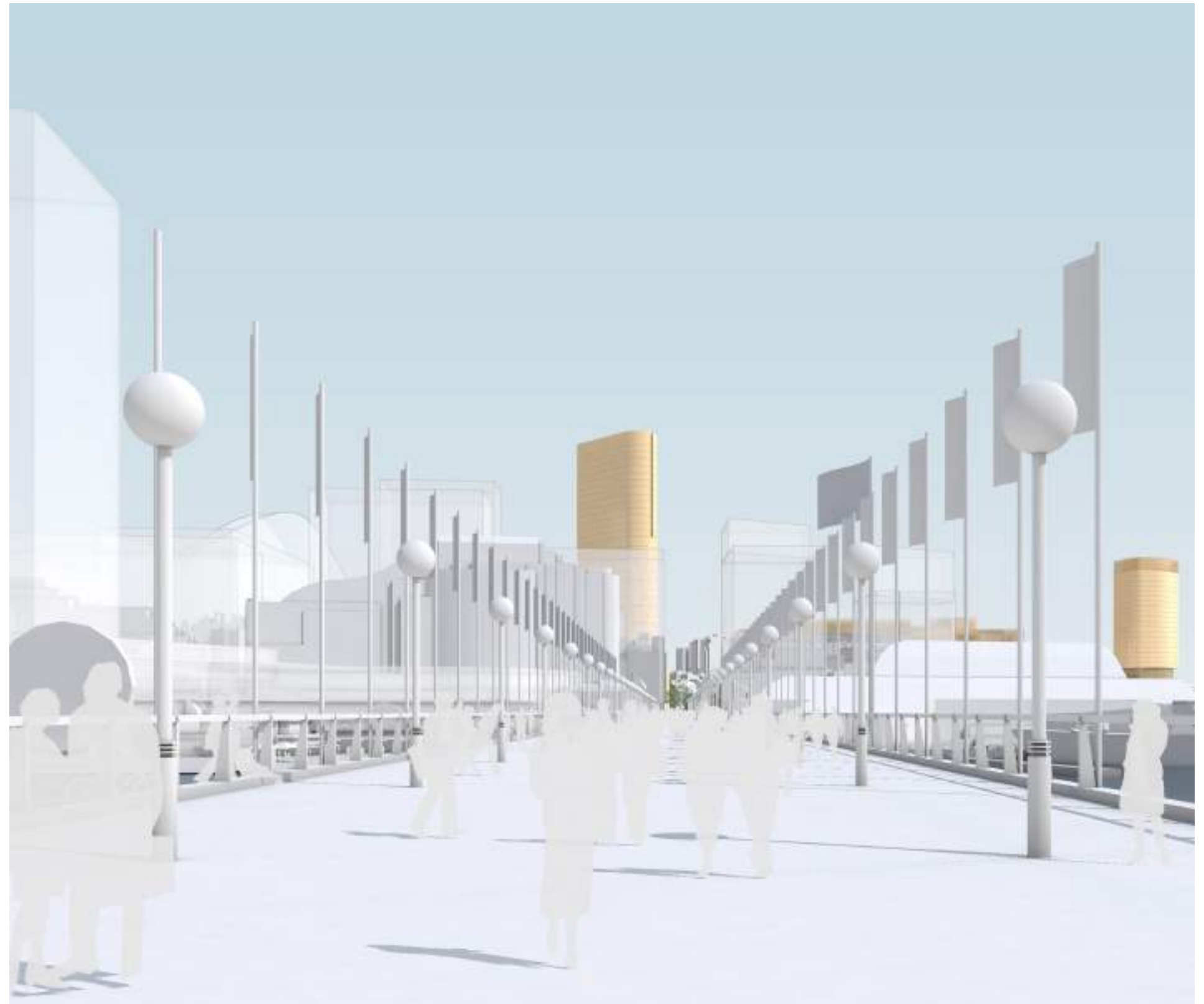
- 1 Site 1: 50 Murray Street
- 2 Site 2: 43 Murray Street
- 3 Site 3: 1-29 Bunn Street



4.0 Union Street Tower

4.5 Design Principles

1. The final form of a Union Street tower should be developed to preserve mid winter solar access to Elizabeth Healey Reserve.
2. The final form of a Union Street form should be developed with consideration of overshadowing impacts to residential properties to the south. The assessment criteria such be established with consideration of the overarching objective of the PPPS and the wish to deliver those areas identified as 'Areas capable of change' and as having potential 'Taller Building Clusters'.
3. Street edge alignment should ensure appropriate footpath widths are established.
4. Podium height should be approximately 25-30m, but adjusted as necessary to respond to future proposed built form as established in the sub-precinct masterplan.
5. 1,000 sqm GFA floor plate.
6. Active street edges with consideration of key transport nodes.



View from Pyrmont Bridge

5.0 North Tower

5.1 Overview and Use

The tower situated on the northern tip of the main Star site is envisaged to be a tower hosting a 6-star hotel with world class amenities.

The hotel arrival on Pirrama Road will be served by a dedicated porte-cochere. Dining and retail offerings wrap from Pirrama Road around to Jones Bay Road and activate the ground plane. Directly adjacent is a through-site link from Pirrama Road to Jones Bay Road which has street level retail offerings on both sides.

A ballroom / function space occupy an entire level of the podium which may be utilized by the wider precinct for hosting events/functions, contributing to Pyrmont's appeal as an innovative precinct.

Hotel facilities coupled with an open to sky pool sit atop the podium. The tower will enjoy excellent views towards all direction.

The tower is capped at RL 110

The following section of the report outline the various factors that contributed to shaping the form of the proposed tower on this site. The factors can be categorised into environmental impact factors and urban response factors.

Environmental impacts include: solar access to public and important open spaces, solar access to existing residential developments, and wind mitigation strategies.

Urban responses include podium heights in alignment with the existing urban fabric, minimizing the tower's perceived visual bulk and implementing appropriate setbacks at the ground plane and for the tower.

Main Star Site

1 North Hotel Tower RL 110



Aerial view of The Star Key Site masterplan

5.0 North Tower

5.1 Overview and Use

The selection of illustrative plan diagrams on this page demonstrate how the various programme in this tower may function. Included are ground level plans, podium level plans, and a typical hotel floorplate layout

- Uses
- Hotel: Rooms

Hotel: Amenities

Hotel: Lobby

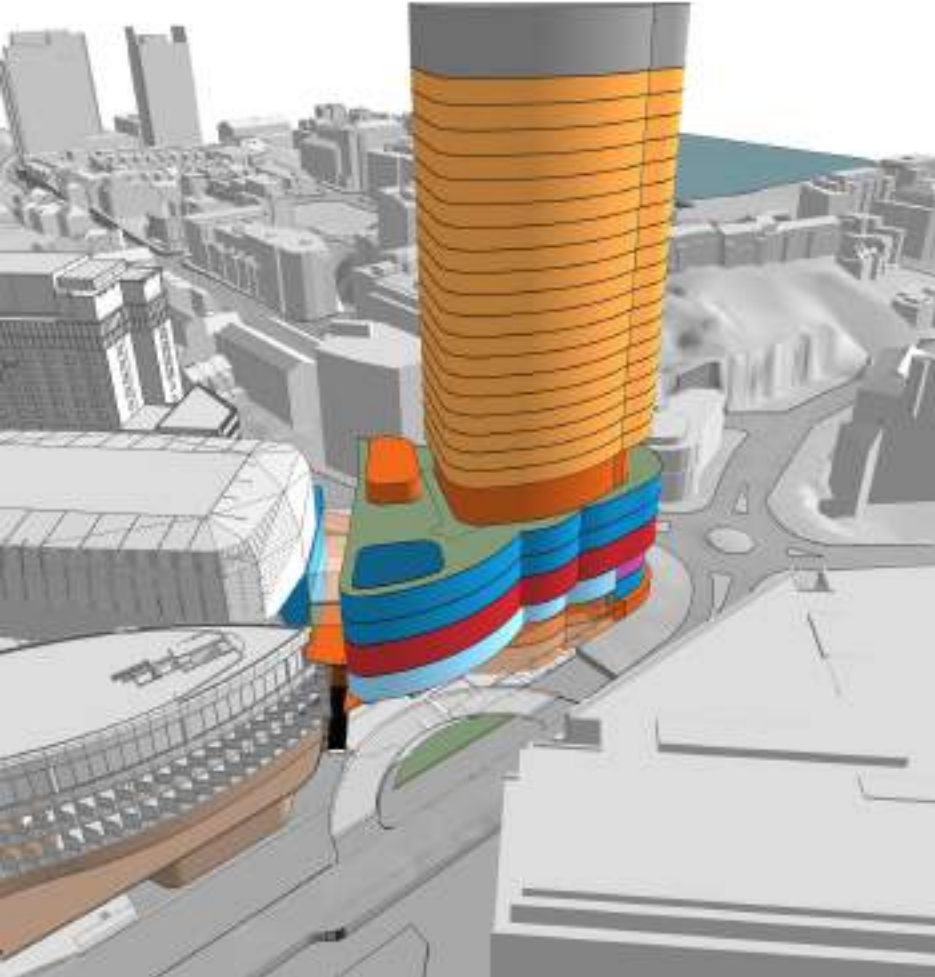
Retail

Sports Bar

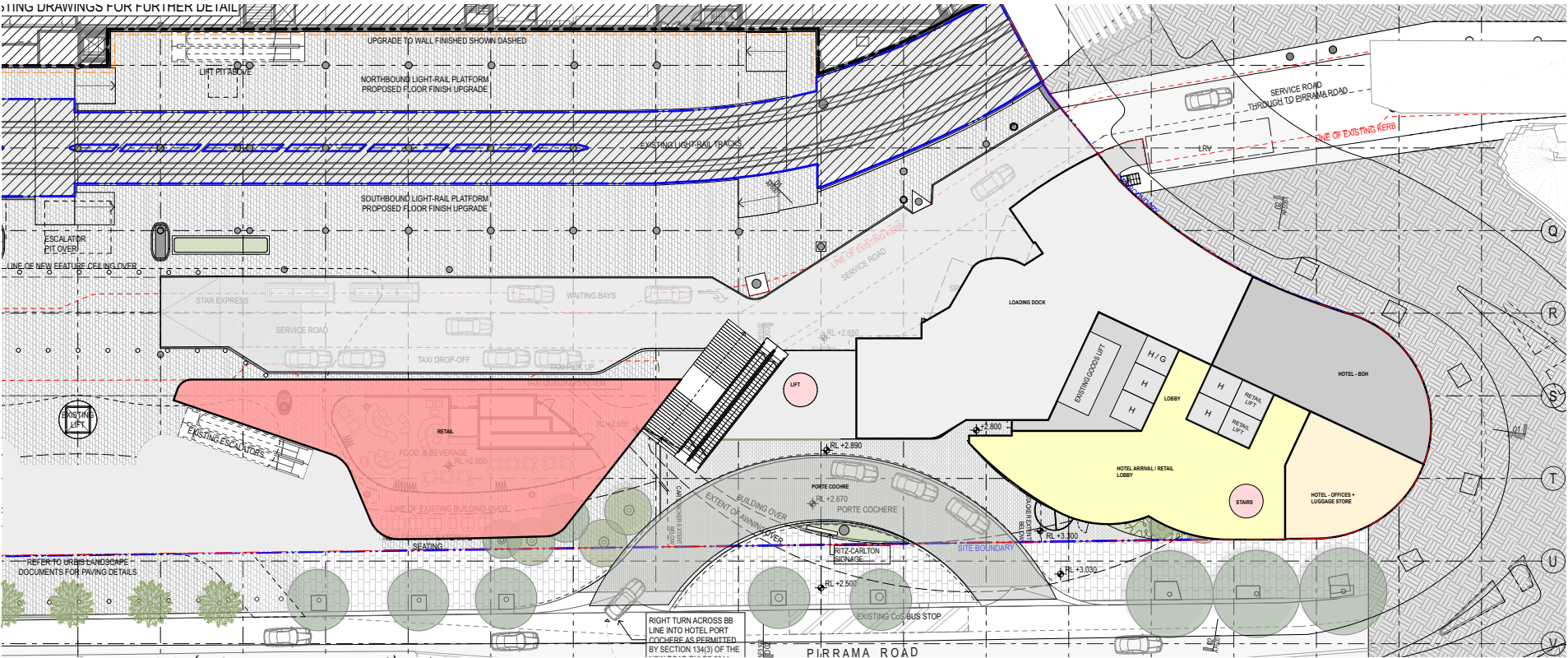
Terrace

Function Space

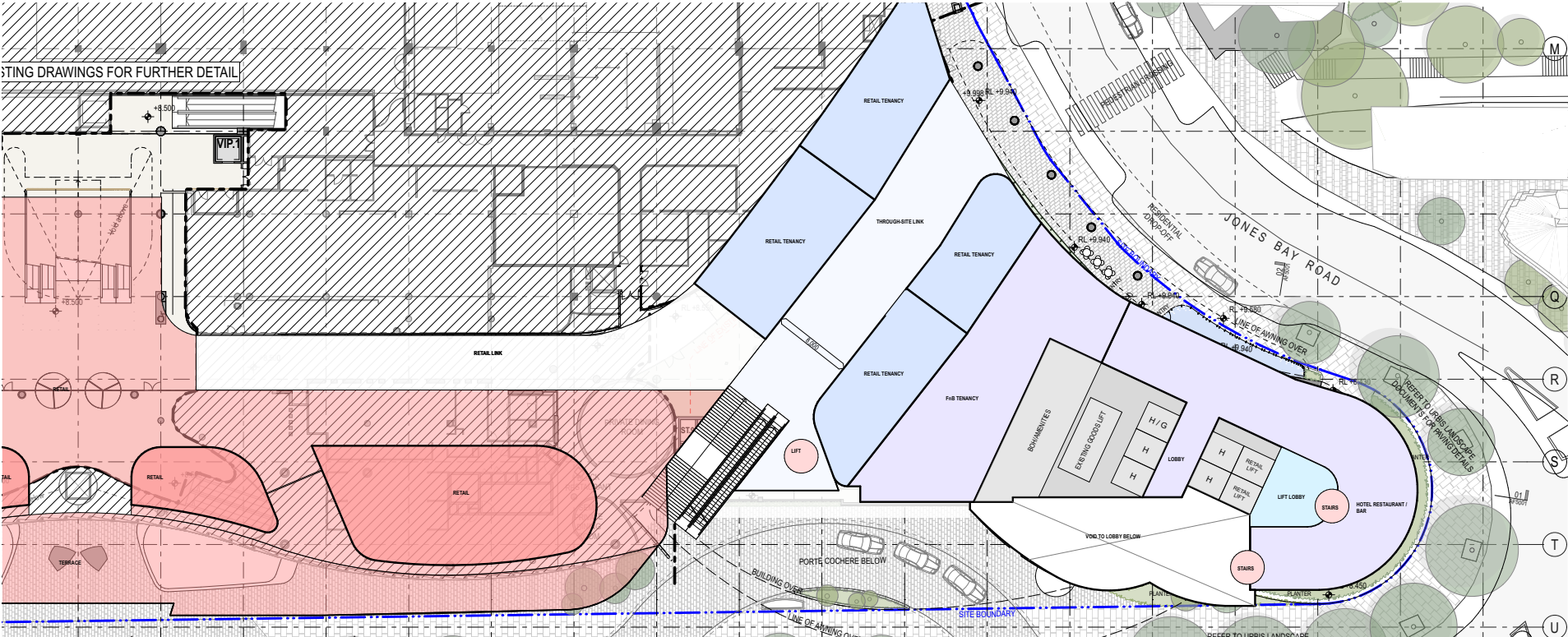
Plant



Indicative North Tower massing



Basement 02 (Pirrama Road) Plan

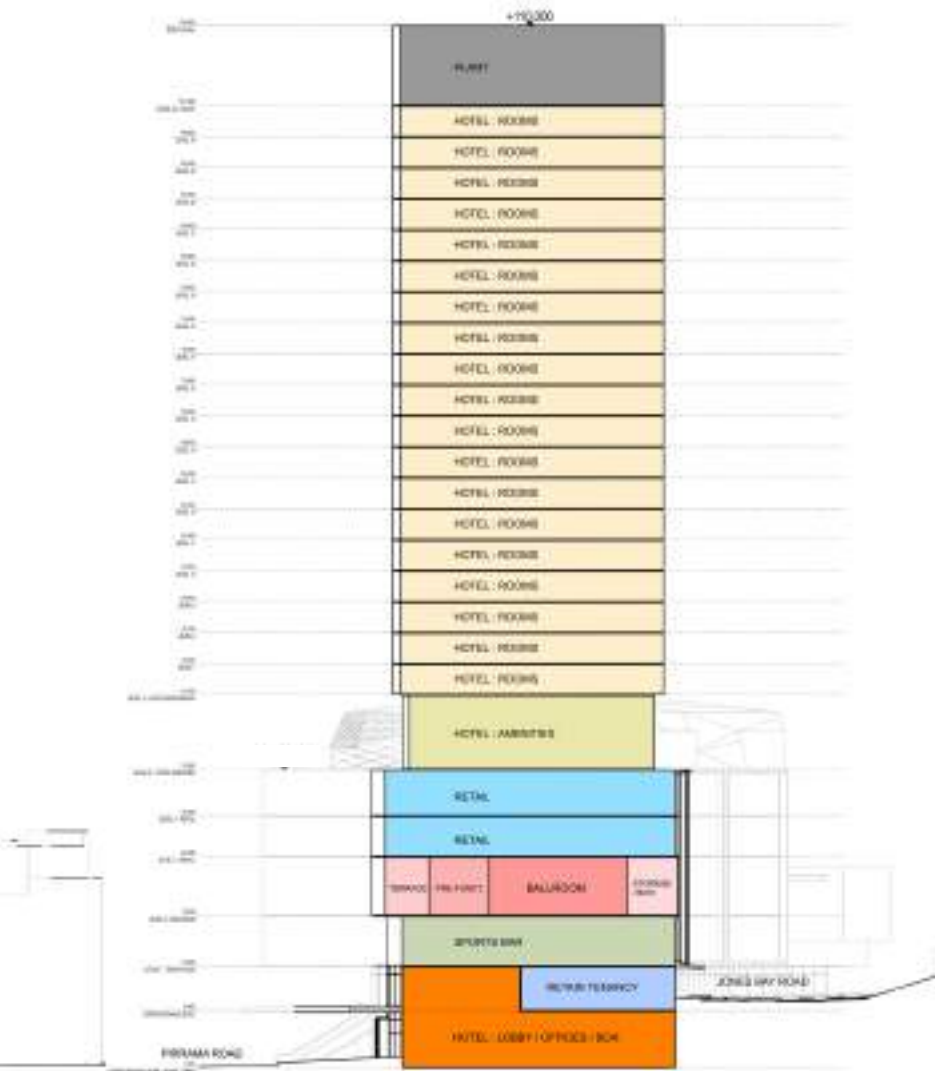


Level 00 (Jones Bay Road) Plan

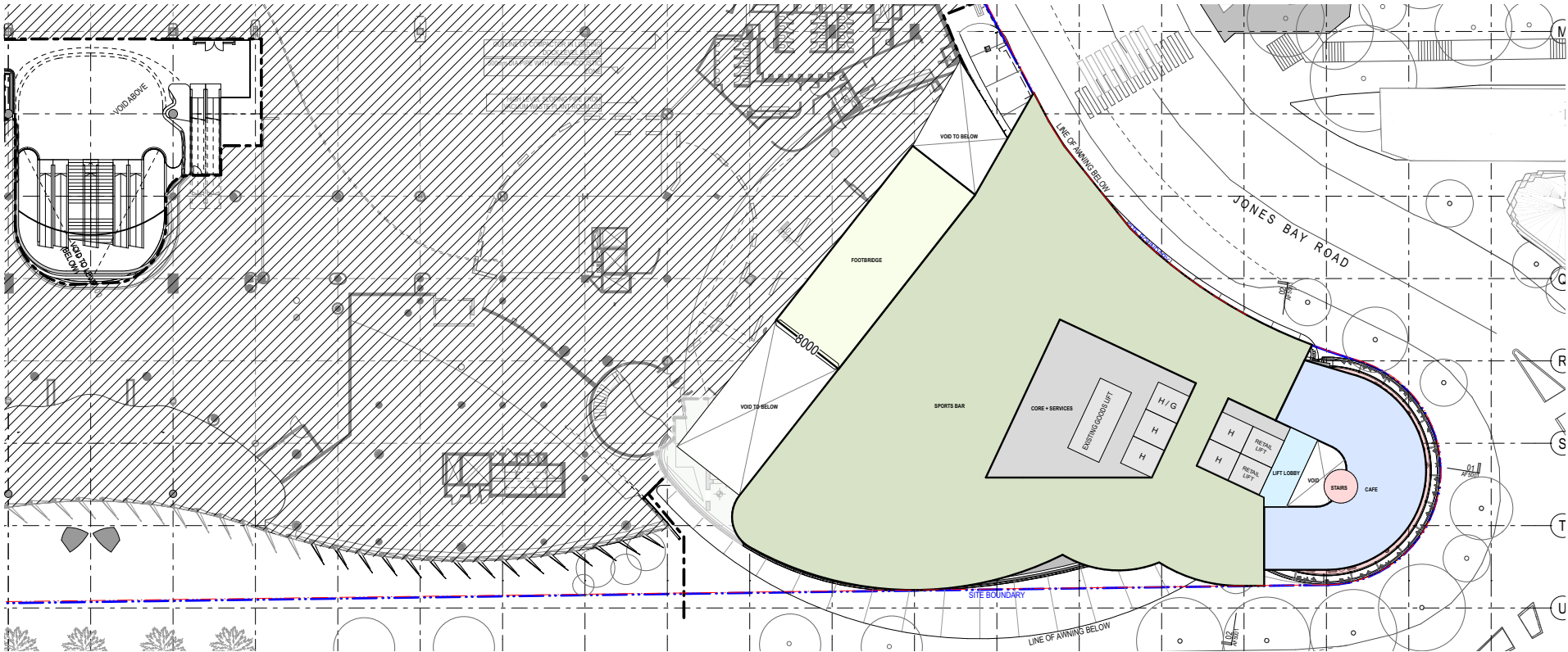
5.0 North Tower

5.1 Overview and Use

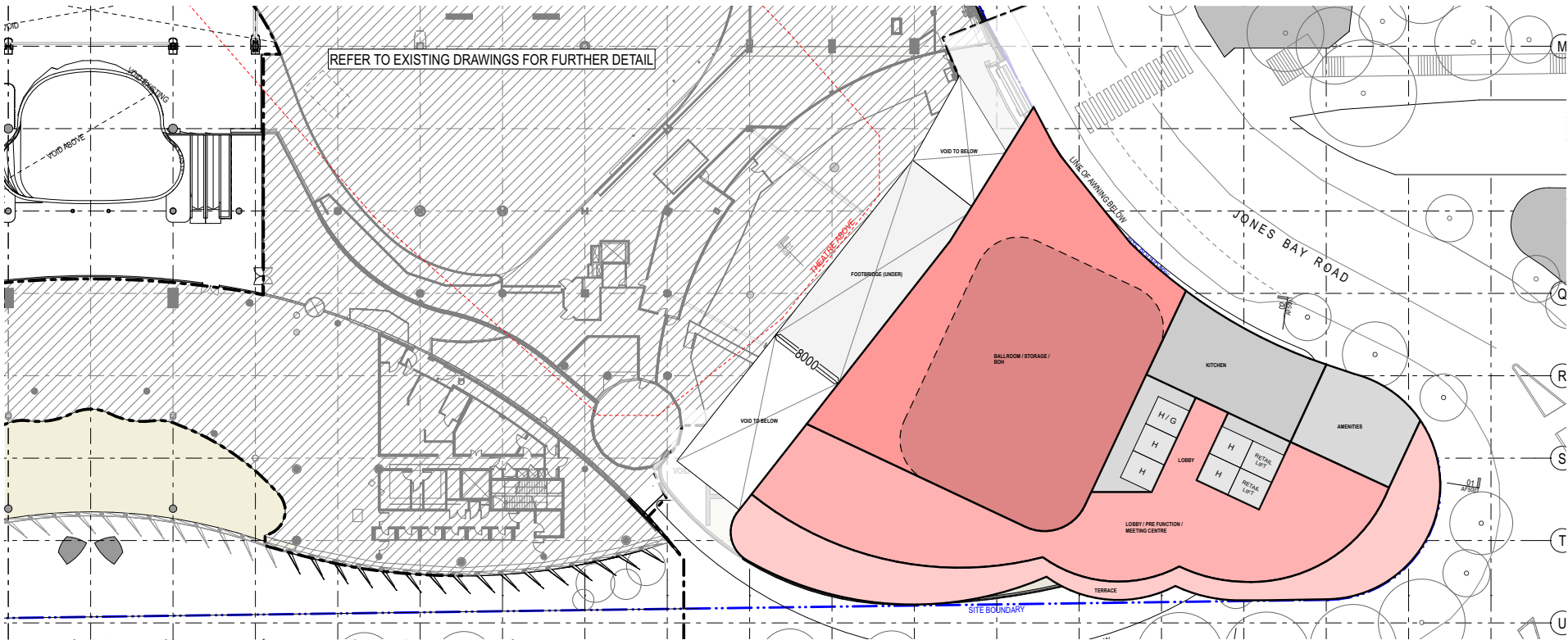
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Indicative North Tower section



Level 01 Sports Bar

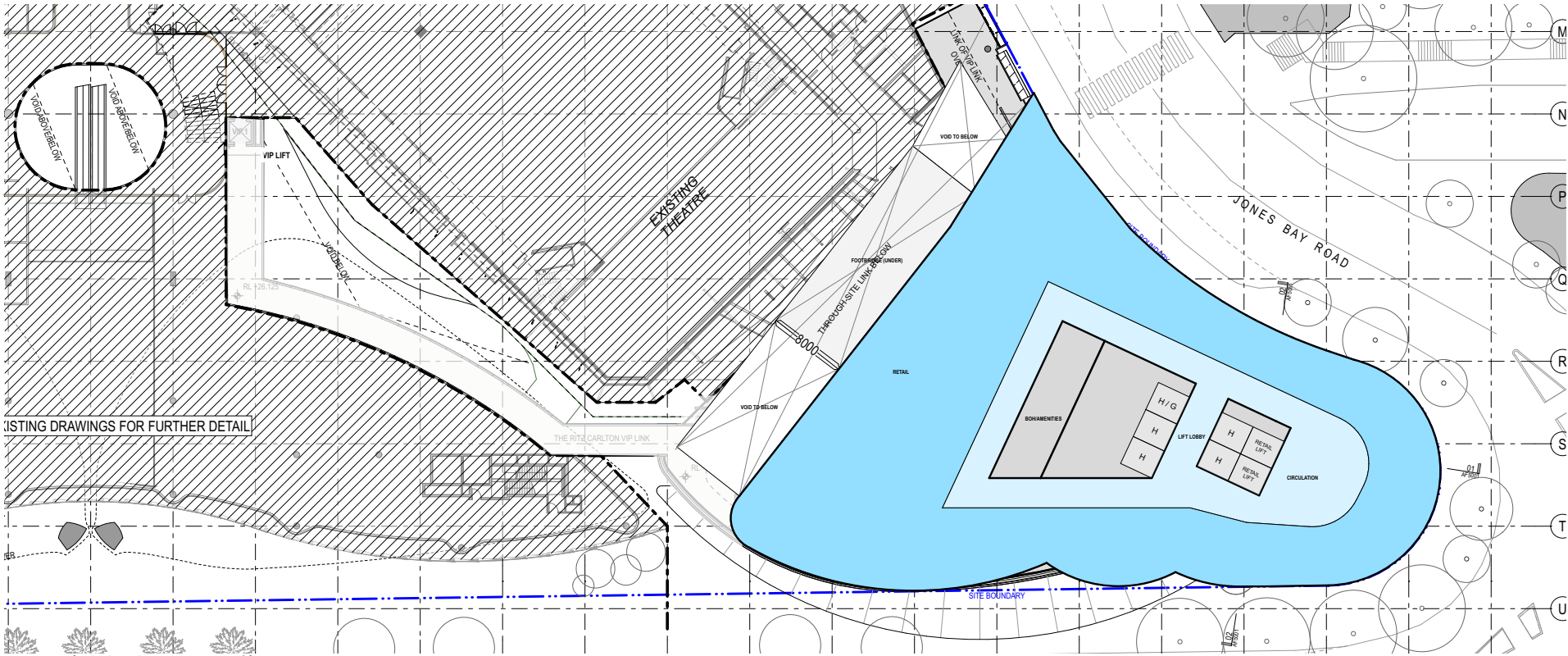


Level 02 Ballroom / Function Space Plan

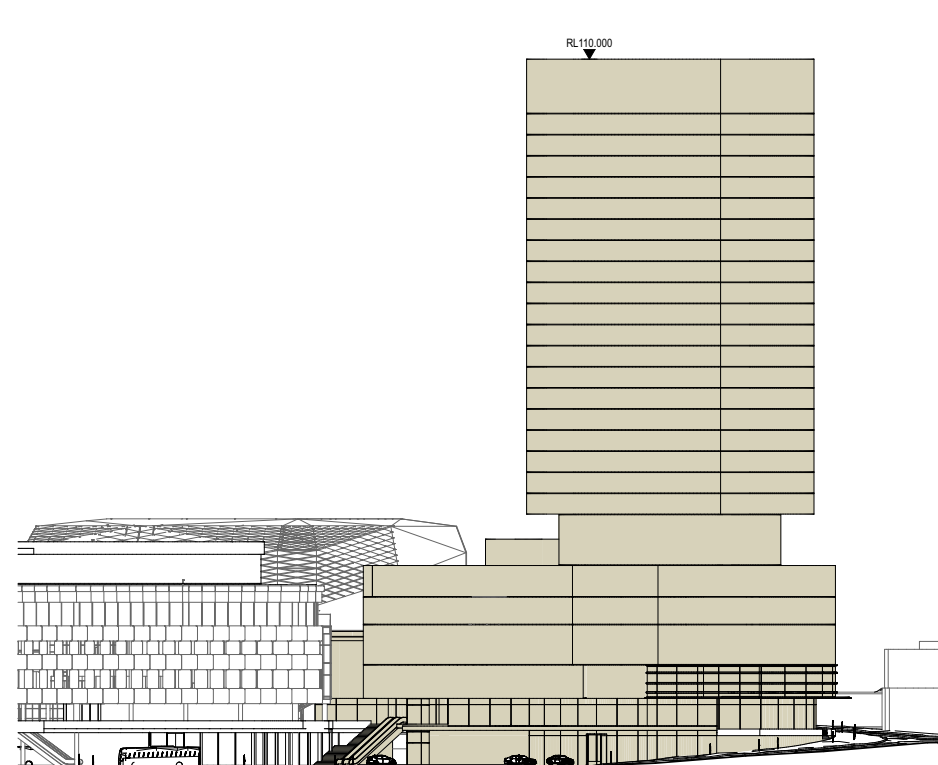
5.0 North Tower

5.1 Overview and Use

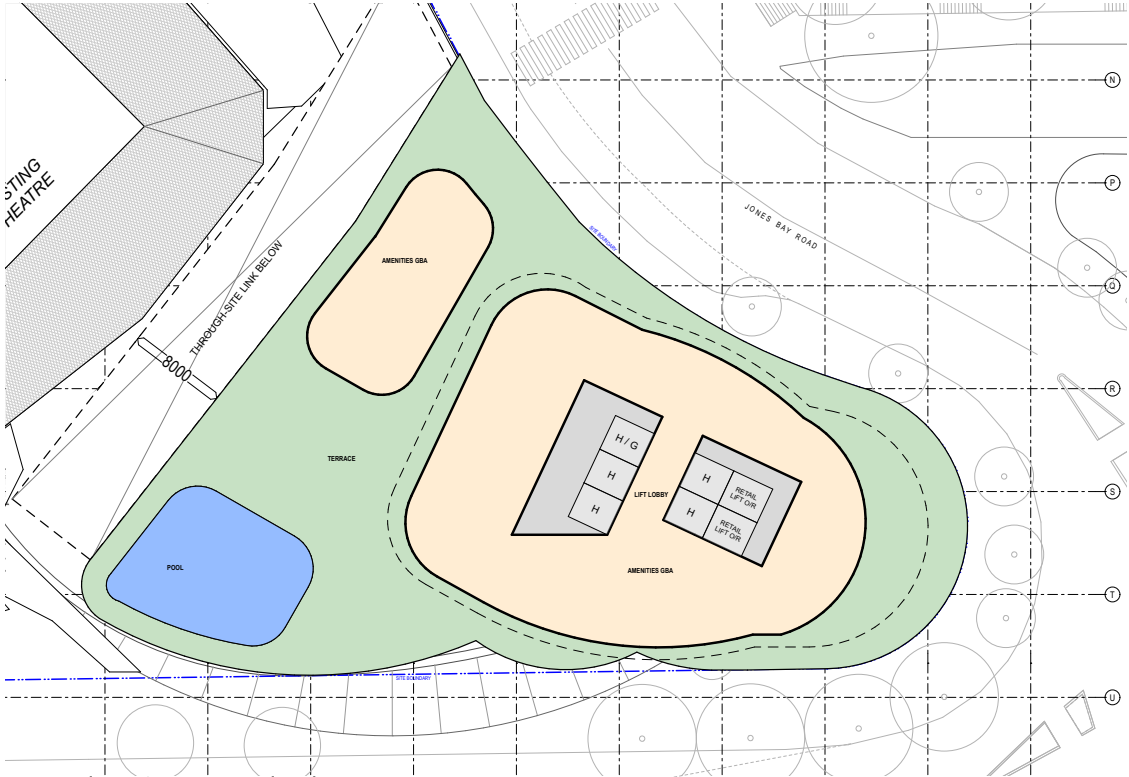
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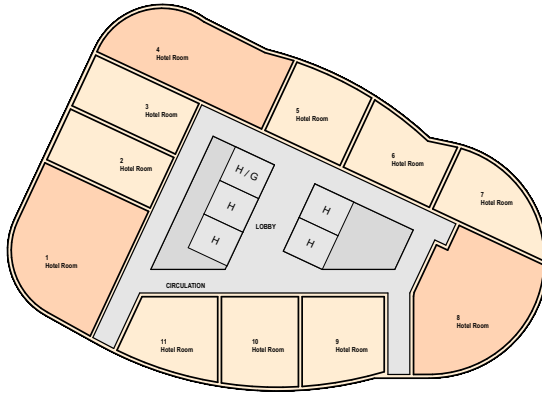
Level 03-04 Retail



Indicative North Tower elevation from Pirrama Road



Level 5-26 Hotel Plans



5.0 North Tower

5.2 Consideration of Environmental Impacts

i. Solar Access to Public Open Spaces

Pymont Park

Adjacent is a sample from a series of Sun Eye Views taken on June 21, between the times of 9:00am to 3:00pm, at ten (10) minute intervals.

These illustrate the overshadowing impact of the proposed North tower form on surrounding public open spaces.

The control for winter solar protection for these public open spaces is specified to be between 10am - 2pm.

Note that the North tower does not overshadow identified public open spaces between the prescribed times. Refer to selected sun eye views to the right, the North tower only starts to impact on the solar access to Pymont Park from 2:30pm.

The full suite of sun eye views can be found in the Appendices section, 7.2 Sun Eye Views, located at the end of this report



North Tower Sun Eye View - 2:00pm



North Tower Sun Eye View - 2:30pm

5.0 North Tower

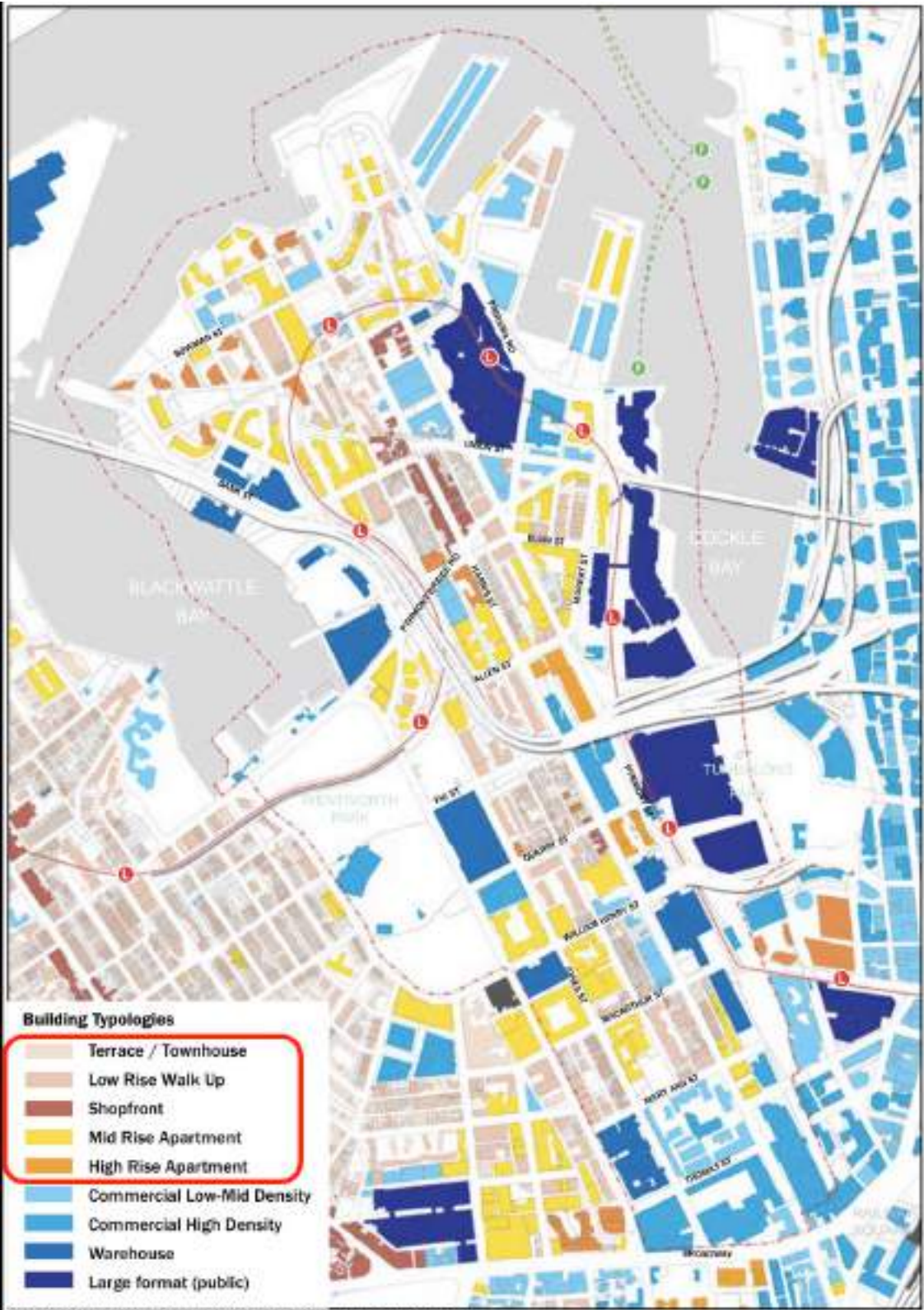
5.2 Consideration of Environmental Impacts

ii. Solar Access to Existing Residential Developments

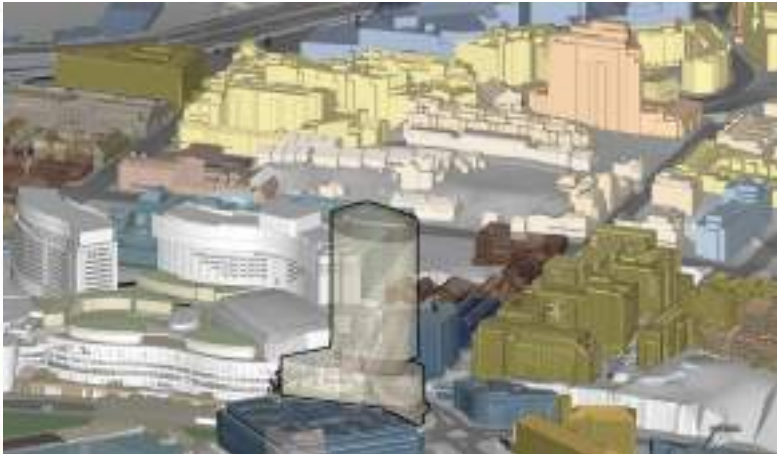
A tower located at the northern tip of the main Star site will cast shadow on adjacent residential properties. The scale and usage of future buildings to the south is subject to ongoing DPIE sub-precinct masterplan studies. Any detailed assessment can therefore only be based on the existing built form and land usage.

A preliminary assessment has been undertaken to identify those portions of adjacent residential buildings that will have their solar access reduced from above 2 hours to below 2 hours (between 9.00am to 3.00pm mid winter). This initial analysis has been undertaken using detailed sun eye view studies, examples of which are illustrated to the right. Further analysis is ongoing which will review this information relative to the overall compliance of individual buildings.

The surrounding buildings illustrated in the sun eye view diagrams are colour coded according to building typologies. The typologies and colours are referenced from Pymont Peninsula Place Strategy, in the map shown to the left. The building typologies that fall under the “residential” category are circled in the legend.



Map of the Pymont Peninsula showing building typologies (PPPS)



Sample of sun eye views adopting the building typology legend per PPPS

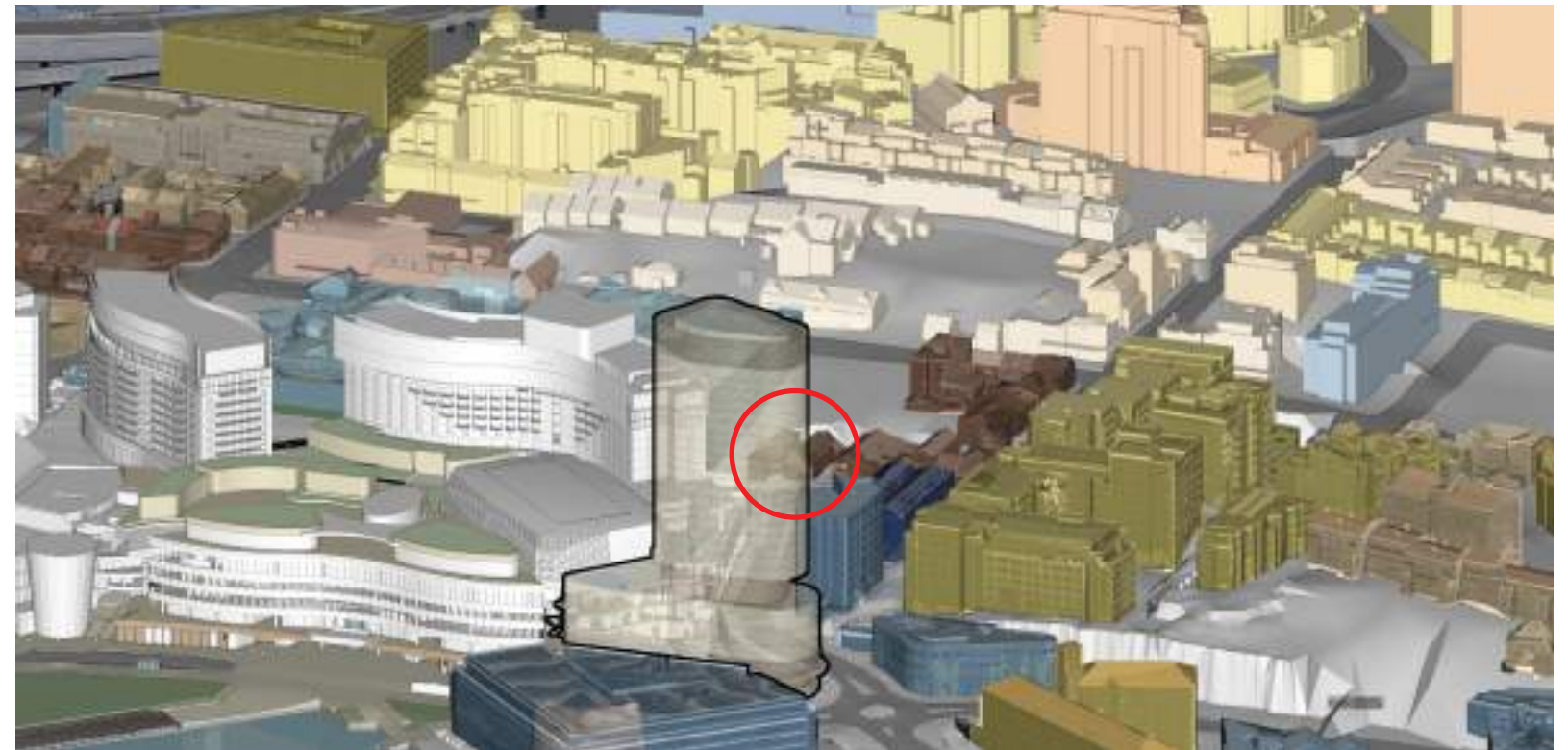
5.0 North Tower

5.2 Consideration of Environmental Impacts

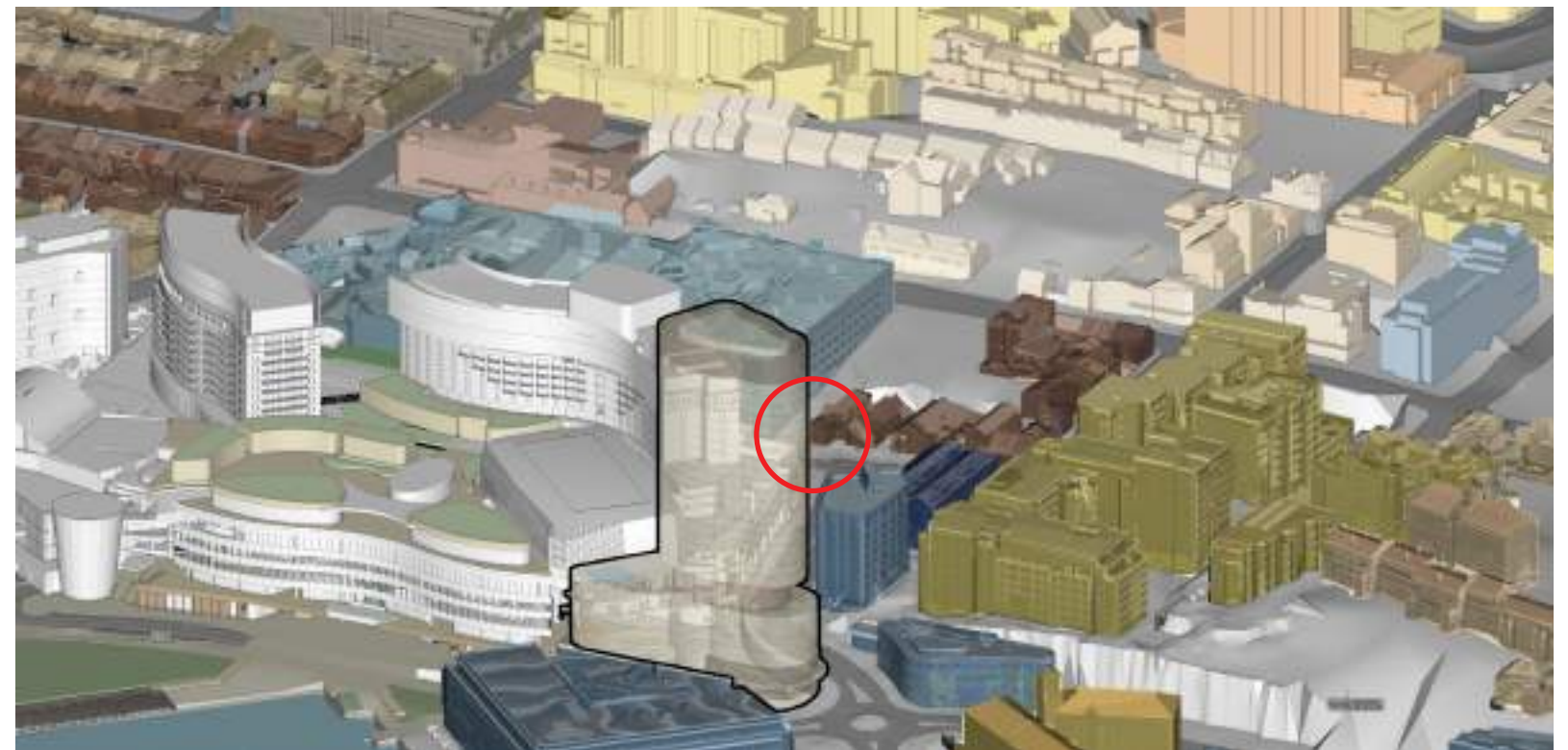
ii. Solar Access to Existing Residential Developments

Solar access to the existing terraces shown circled in the sun eye views to the right are impacted by the North tower in the morning of June 21, for 30 minutes, from 9:00am to 9:30am.

These elevations maintain 2 hours mid-winter solar access after 9.30am.



North Tower Sun Eye View - 9:00am



North Tower Sun Eye View - 9:30am



Image: 16 Pyrmont Street

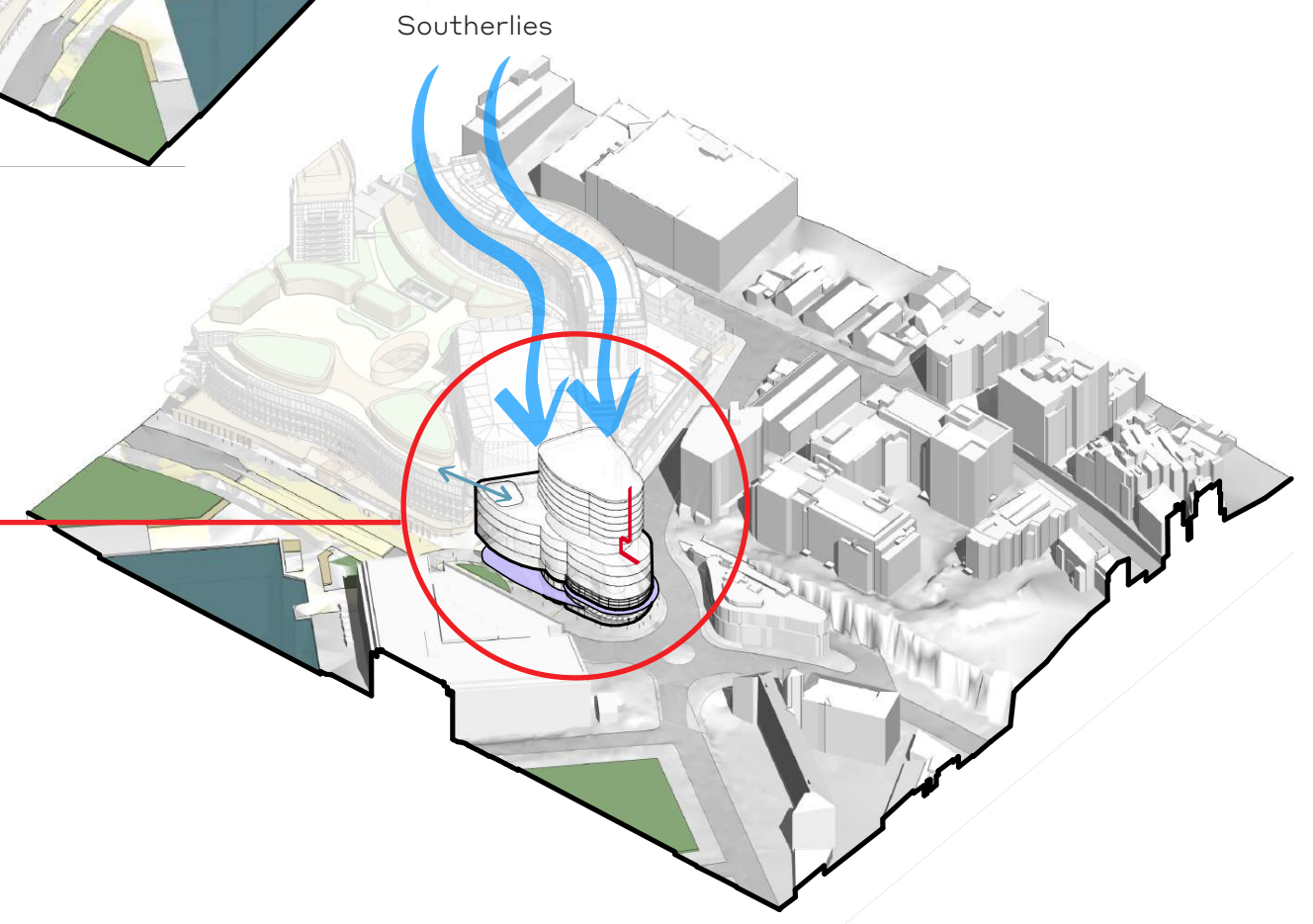
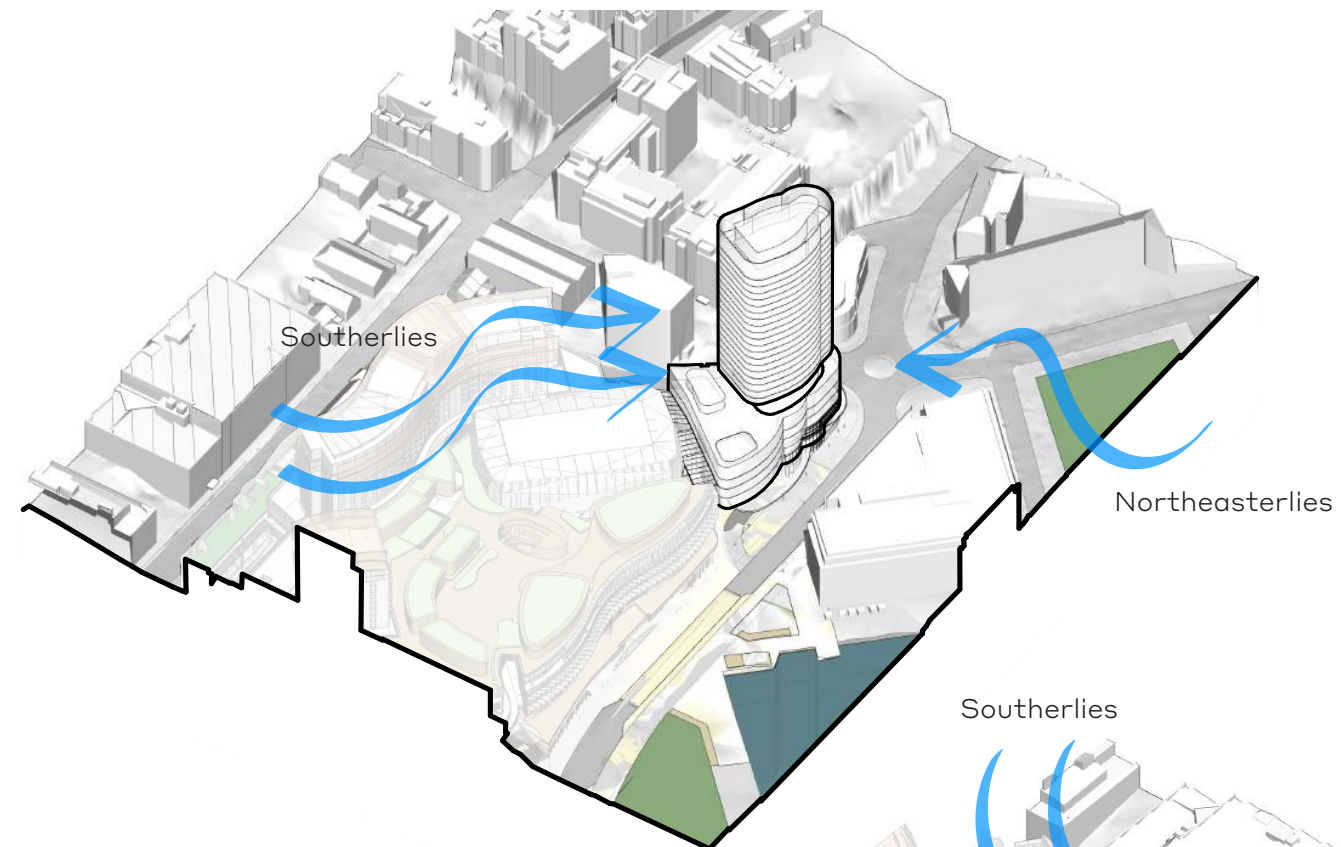
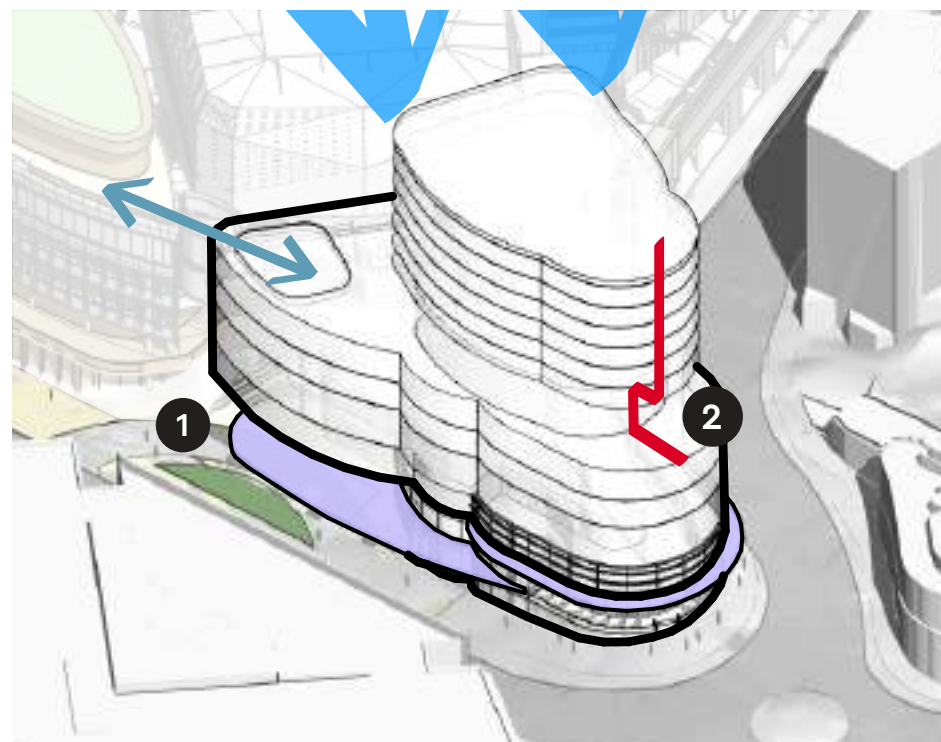
5.0 North Tower

5.2 Consideration of Environmental Impacts

iii. Wind

The tower form responds to the following advice to mitigate wind effects:

- 1 Wind advice: two awnings recommended to overlap given that they're at different heights
- 2 North tower setback level (first level above podium) to be set back a minimum of 6-7m at the northern most portion of the tower



5.0 North Tower

5.3 Urban Response

Existing Context and Built Form

The tower is proposed to be located at the northernmost tip of the main Star site. The immediate urban fabric consists of the existing MUEF theatre, The Star's existing complex, Google's workplace 6 and Pyrmont Bay.

Main Star Site

1 North Hotel Tower Site

T3 28m



Aerial view of corner of existing main Star site and Pyrmont Bay



Aerial view: corner of Pirrama Road and Jones Bay Road

Existing site controls: SLEP 2012 Height of Buildings map

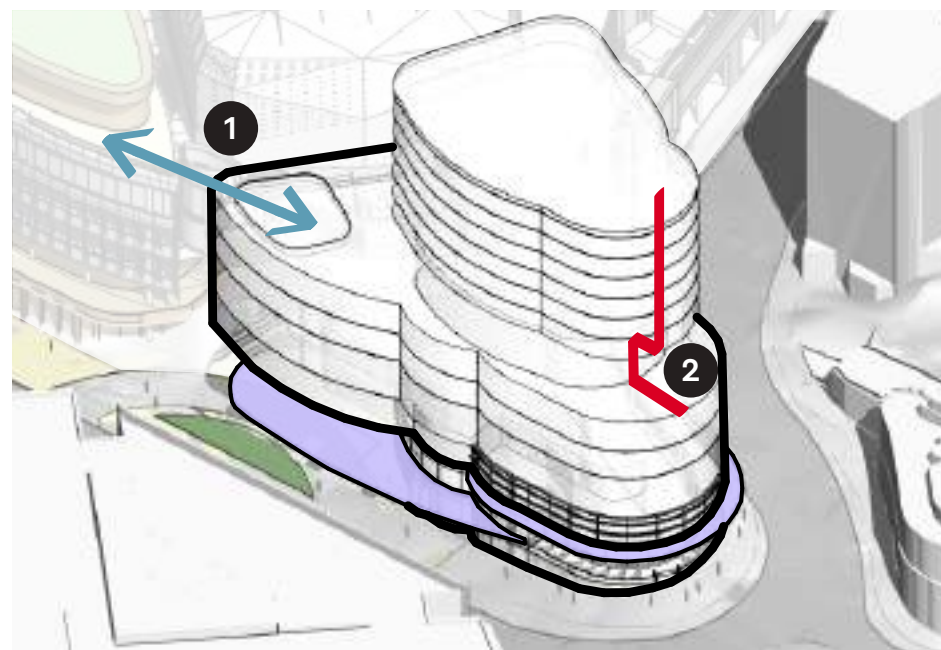
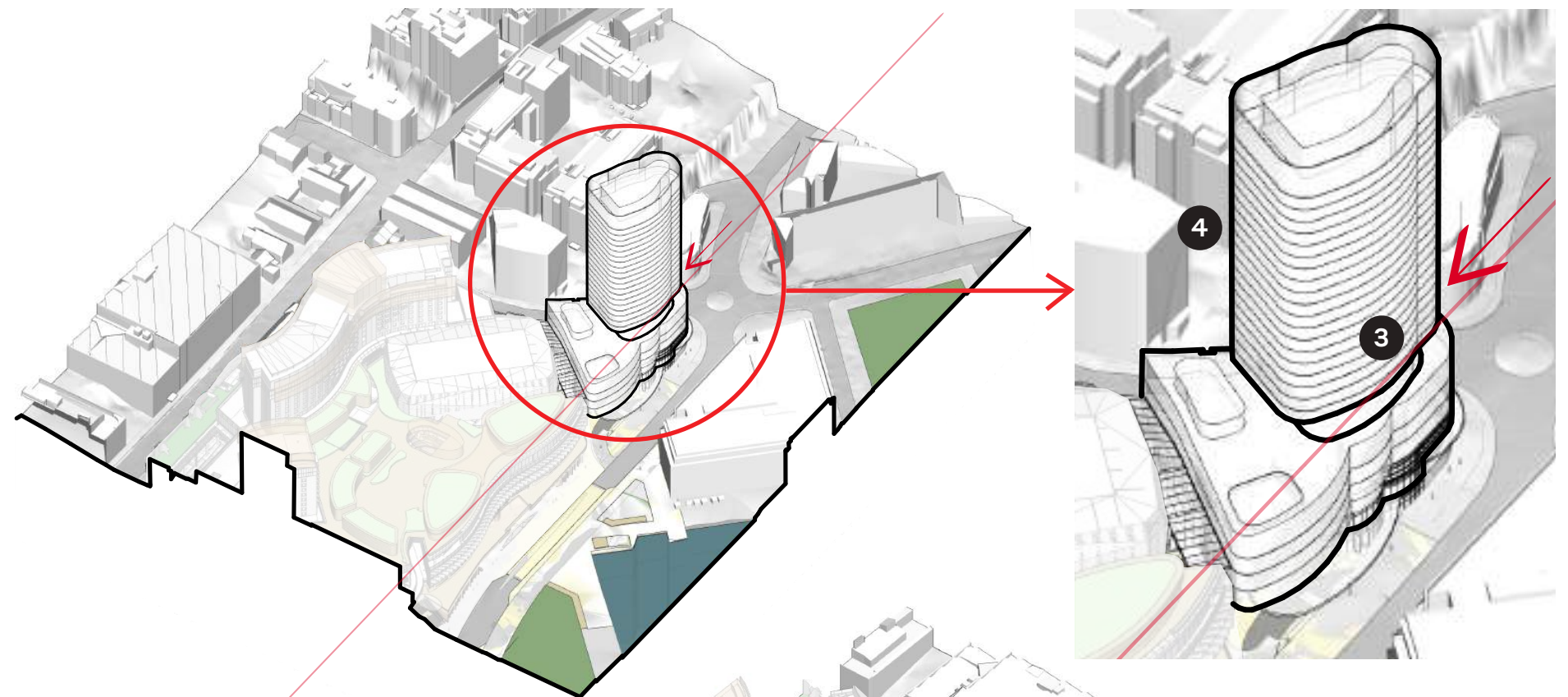
5.0 North Tower

5.3 Urban Response

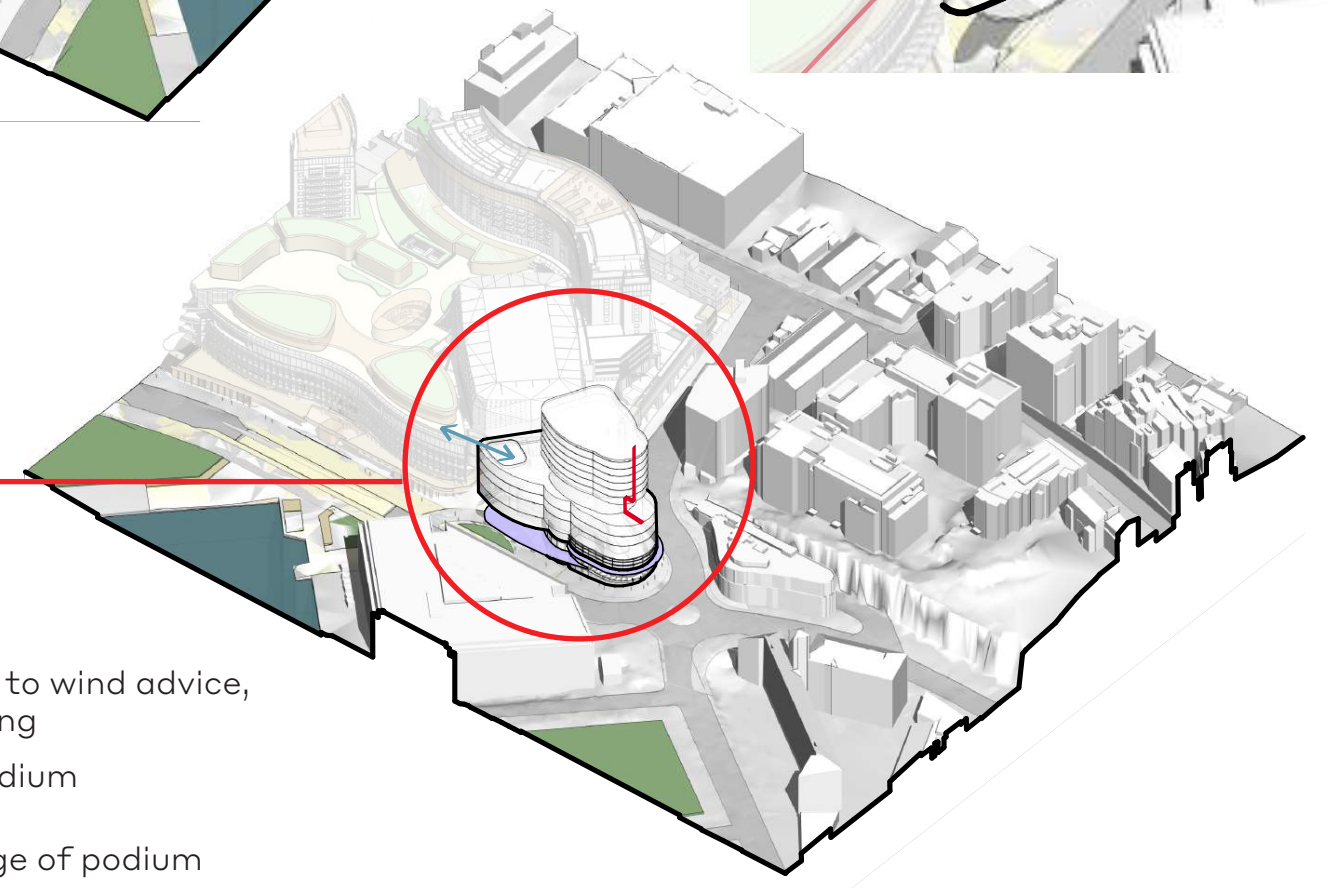
Construction of the northern tower will see much of the northern part of the site demolished and rebuilt.

This offers the opportunity to create a new and highly desirable through site link from Pirrama Road to Jones Bay Road. A legible and accessible ground level connection can be provided with open to the sky entry points at both Pirrama Road and Jones Bay road. This new through site connection needs to deal with a substantial level change and will incorporate a combination of stairs, escalators and lifts.

The illustrative proposals indicate a tower on podium relationship, with the podium height referencing the established horizontal datum of the Star along Pirrama and Jones Bay Road. The tower is positioned toward the northern end of the site to ensure that overshadowing to the public domain is minimised. Additionally this northern position allows the existing internal roadway to be preserved.

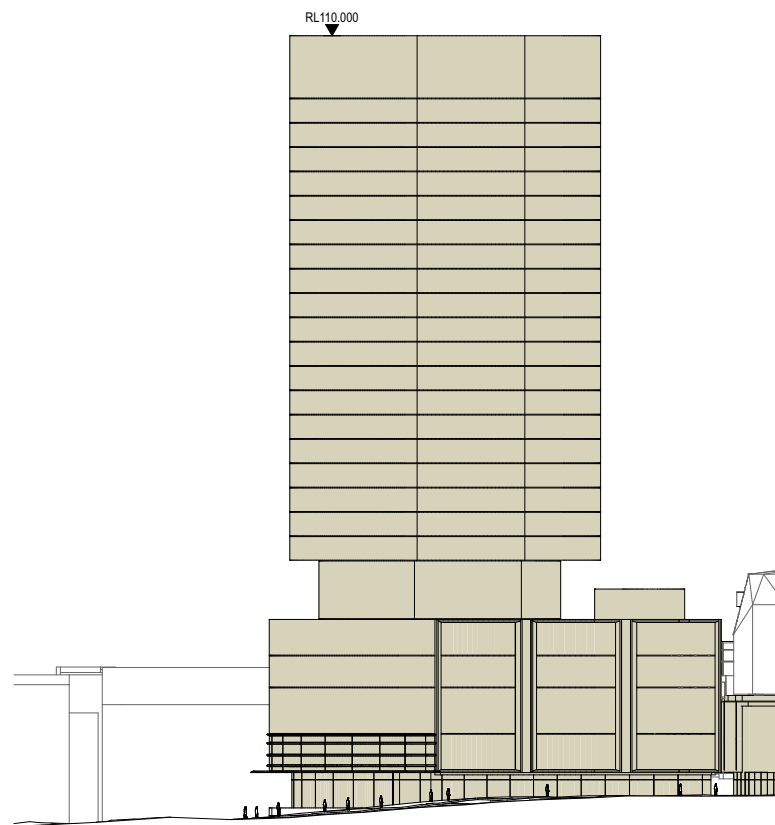


- 1 Align with context
- 2 Northern setback according to wind advice, also beneficial for view sharing
- 3 Tower 1.5m setback from podium
- 4 Tower 15m setback from edge of podium



5.0 North Tower

5.3 Urban Response



North Tower: Indicative Jones Bay Road elevation



Proposed corner of Pirrama Rd and Jones Bay Rd - full tower view



Image: Existing corner of Pirrama Rd and Jones Bay Rd



Proposed corner of Pirrama Rd and Jones Bay Rd



View towards Through-Site Link on Pirrama Rd

5.0 North Tower

5.4 View Sharing

The North tower form is designed with consideration of view sharing from adjacent residential buildings. A full visual impact assessment to assess the view sharing impacts to private residential properties may be required at detailed Stage 2 DA stage.



Image: Satellite aerial of existing residential development

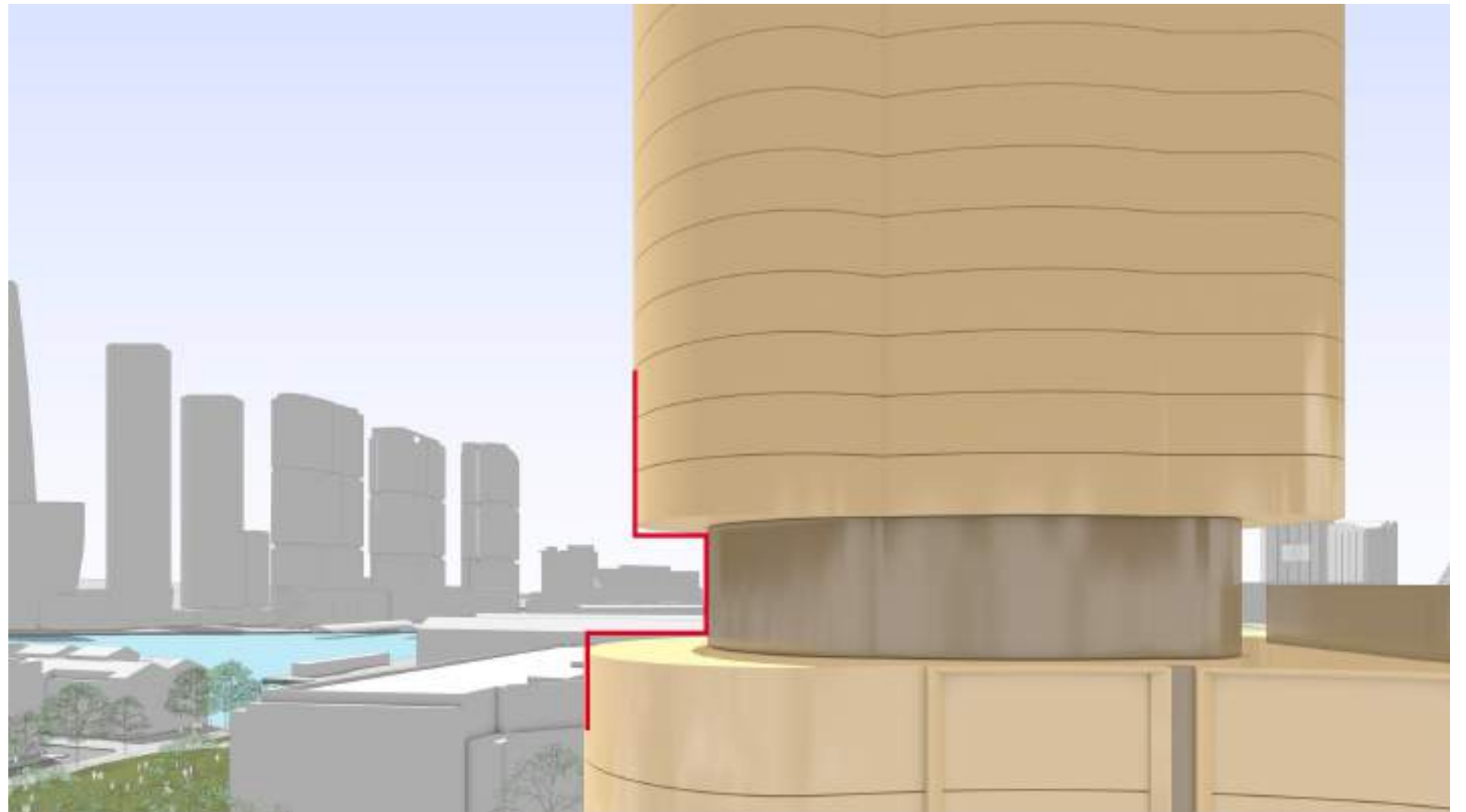


Image: View from noted residential development

5.0 North Tower

5.5 Design Principles

1. The final form of the North tower should be developed to preserve mid-winter solar access to Pyrmont Bay Park as set out by the PPPS.
2. The final form of the North tower should be developed with consideration of overshadowing impacts to residential properties to the south. The assessment criteria such be established with consideration of the overarching objective of the PPPS and the wish to deliver those areas identified as 'Areas capable of change' and as having potential 'Taller Building Clusters'.
3. Street edge alignment should ensure appropriate footpath widths are established.
4. Awning design should take into consideration the location of porte-cochere as well as relevant wind advice.
5. Podium built form at the corner of Pirrama Road and Jones Bay Road should actively engage with the public domain, encourage pedestrian activity and interaction with the building edge.
6. Tower built form at the corner of Pirrama Road and Jones Bay Road to have a minimum of 7m setback from the podium for the first level above podium. The rest of the tower form above to have a minimum of 3m setback from the podium edge at this corner.
7. Consideration and priority be given to the Through-Site link between Pirrama Road and Jones Bay Road in terms of an integrated architectural expression within the public domain while providing an upgrade to the northern corner of the Star Key Site masterplan.



View from Barangaroo Headland Park