

Enhance the waterfront experience

Provide upgraded retail and generous public space to allow a moment to pause.

Extend the length of the existing wharf where possible and provide clearly public gathering spaces opening out to the water's edge - adding to the safety of the upper promenade.

Provide an average 17m setback to the retail line noting some licenced seating areas to be maintained within the leasehold area. No reduction in public walkways is permitted.



Fig. 53. Artist impression by Doug & Wolf (Indicative render - subject to design competition)

Permeable and diverse

Encourage fast and slow movements, allow for direct and indirect movements.

Create places to discover, lookouts, quiet spaces, open greens and discrete gardens.

Create connections to podium foyer and retail spaces at key levels to facilitate ease of movement and a blending of internal and external environments. Respond to the existing Darling Park buildings, entries and shared spaces.

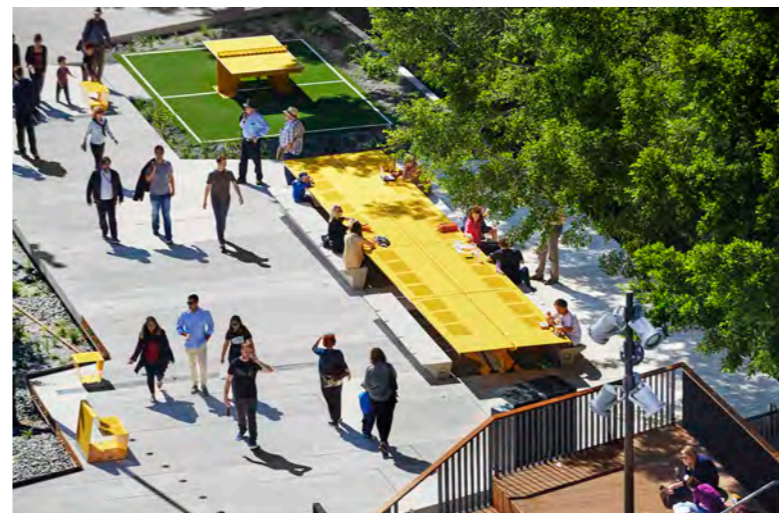


Fig. 54. The Good Line by ASPECT Studios

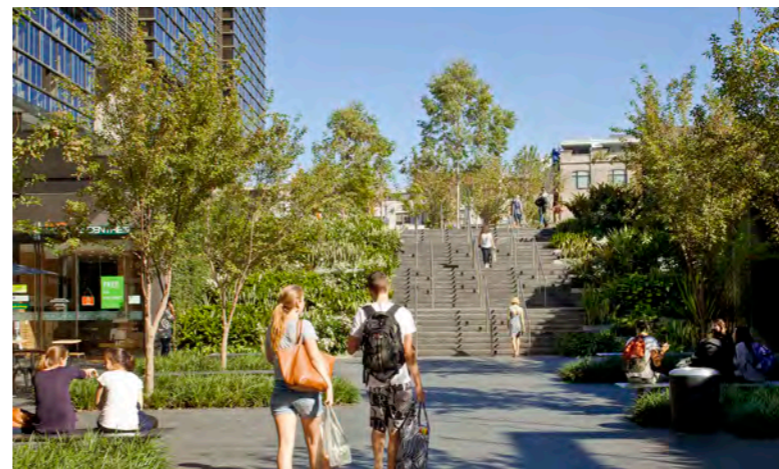
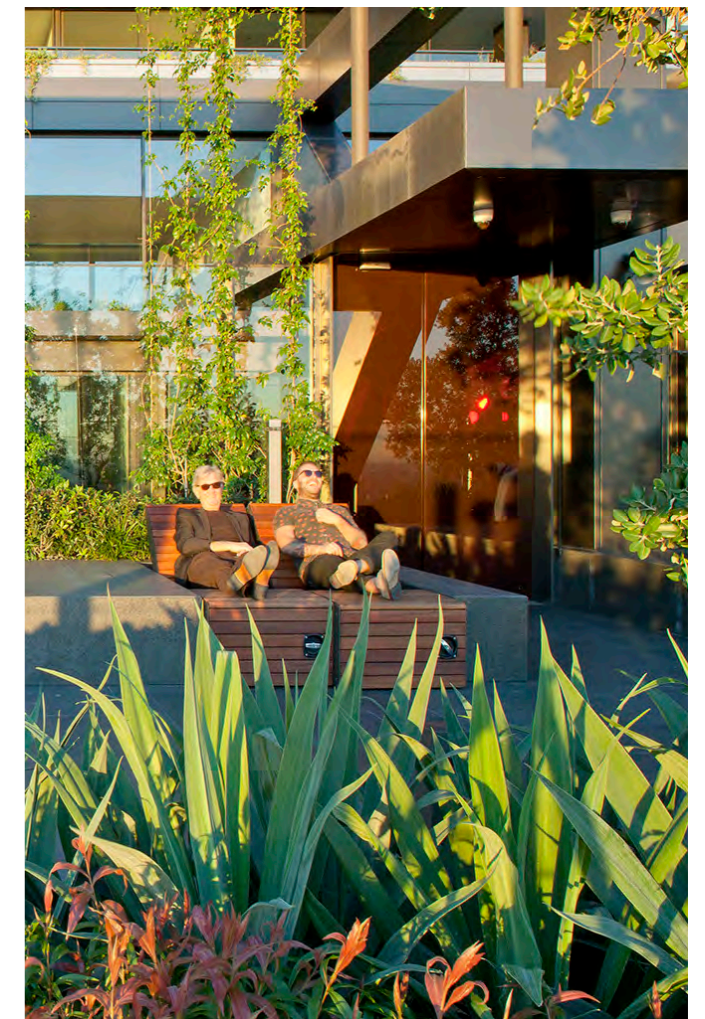


Fig. 55. One Central Park public domain by ASPECT Studios



Connect to the water

Create open spaces suitable for celebrations, viewing the harbour activities and accessing the waters edge in an open and comfortable manner.

Provide facilities like the 'Cockle Bay Steps' as a space for celebrations and informal amphitheatre.

Provide upgraded retail and generous public space to allow a moment to pause.



Fig. 56. Indicative section by ASPECT Studios (Conceptual illustration only - subject to design competition)

Upgrade the promenade

Align the waterfront promenade with new developments and precinct Guidelines. Provide generous break out spaces in the park



Fig. 57. Indicative section by ASPECT Studios (Conceptual illustration only - subject to design competition)

Reimagine the Crescent Garden

Open up the Crescent Garden to public view encouraging new uses and activities. Invite the public to enjoy a tranquil retreat.



Fig. 58. Public domain plan by ASPECT Studios (Conceptual illustration only - subject to design competition)

Clarity of public and private space

Provide clearly delineated spaces that feel public in nature. Provide appropriate and discrete retail activation.



24 hour access

Provide safe and CPTED compliant access along key external connectivity routes at all times of the day and night.

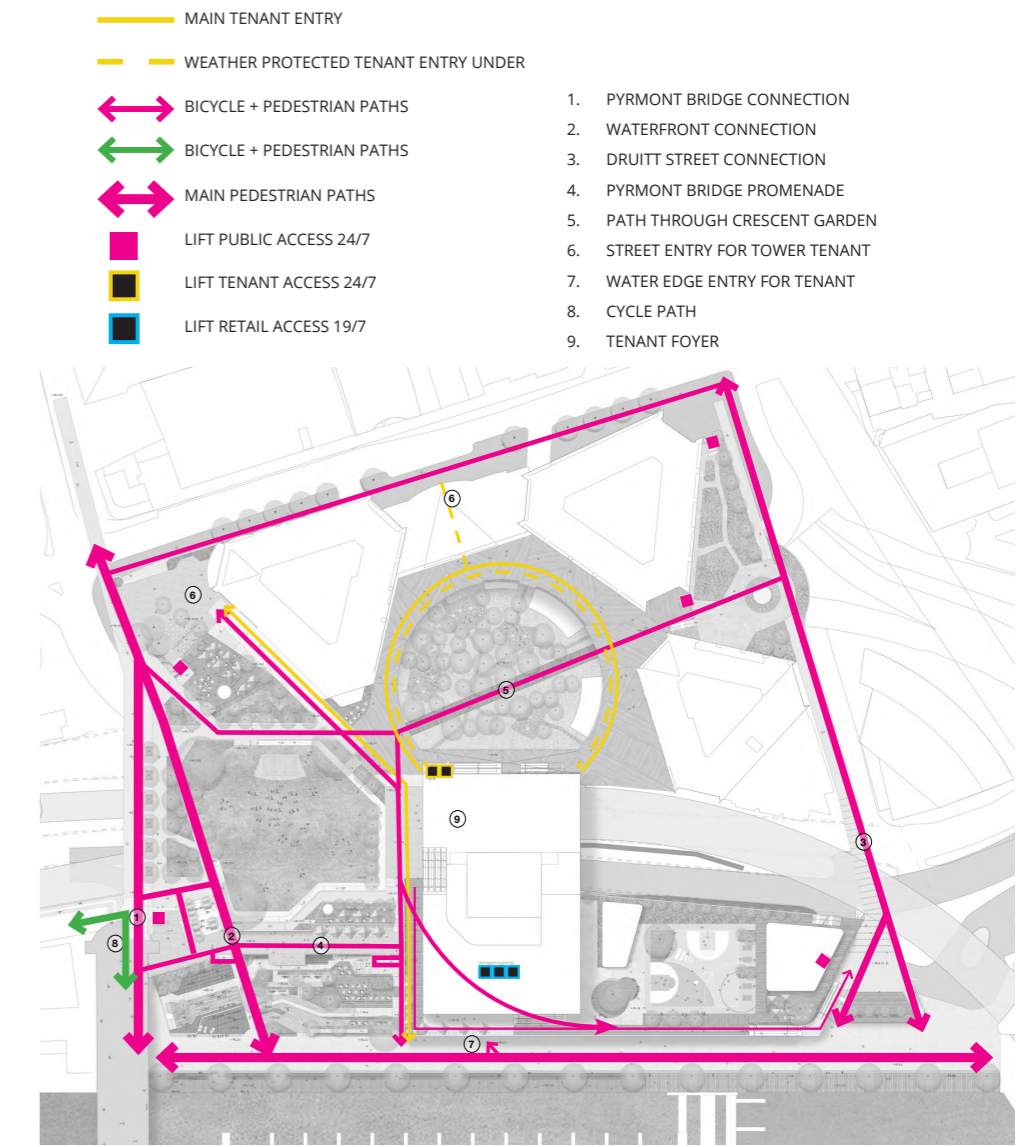


Fig. 59. Sample connectivity diagram by ASPECT Studios (Conceptual illustration only - subject to design competition)

3.3 Built form design principles

Massing Options

Massing options have been explored for a range of heights, tower locations and built forms. The following 3 studies summarise the primary approaches to massing on the site and represent the same scale of built form and corresponding connectivity and public domain implications.

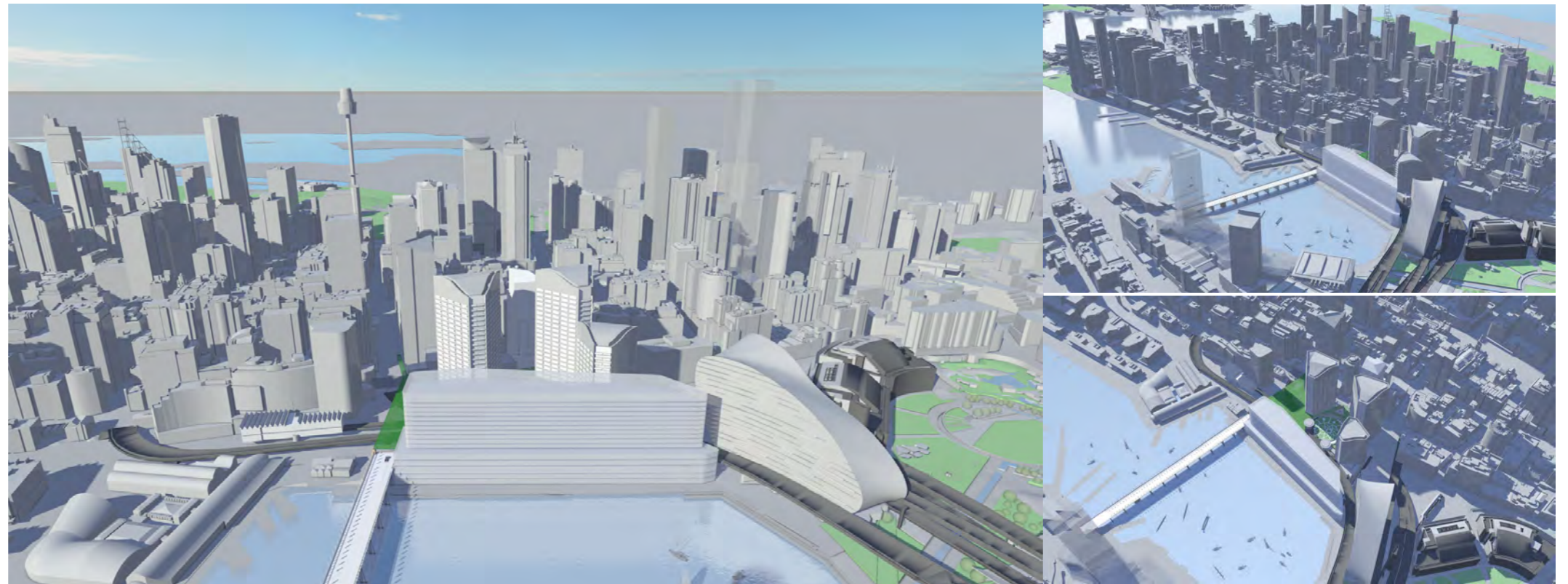
Low Rise

The low rise option keeps the built form as low as possible whilst building to the site boundaries, taking into account setbacks above podium level.

By occupying the full site, this option is the lowest height although it presents a continuous 16 story building along the 250m length of the Cockle Bay waterfront

This option occupies the full elevated ground plane with built form and limits view sharing, increases overshadowing to the foreshore, visual bulk from the water promenade and does not achieve the city/harbour public domain connectivity ambitions of the project.

This option is therefore not proposed.



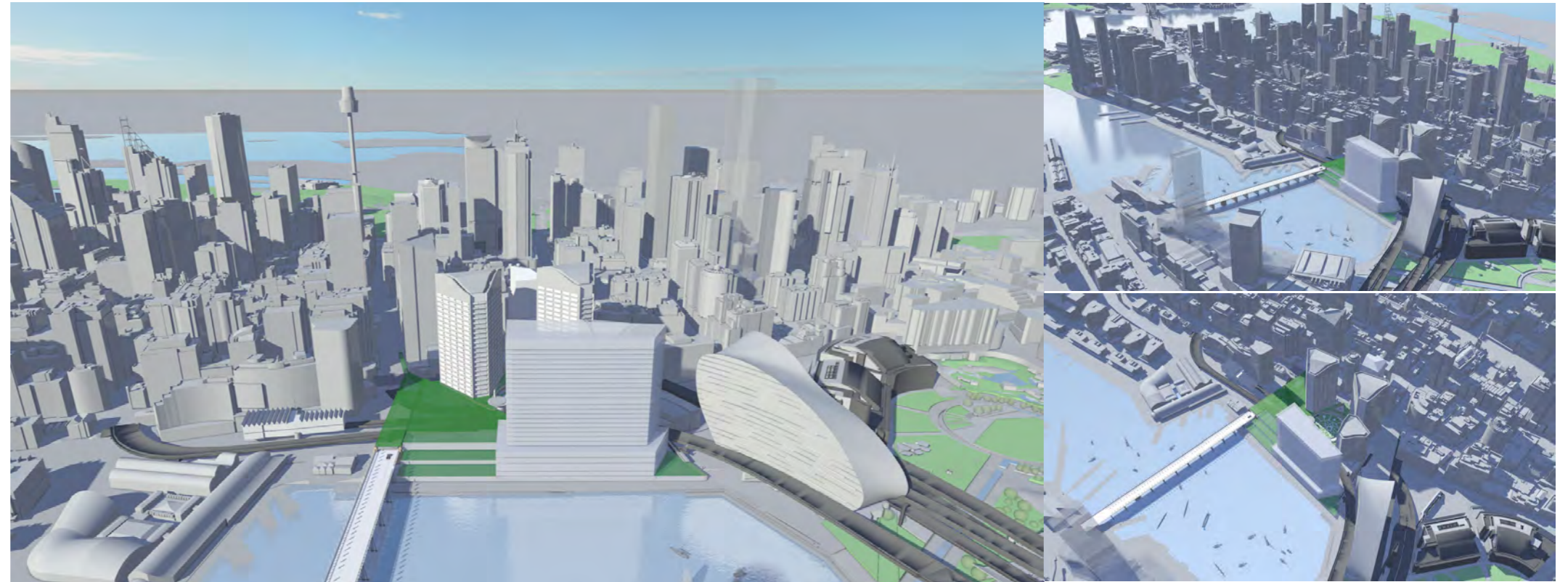
Medium Rise

The medium rise option adjusts the low rise option to achieve the northern park and Druitt street public space connectivity between the city and the harbour.

This option results in an increased height of 26 stories although over a shorter length of 140m.

Although an improvement from the low rise option, the large slab like building will still appear more bulky from the foreshore, limit view sharing and result in extensive overshadowing of the promenade

This option is therefore not proposed.



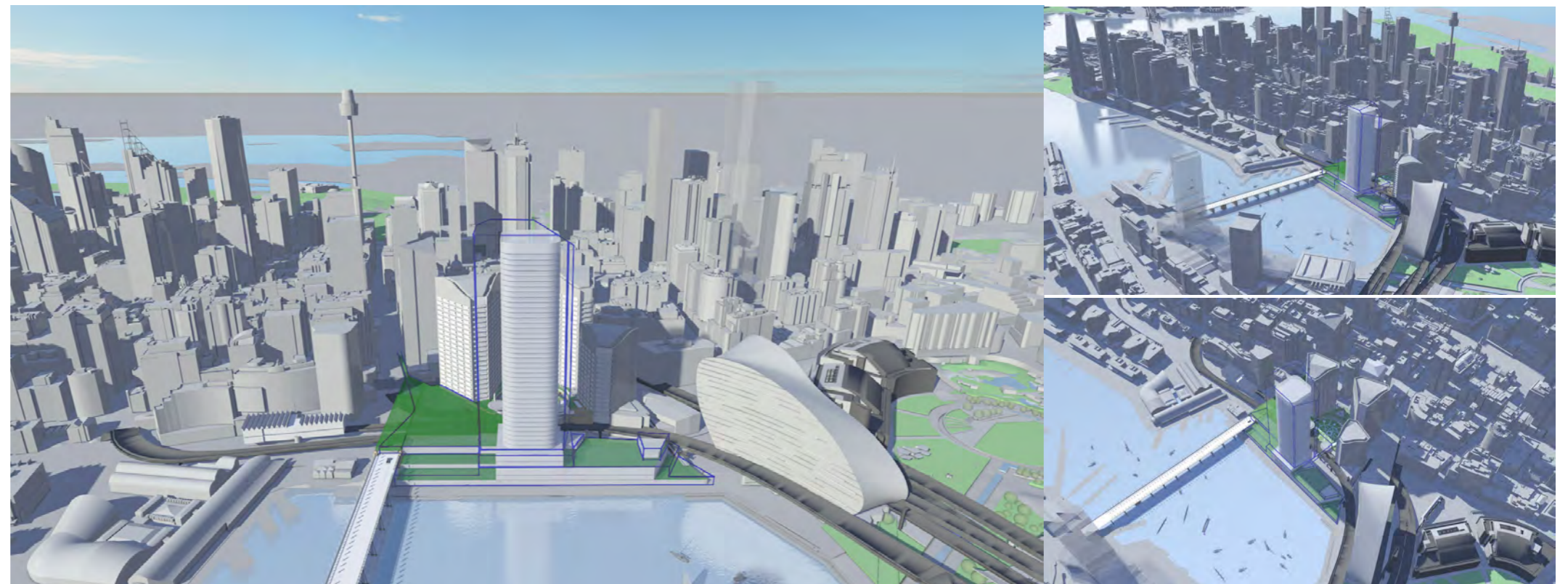
Tower - proposed envelope

The tower option generates a slender tower which sits below the Tumbalong Park overshadowing plane.

The tower form results in the greatest public space and public connectivity between the city and the harbour and the least environmental impact in terms of building separation, overshadowing, view sharing and bulk when viewed from the waterfront.

Benefits of Tower Form

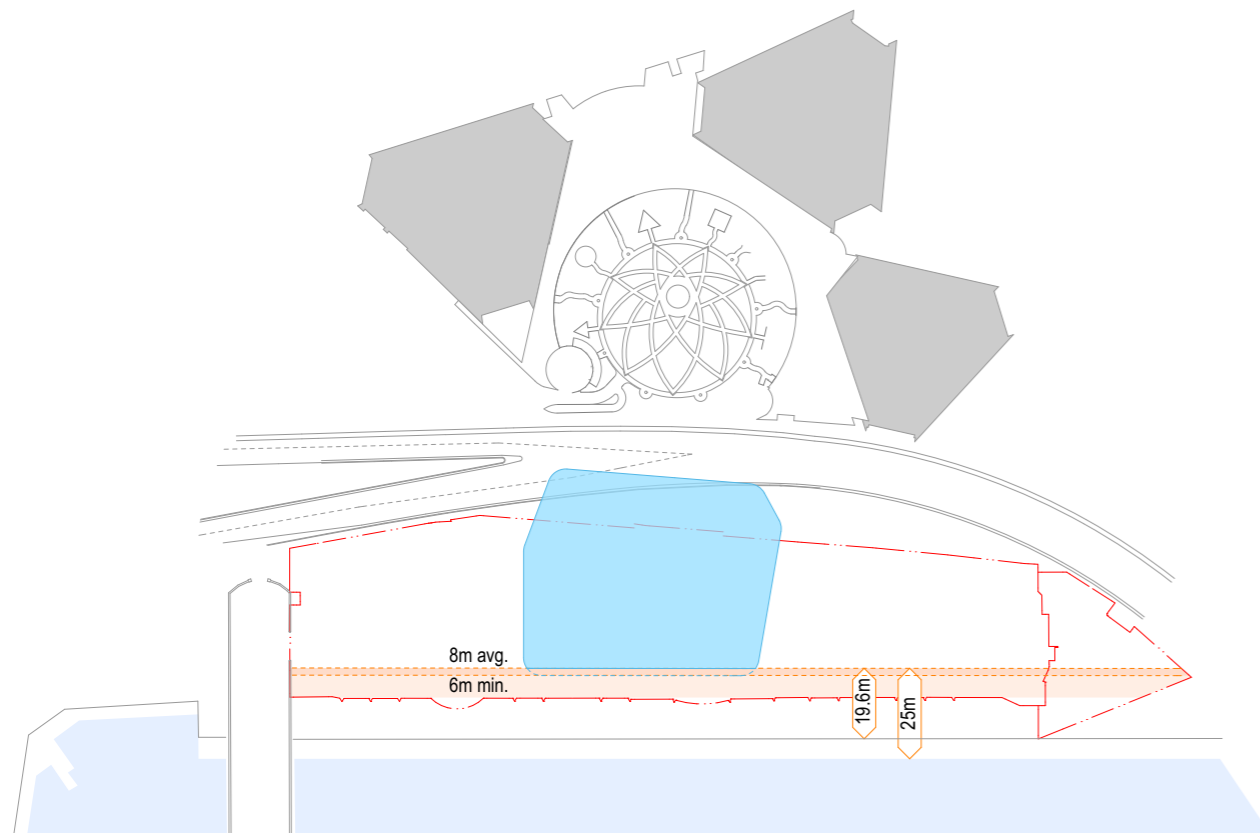
- Creates the most publicly accessible open space, improving connectivity between the city and the harbour
- Improved building separation
- Building bulk from the waterfront minimised
- Additional overshadowing of the foreshore limited
- Improved view sharing amongst adjacent developments
- Tower grouped with the existing Darling Park complex, improving legibility of public and private space



Indicative tower form only - subject to design competition.

Setbacks

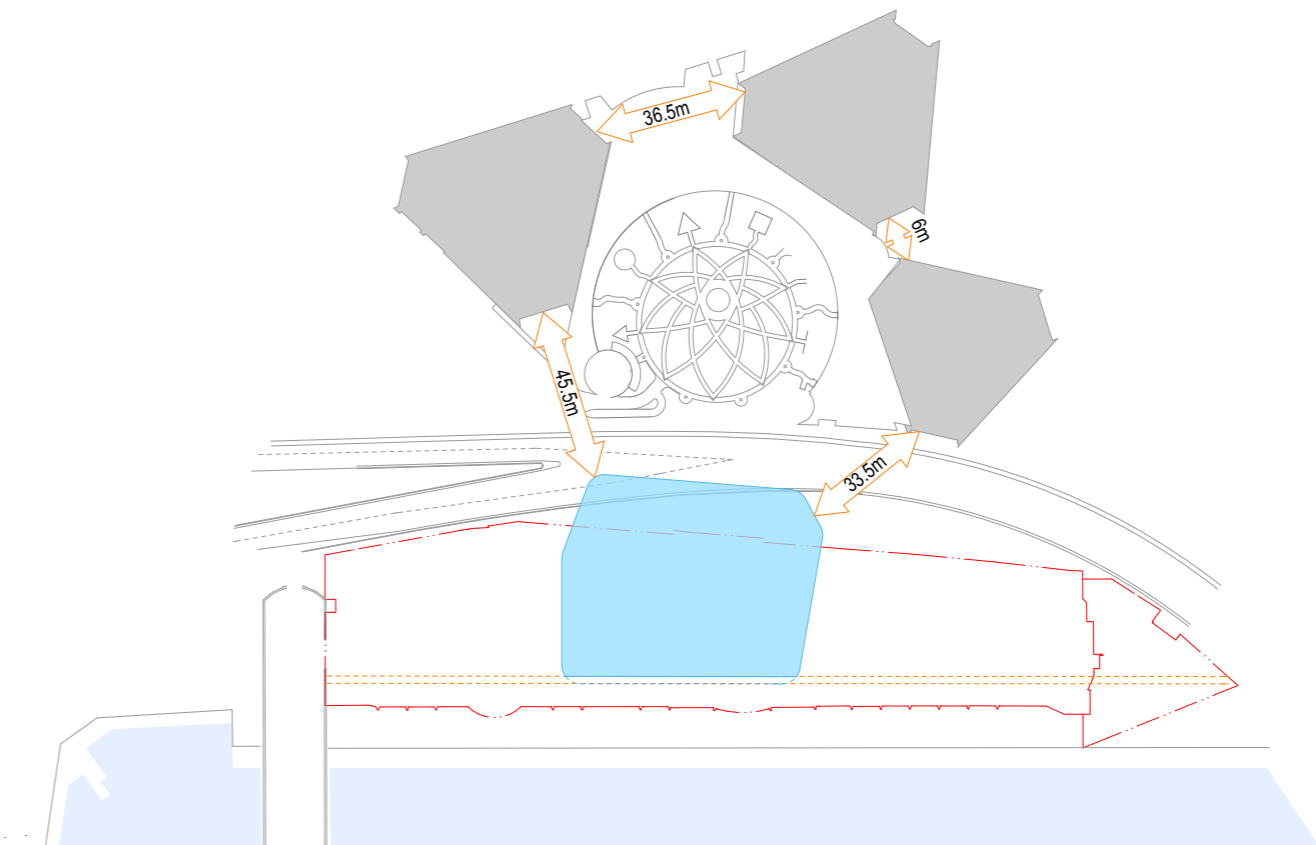
Maintain an 8m area weighted average setback from the property lease line on the western side of the tower. Any articulation elements which extend within the 8m setback zone should take into account the impact on human scale and environmental effects such as wind and overshadowing on the waterfront.



Tower separation

Provide adequate tower separation between the new towers and the existing tower at Darling Park to preserve the amenity of the existing and new towers and to facilitate view sharing for these buildings and for buildings in the streets beyond.

Minimum tower separation is typically 8-12m. This proposal requires a minimum separation of 33.5m.



Primary Tower address

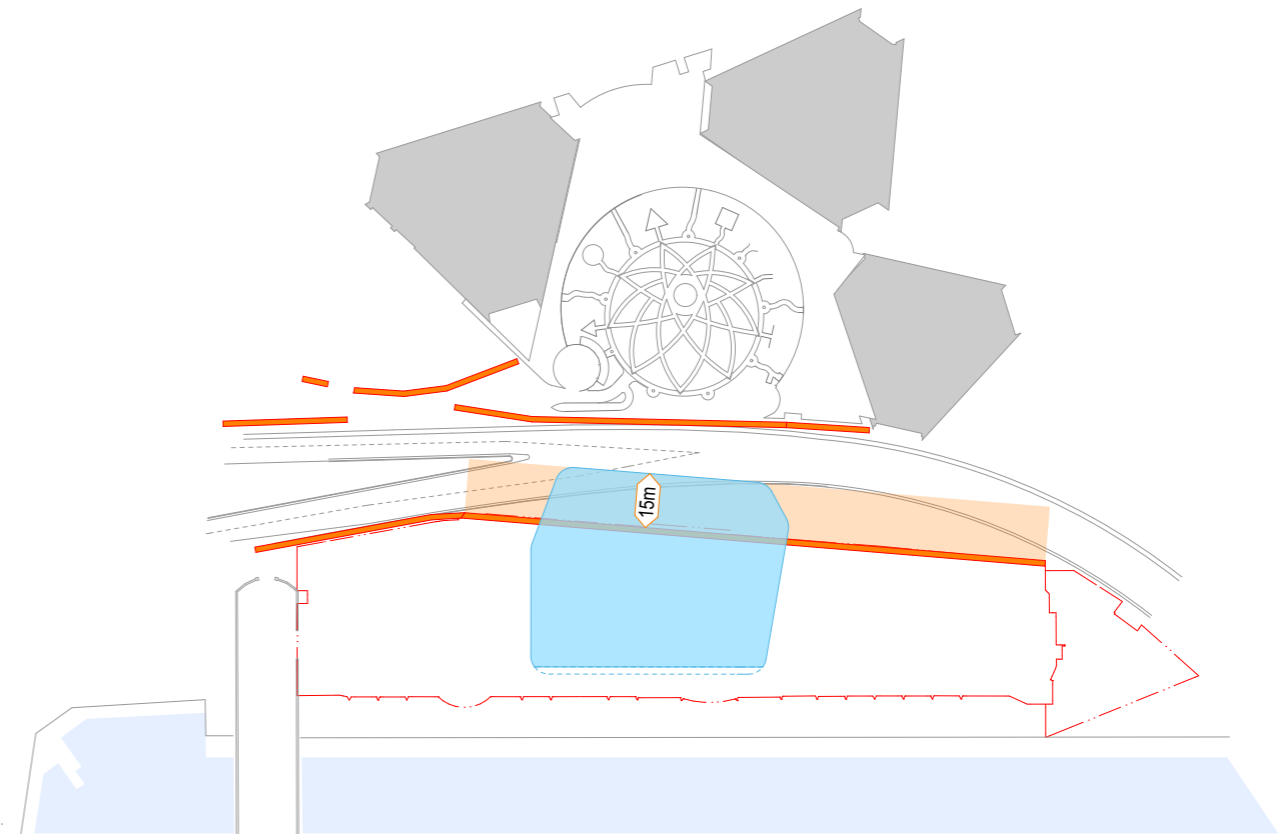
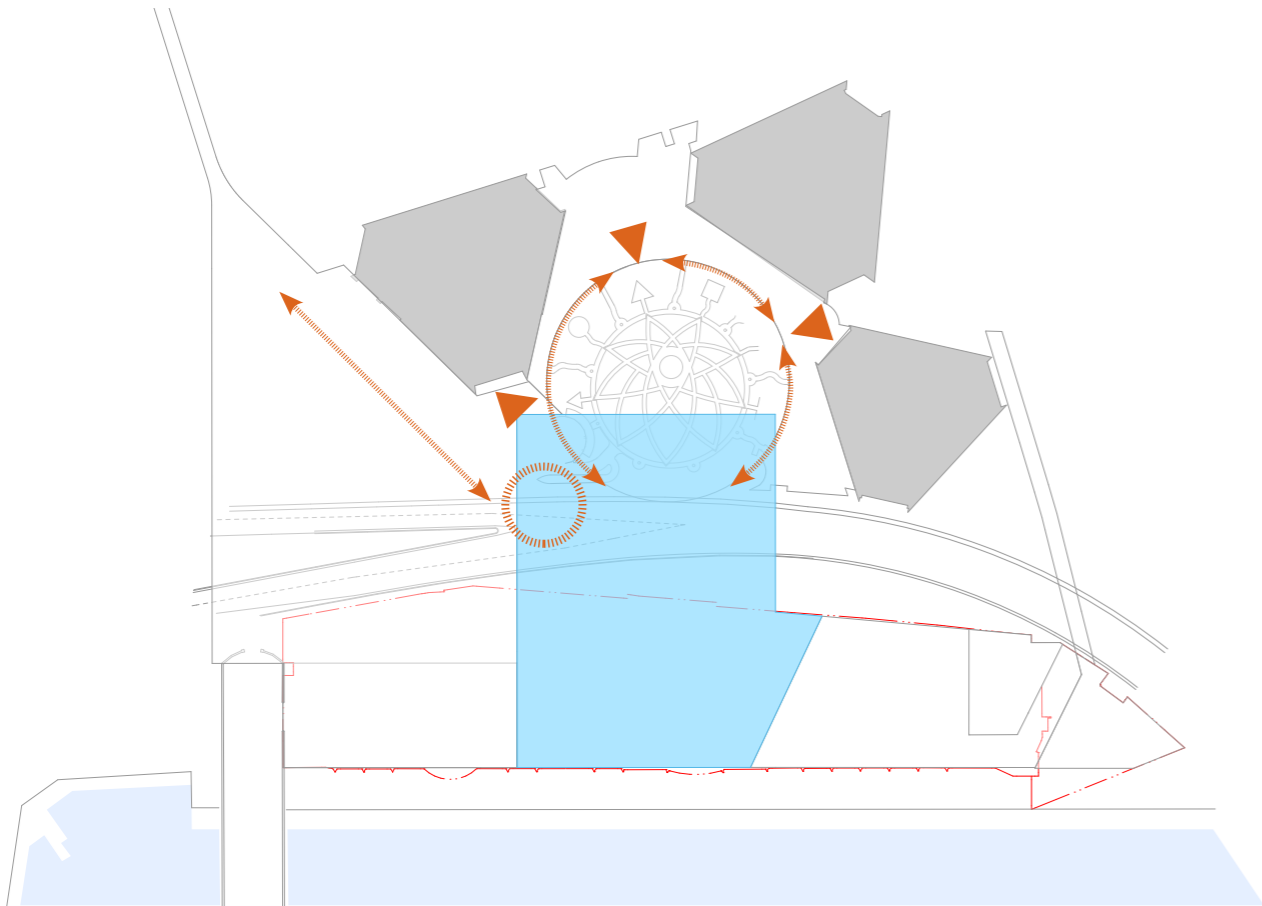
The tower should form part of the Darling Park complex and be readily accessible from the circulation routes surrounding the Crescent garden.

The tower should also be legible as a standalone tower with its own address and entrance visible from Market Street and Sussex Street.

Car access should be provided from Wheat Road including a high quality drop-off experience.

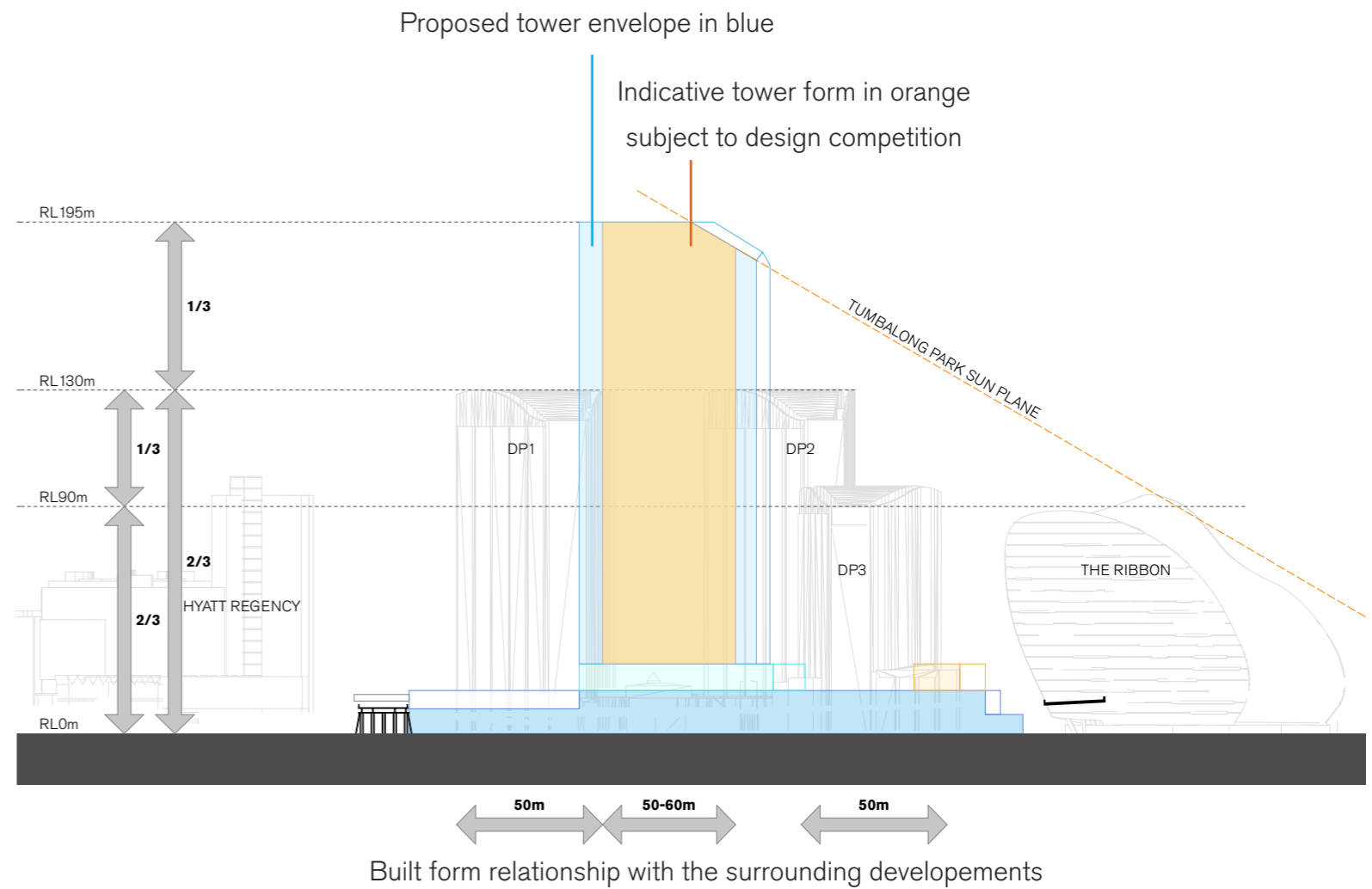
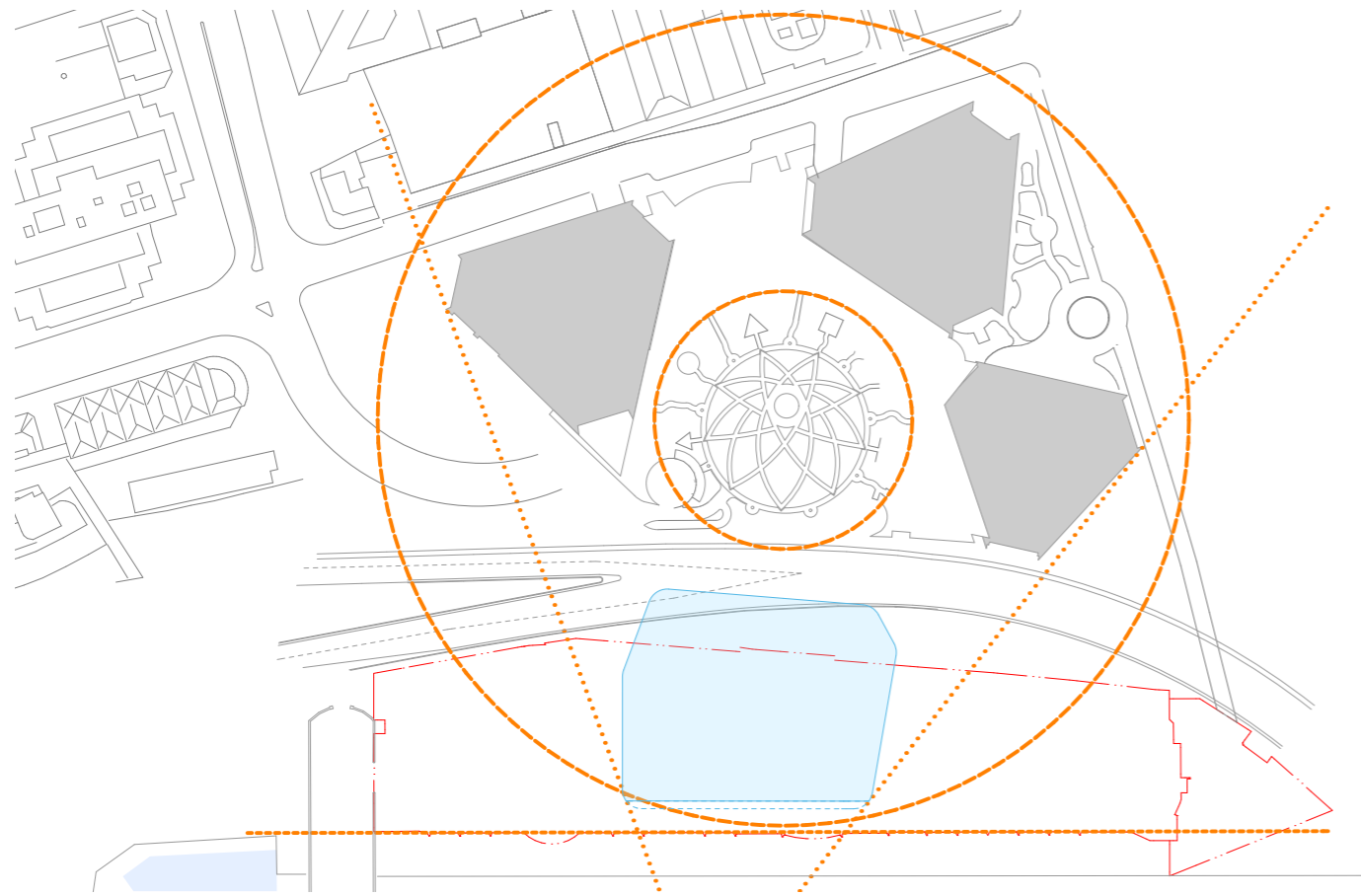
Western Distributor constraints

Consider the structural, construction and clearance requirements for construction overland around the Western Distributor and Harbour Street. (as set out in the EIS)



Relationship to existing built form

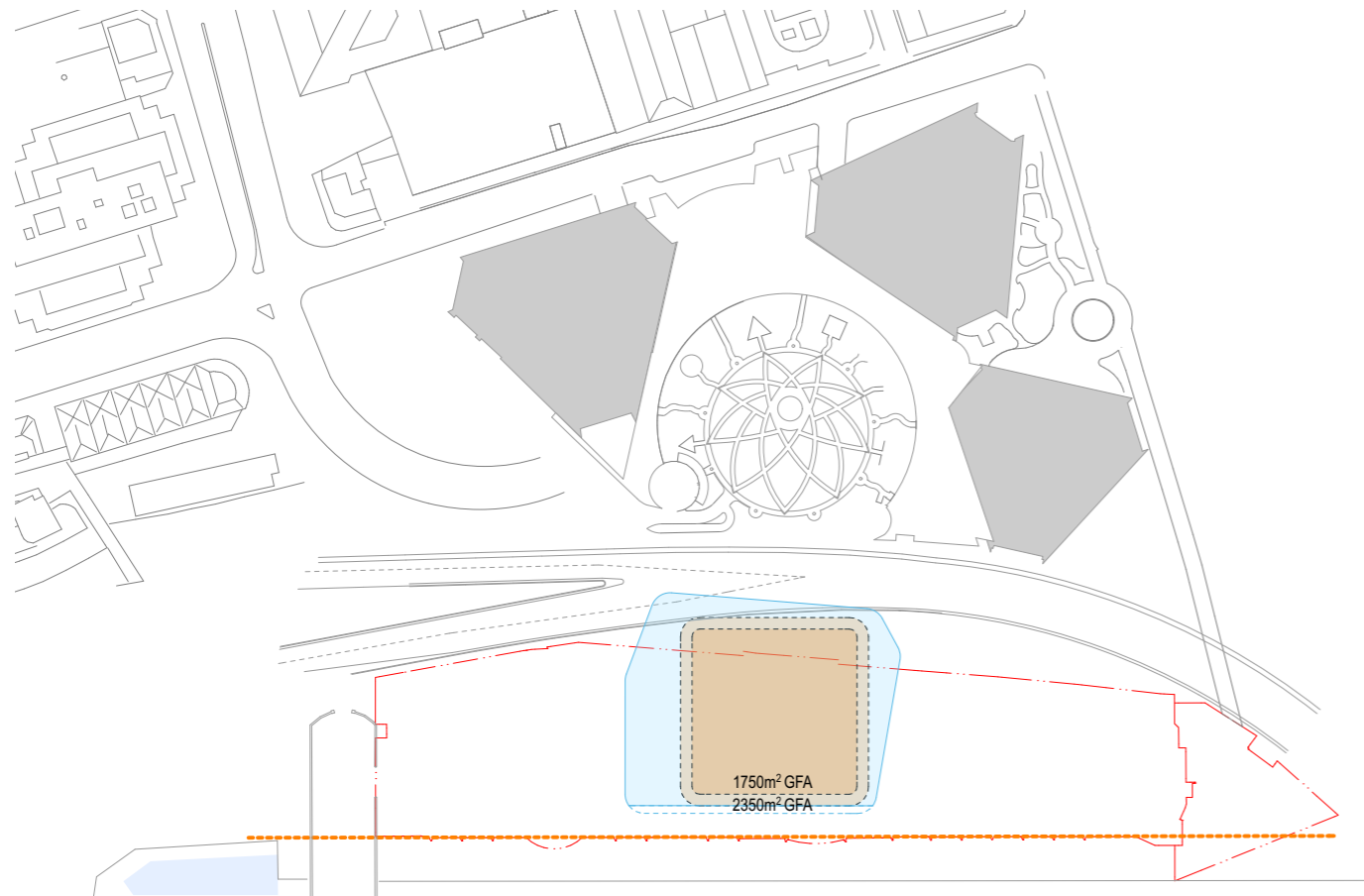
Consider the existing Darling Park tower forms including separation, height and breadth, so that the combined development reads as a cohesive whole.



Floor Plate Sizes

The current tenant market is seeking floor plate dimensions of 1750m² to 2350m² GFA or larger, to allow a collaborative working environment including traditional desk and break-out spaces.

These dimensions are consistent with the existing Darling Park tower 1 and 2 floor plates of 1900m² GFA.



Tumbalong Park Amenity

The proposal should not provide any additional overshadowing of Tumbalong Park and the Children's playground.

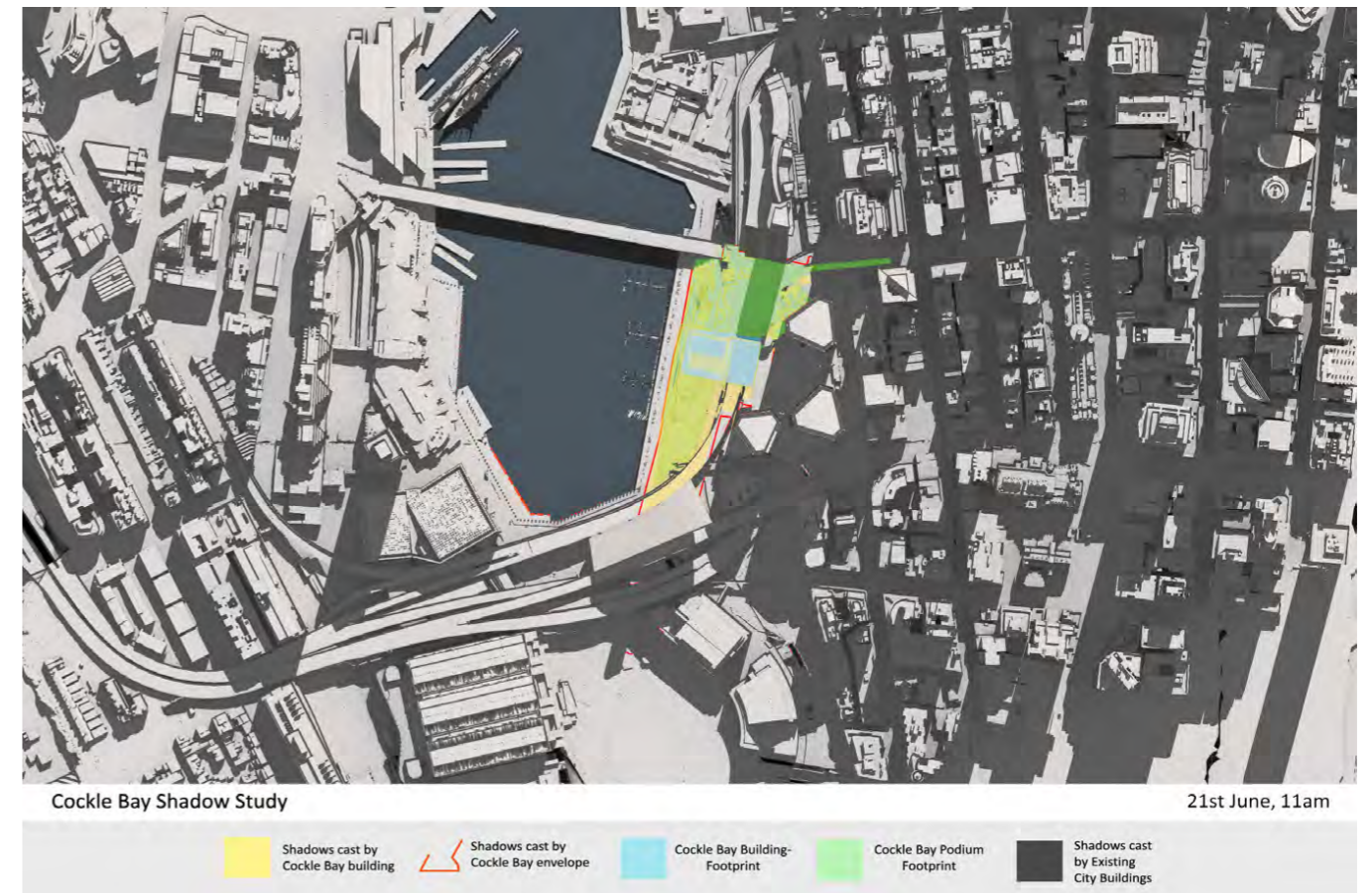


Fig. 60. Overshadowing study by Virtual Ideas

Future Town Hall Square Overshadowing

The future Town Hall Square has been nominated as a public place for solar protection in the draft Central Sydney Planning Strategy 2016. Although not currently applying to the site, development at Cockle Bay should consider the solar impact on Town Hall Square and minimise any impact.

The propose sun controls for the future Town Hall Square are a no additional overshadowing requirements from 12:00pm until sunset throughout the year. This becomes restrictive in the area of the city to the west of town Hall Square where at certain times of the year the sun is very low and buildings although quite distant will cast a fast moving shadow.

Annual overshadowing

Analysis of the impacts of the proposed envelope indicate that through the reduction in height and breadth, the degree of overshadowing on the future town hall square has halved from the original proposal. Where the maximum amount of overshadowing of any one point on the square was 21 hours total over two 1 month periods, this has been reduced to 11 hours. This peak overshadowing occurs in an area of the proposed square which receives 1700 hours of sun over the course of the year.

It is noted that there is no overshadowing of any nominated spaces in the time frame established in the current LEP controls (11am-4pm typically)



Fig. 61. Future Town Hall Square annual sun access with revised concept

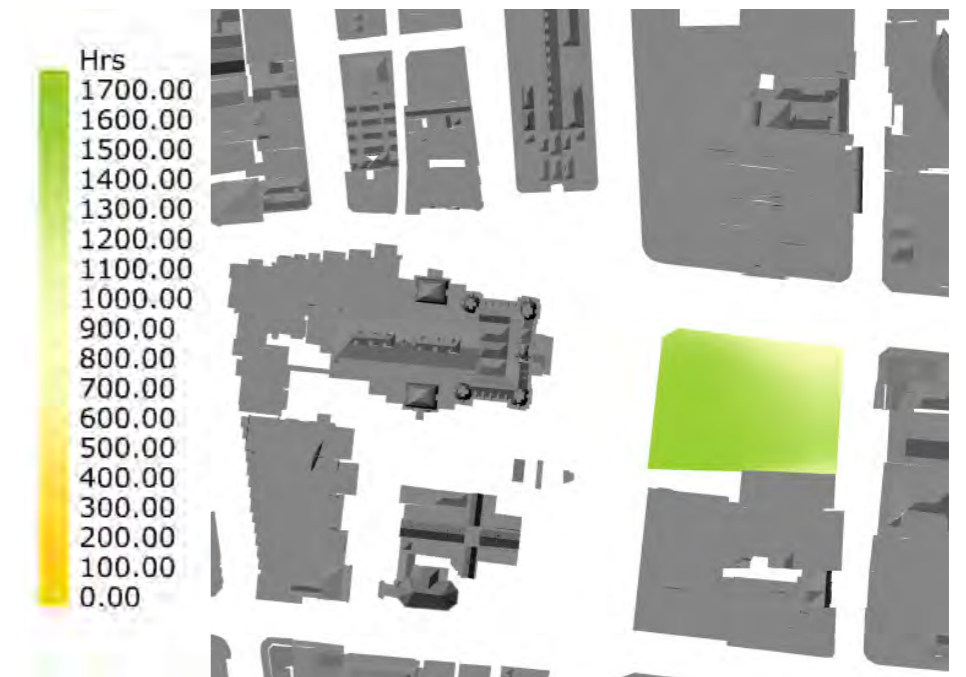
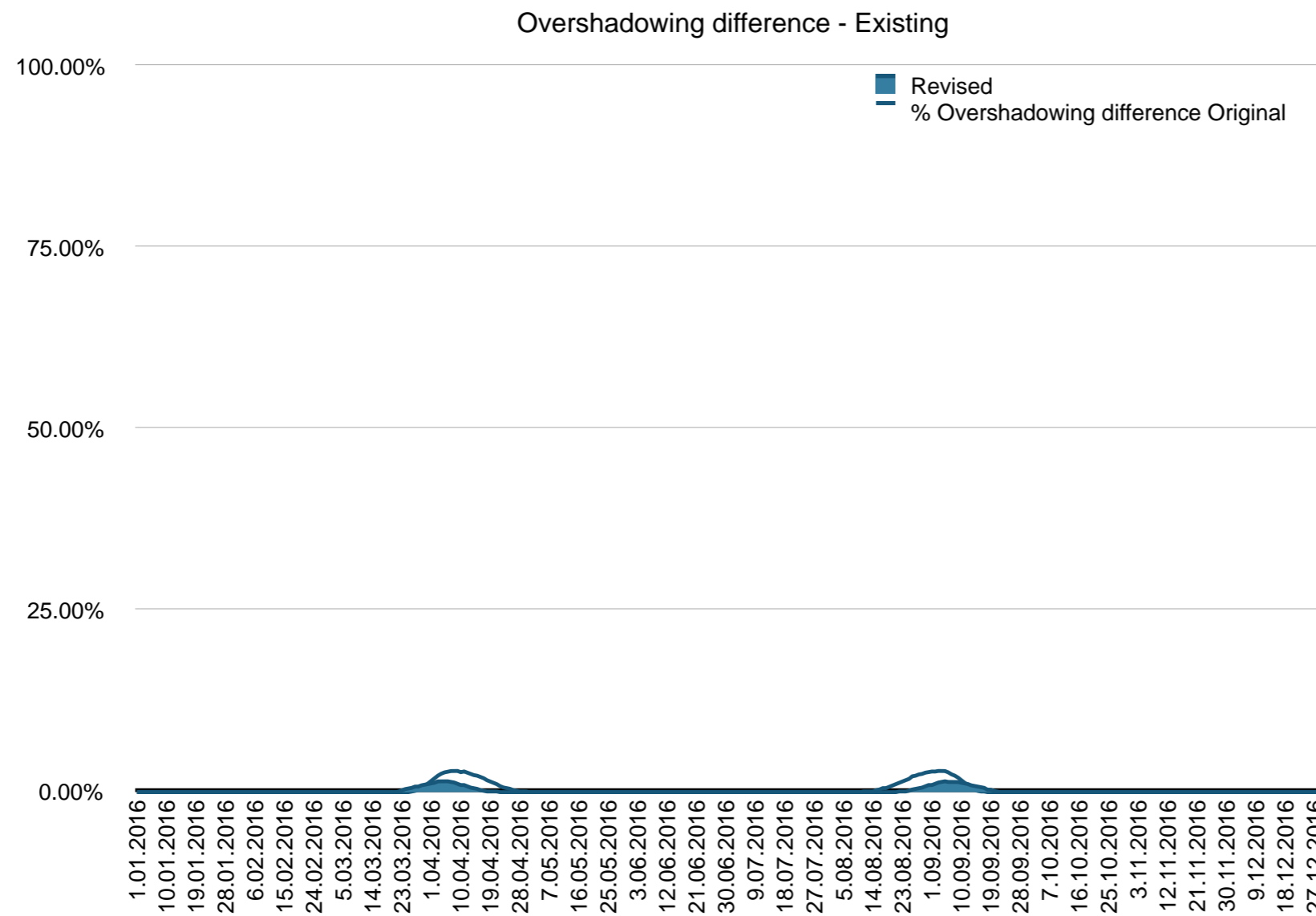


Fig. 62. Close up of Future Town Hall Square annual sun access with revised concept



Maximum average daily overshadowing

Analysis of the average impact on the square is a 1.5% overshadowing on the most affected day of the year with the degree of overshadowing tapering off on either side of that day for a two week period (four weeks in total). This is down from 2.9% in the original proposal.

Fig. 63. Chart showing the annual overshadowing impact on the proposed Future Town Hall Square

Duration of maximum daily overshadowing

Analysis of the additional overshadowing indicate that this occurs over a 15 minute period near sunset between 4:00pm and 4:30pm on the most affected day.

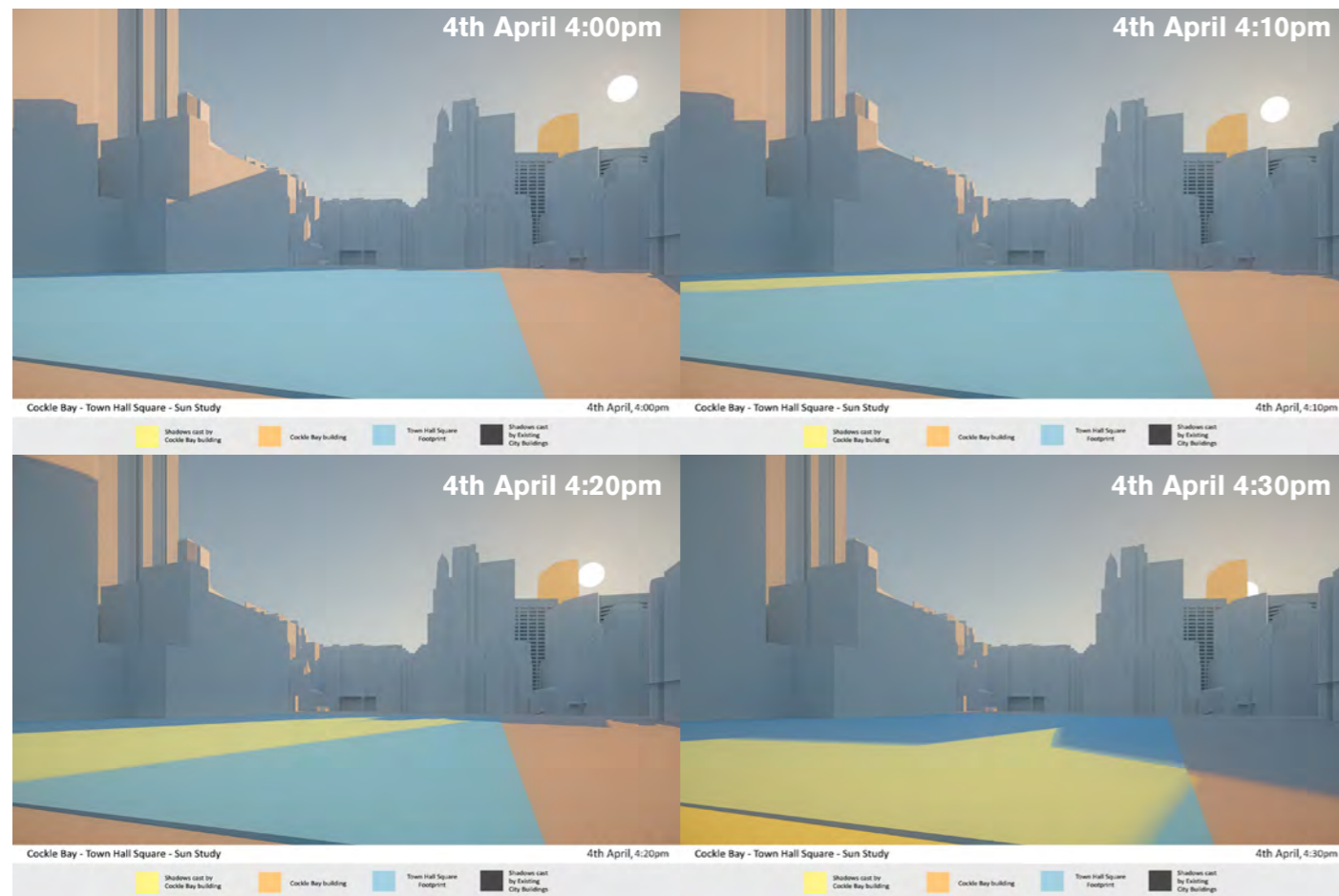


Fig. 64. Eye level visualisation at future Town Hall Square by Virtual Ideas

No overshadowing from 4:40pm onwards on 4th April

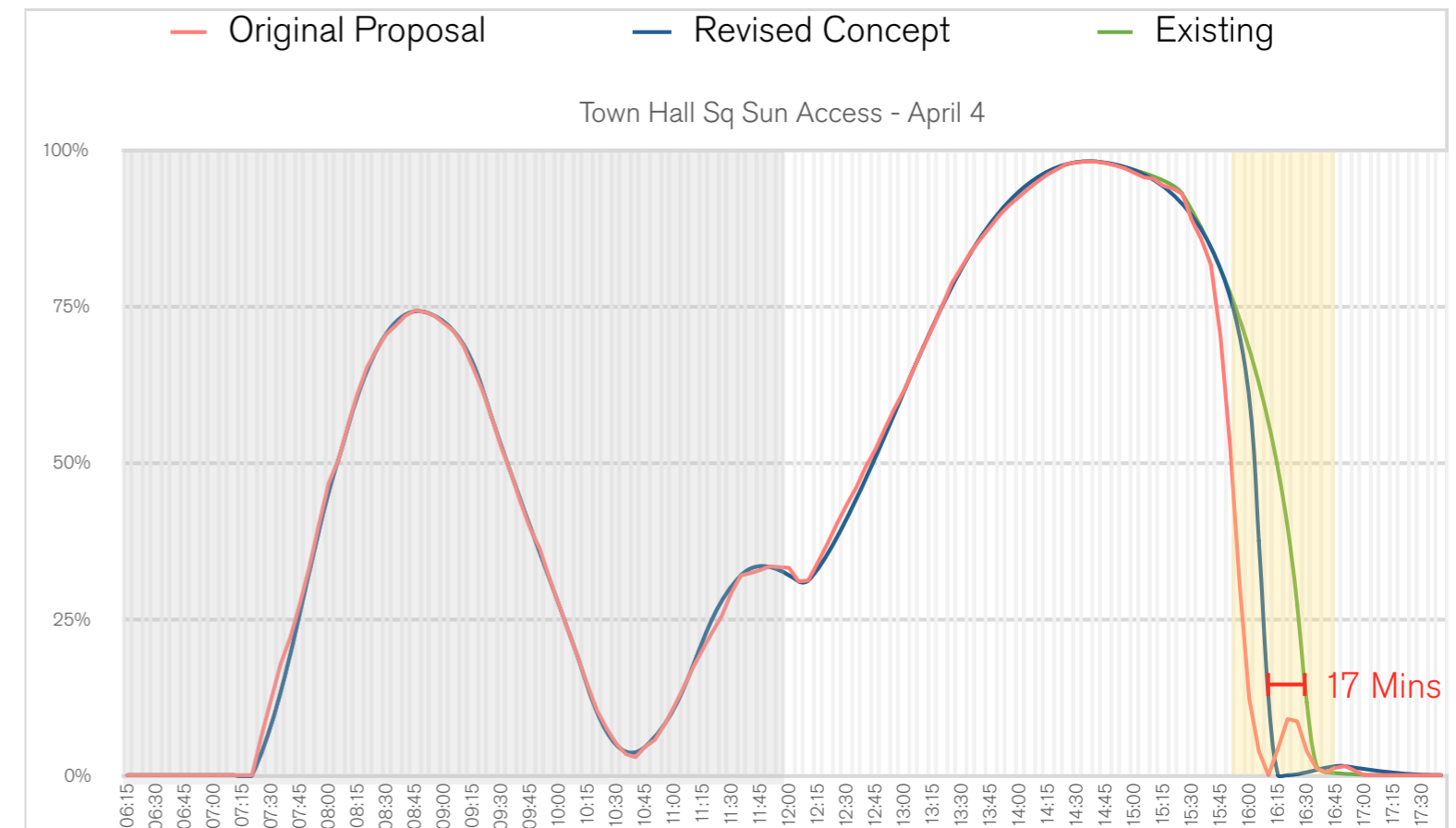


Fig. 65. Future Town Hall Square overshadowing for 4 April

Public benefit

Any impacts on solar access to Town Hall Square and other public spaces must be mitigated through public benefits of the proposal. The proposed new park is a 7 minute walk from the proposed Town Hall Square, is a similar size and receives between 4 and 8 hours of sunlight in mid winter and 5 - 8 hours on the days where the development has an overshadowing impact on the future Town Hall Square.

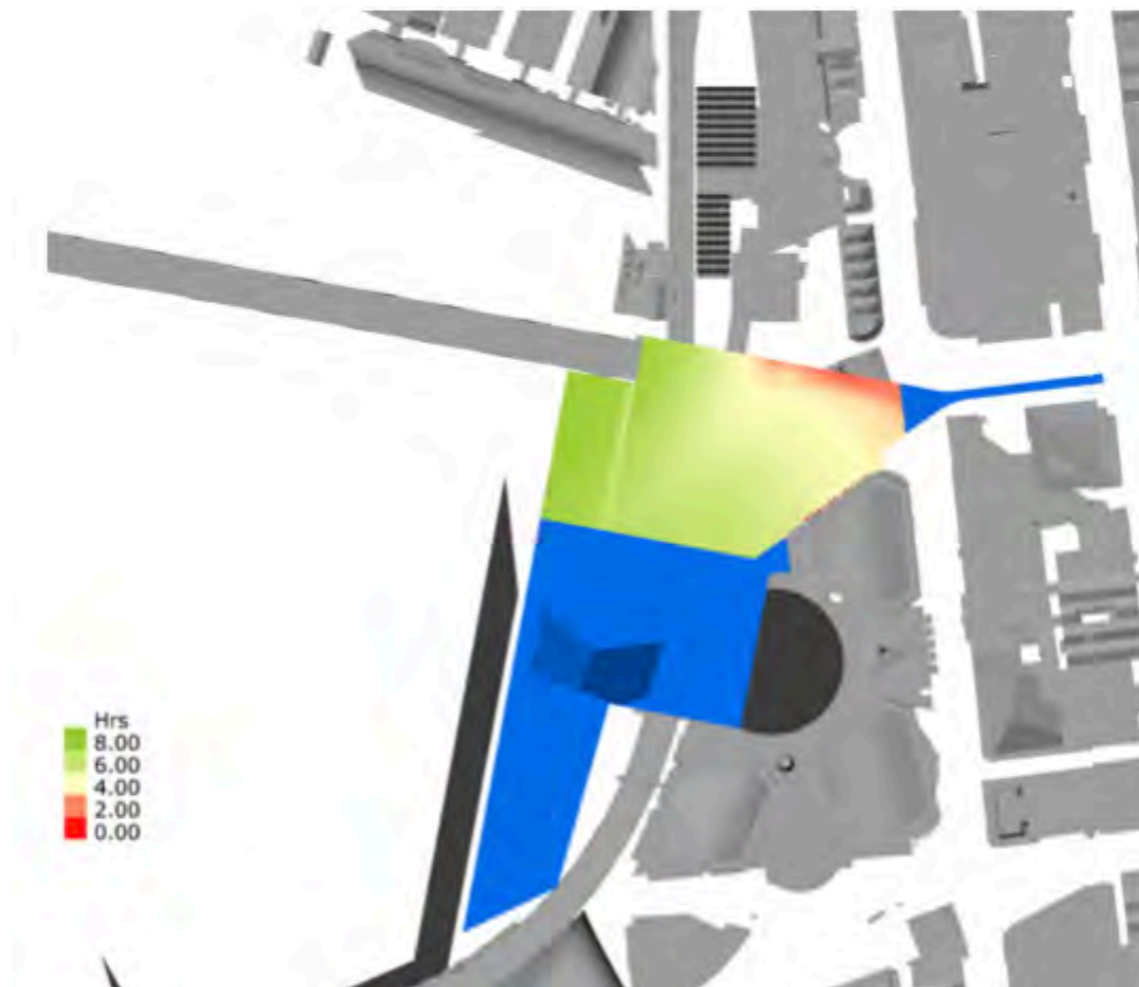


Fig. 66. Solar access analysis of the new park on 21 June



Fig. 67. Solar access analysis of the new park on 4 April

Cockle Bay waterfront overshadowing

Mid winter lunchtime

Mid-winter lunchtime overshadowing of the Cockle Bay waterfront is to be avoided (12:00-2:00pm 21 July)

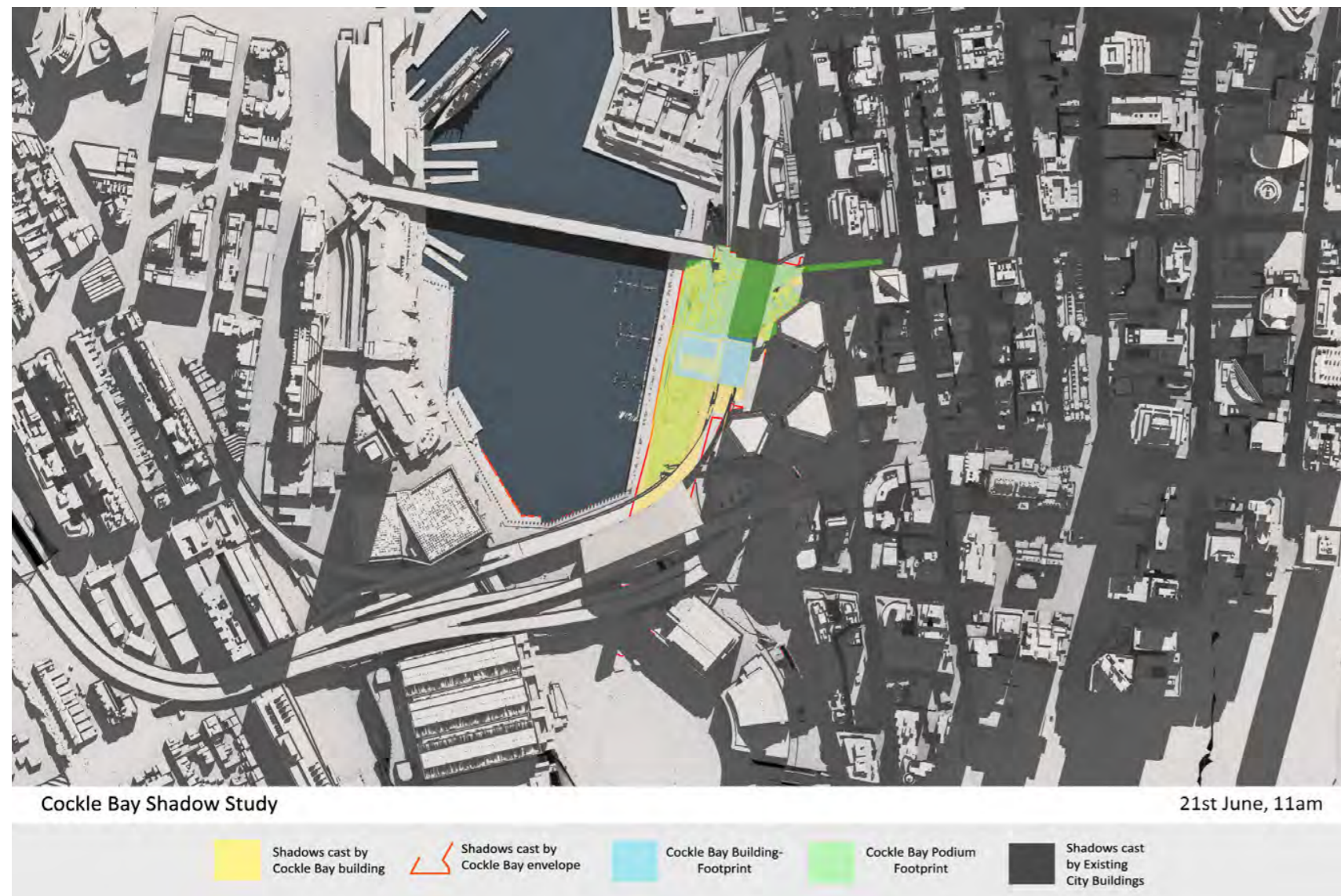


Fig. 68. 21st June 11am shadow visualisation by Virtual Ideas

Mid winter sun access

Solar analysis indicates that the Cockle Bay waterfront receives between 5 - 6 hours sunlight on 21 June



Residential solar access

Maintain ADG compliance of open space and living space of downstream residential buildings.

The proposed envelope does not impact solar access for 222 Sussex Street and 230-234 Sussex Street before 3pm on the 21st June.

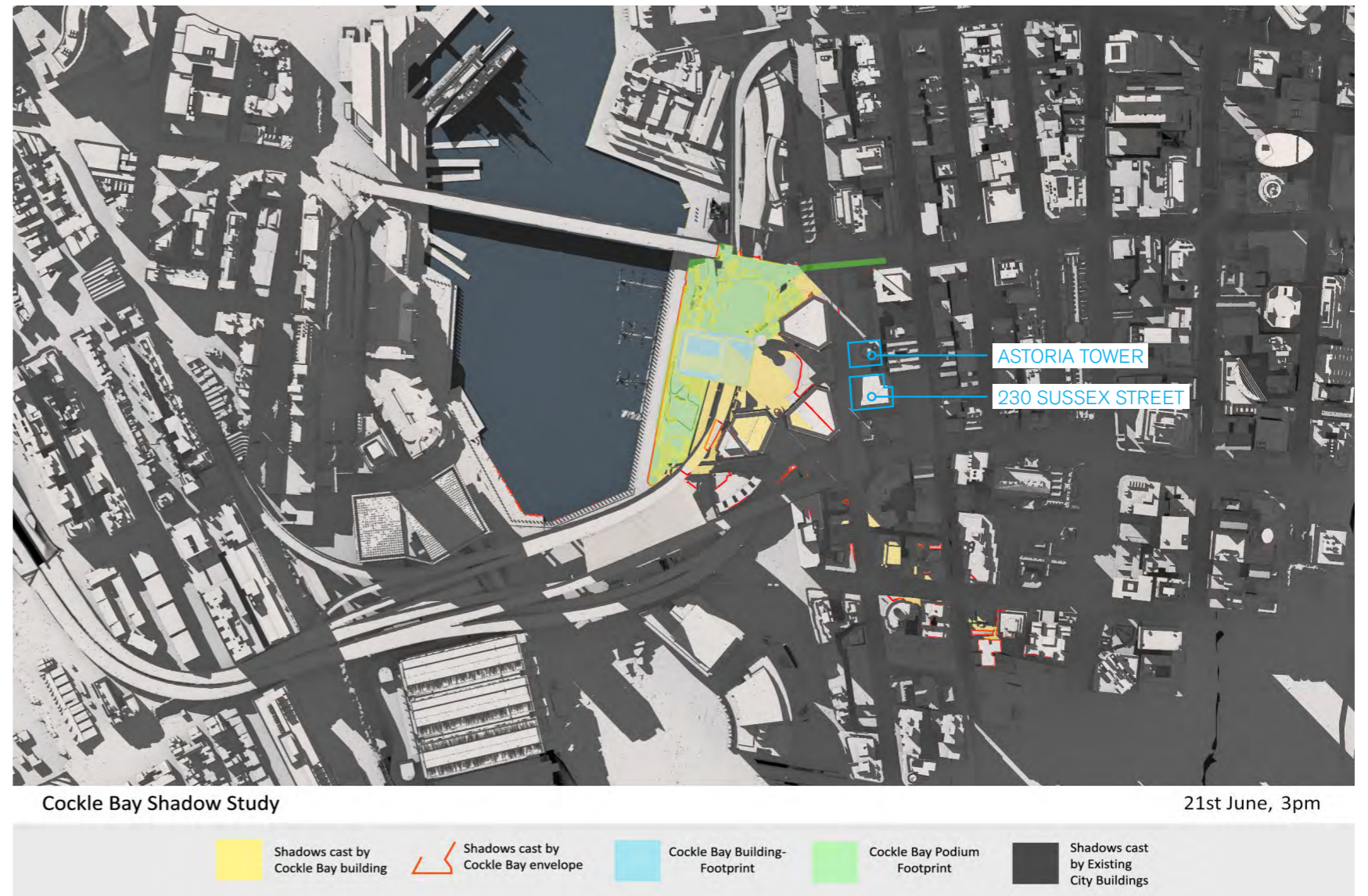


Fig. 69. 21st June 3pm shadow visualisation by Virtual Ideas

Tower form

Complement and enhance this strategically important context with surrounding landmark buildings providing contemporary architecture and an enduring international image

Impact on skyline

The proposal must make a positive contribution to the city skyline.
Consider the emerging development within the CBD, Barangaroo and Pyrmont and how the proposed building fits within and contributes to the skyline.



Fig. 70. Artist impression by Doug and Wolf (Indicative render - subject to design competition)

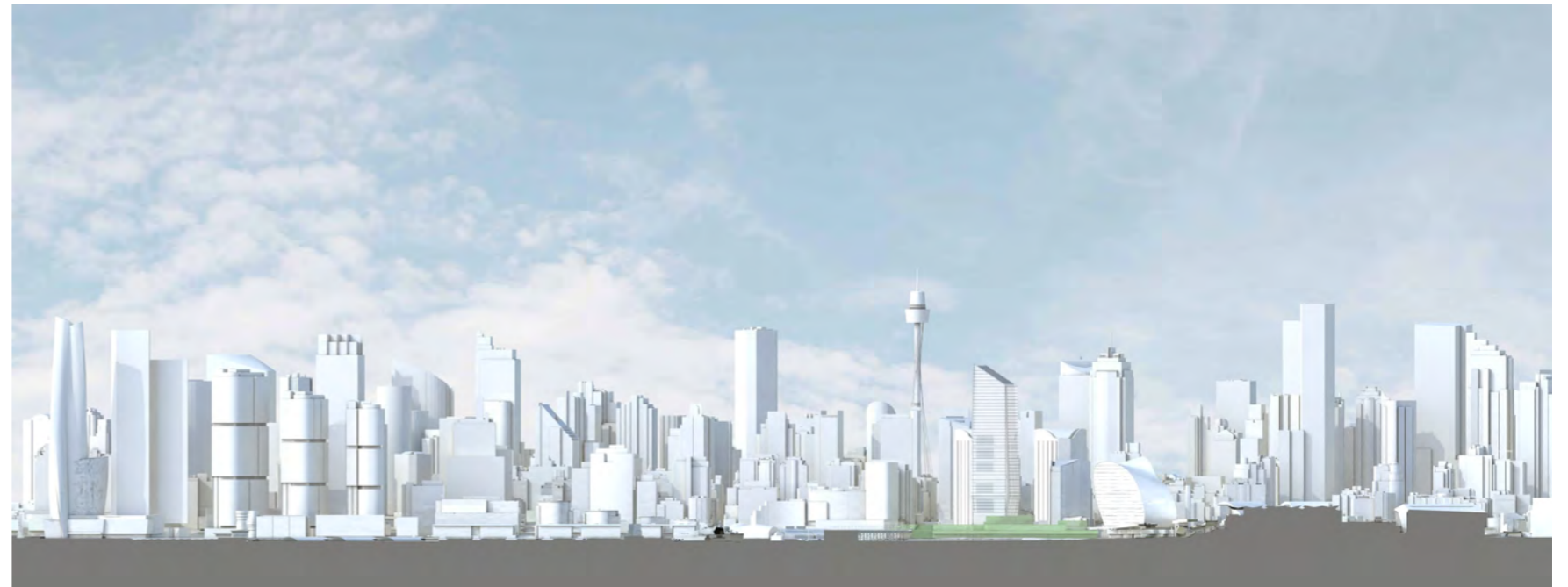


Fig. 71. East elevation of future skyline looking from Darling Harbour (Indicative render - subject to design competition)

Human scale

Consider human scale in the design of the podium, awnings and landscape to provide an inviting experience along the waterfront and throughout the new public domain.

A podium/tower form with appropriate setback is an established method of achieving this human scale.

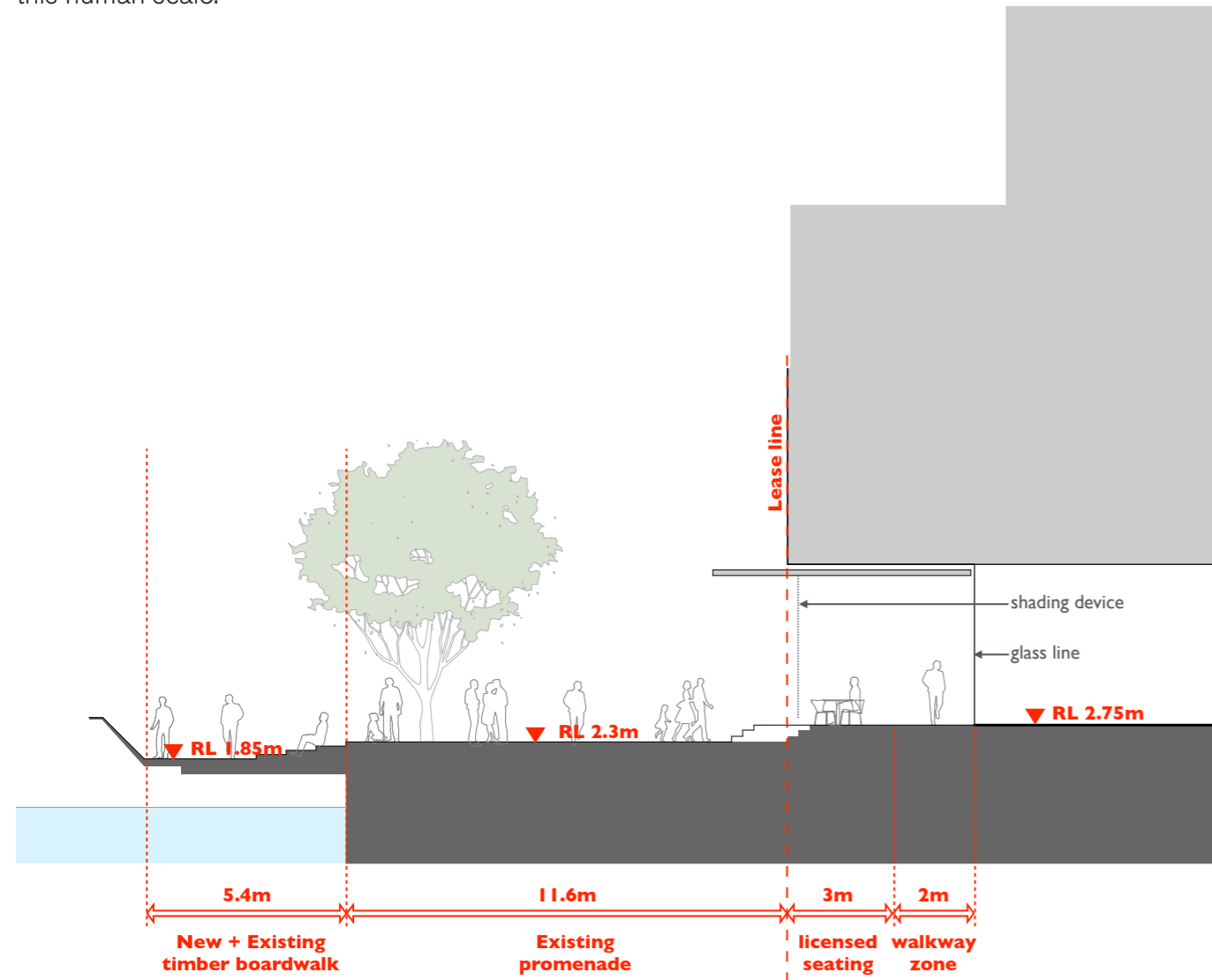


Fig. 72. Typical waterfront amenity (Maintain existing)

Wind

Wind conditions should be safe and appropriate for the proposed activities in all areas of the development.

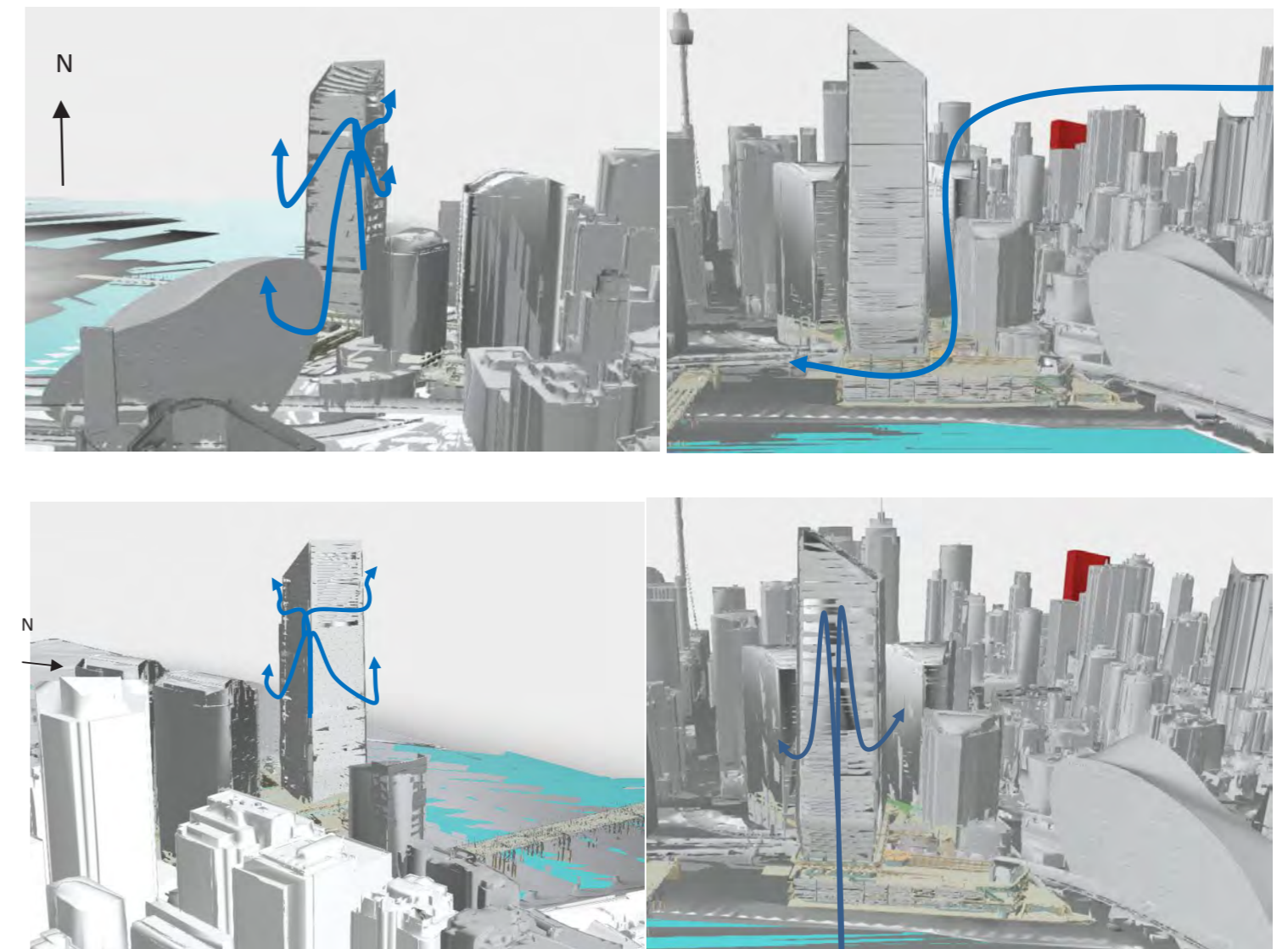


Fig. 73. Wind flow path diagram by CPP

3.4 Envelope

The built form envelope is defined by a series of constraints generated from the design principles in Sections 3.1 - 3.3 and technical constraints. The envelope definition criteria are set out below.

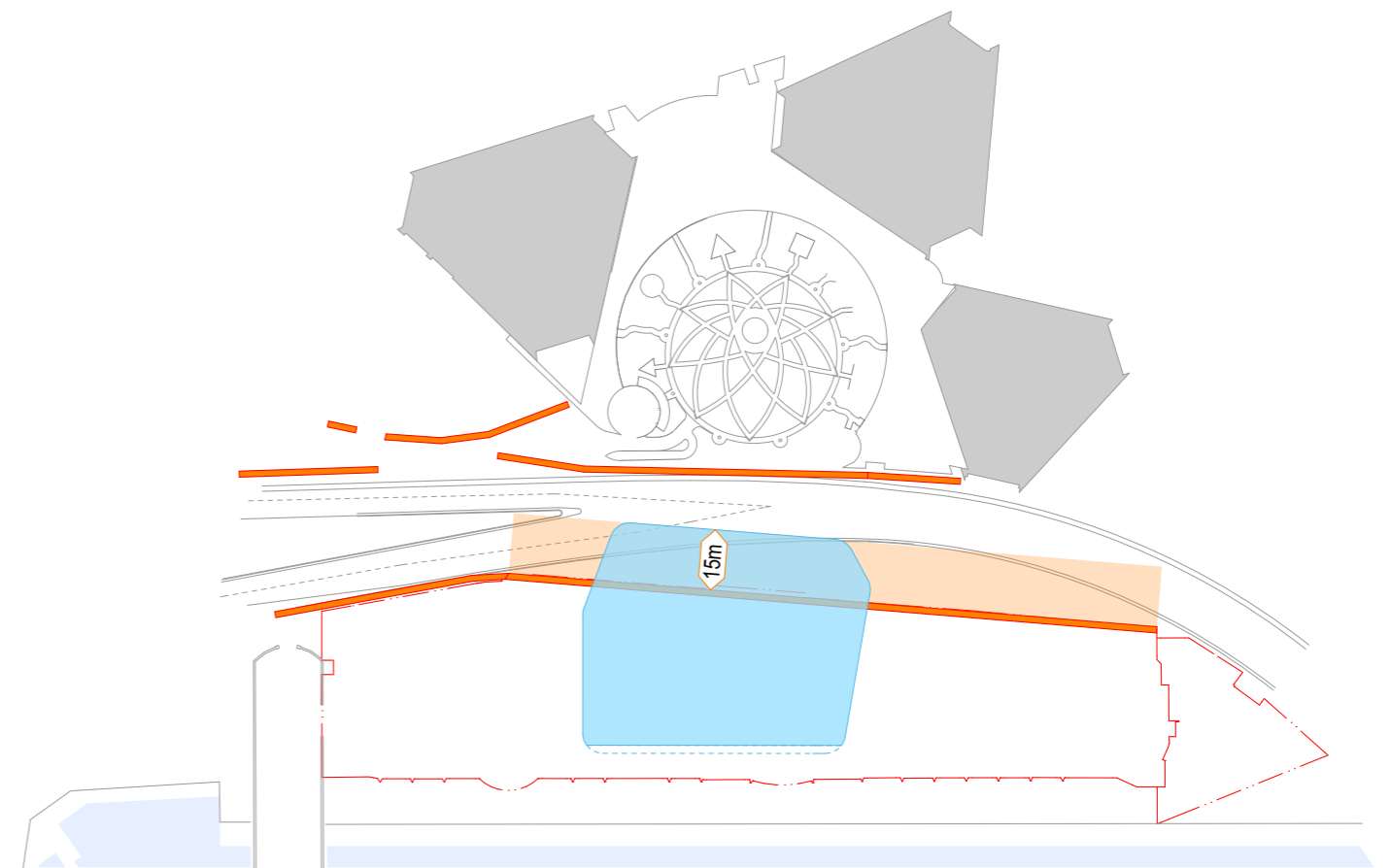
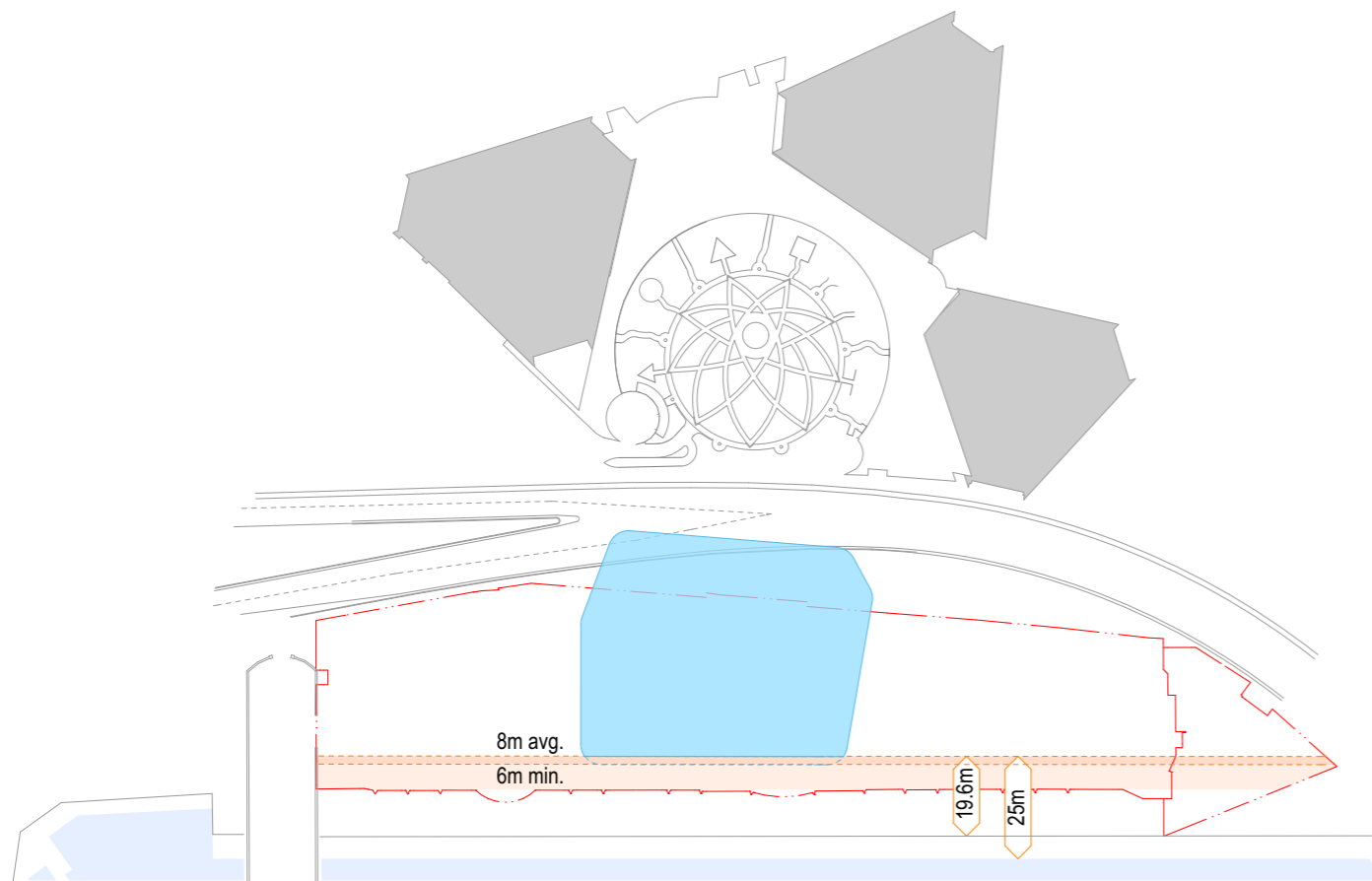
Envelope Definition

Tower setback

Maintain an 8m area weighted average setback from the property lease line on the western side of the tower. Any articulation elements which extend within the 8m setback zone should take into account the impact on human scale and environmental effects such as wind and overshadowing on the waterfront.

Motorway structural constraints

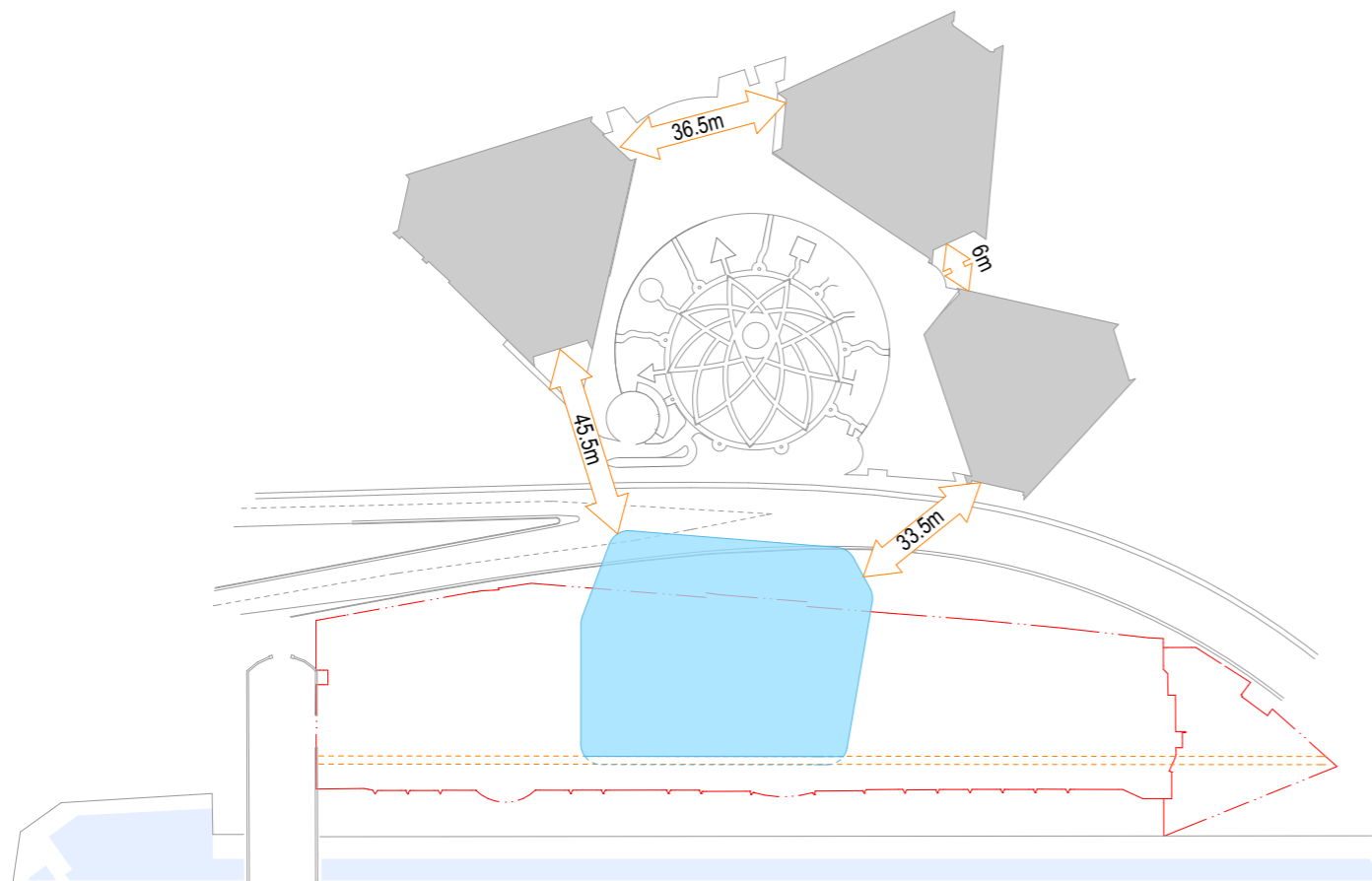
Consider the structural, construction and clearance requirements for construction overland around the Western Distributor and Harbour Street.



Building separation

Provide adequate tower separation between the new towers and the existing tower at Darling Park to preserve the amenity of the existing and new towers and to facilitate view sharing for these buildings and for buildings in the streets beyond.

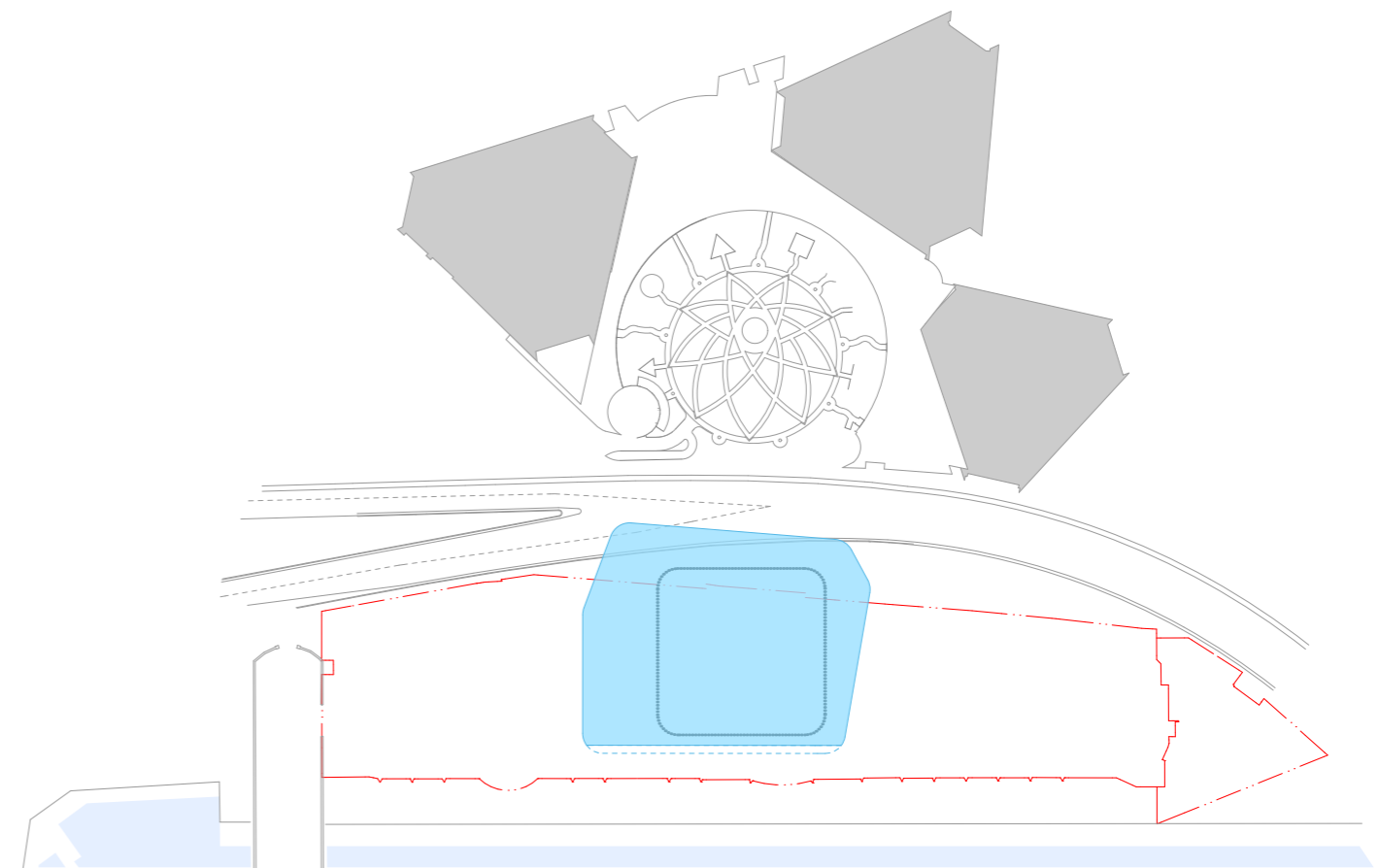
Minimum tower separation: 33.5m



Envelope utilisation

The proposed envelope is larger in plan area than the proposed building footprint to allow design flexibility during the stage 2 design excellence process. The maximum proposed envelope utilisation is 60% in volume.

Plan Area of Envelope	Maximum envelope usage	Peak envelope usage (at any floor)
3575m ²	60%	2350m ² (GFA)



(Conceptual illustration only - subject to design competition)

Height and overshadowing

To avoid overshadowing Tumbalong Park and the children's playground, overshadowing height planes have been constructed at 11:00am and 12:00pm on 21 June.

The building should read as a related component of the Darling Park complex. The existing towers 1 and 2 of Darling Park have an approximately 3:2 height relationship with tower 3 and the Ribbon development. Tower 4 is proposed to have a 3:2 height relationship to towers 1 and 2.

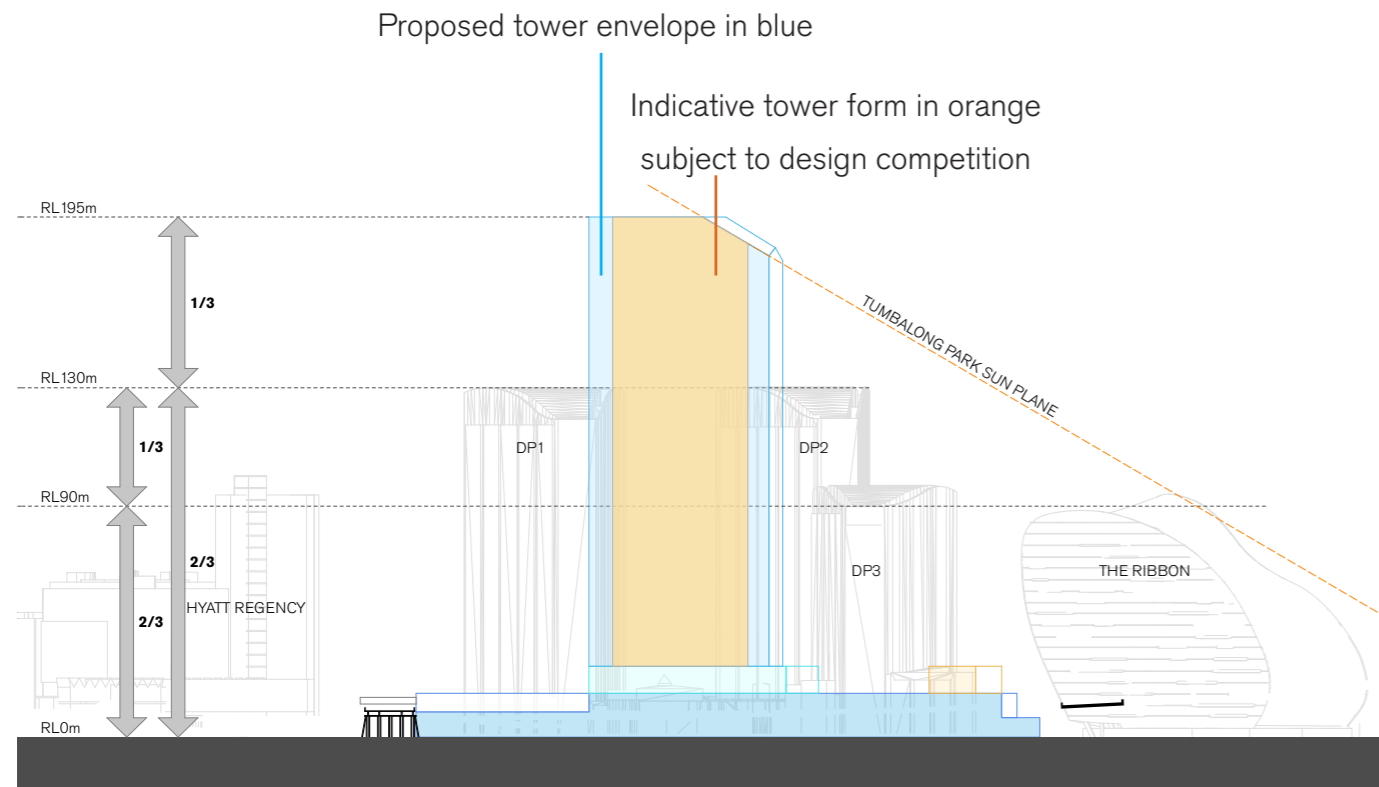


Fig. 76. Built form relationship with the surrounding developments

Waterfront interface

Building scale along the waterfront is mitigated through a podium/tower relationship. The clear width of the existing promenade has been maintained with the addition of the timber boardwalk extension along the northern portion of the promenade.

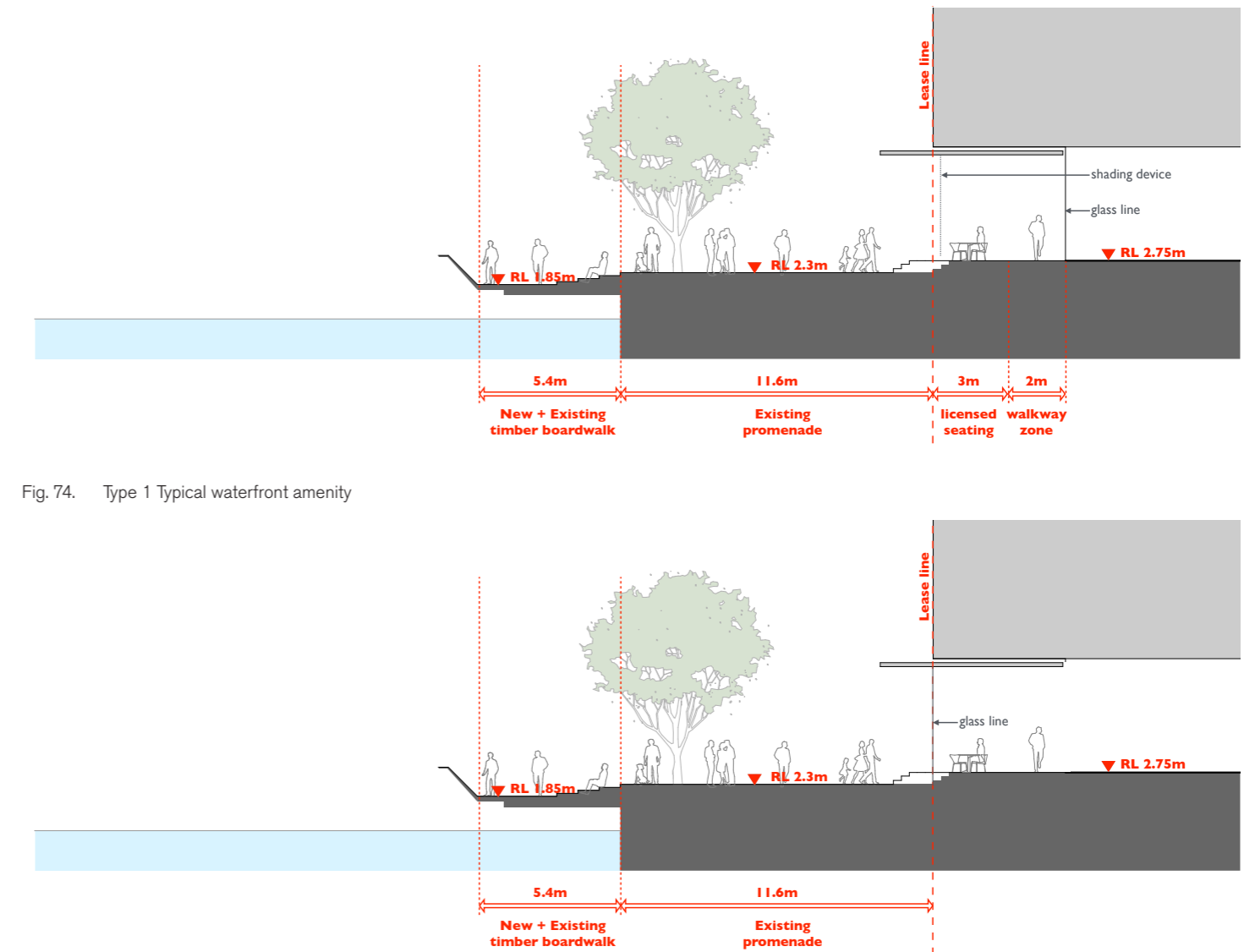


Fig. 74. Type 1 Typical waterfront amenity

Fig. 75. Type 2 Typical waterfront amenity (no reduction in width)

Pymont Bridge interface

The envelope extends to the northern edge of the Pymont bridge to allow for the Pymont Bridge connection options. The envelope remains within the current leasehold area.

The proposed envelope steps down to the Pymont Bridge level to create a strong relationship in the future building design with Pymont Bridge and the pedestrian and cycle traffic.

This also provided for a range of options to connect the city to the waterfront and deliver public spaces.

Druitt Street connection

The podium envelope is cut back to the north of the Druitt Street footbridge to allow the space and views to open towards the water.

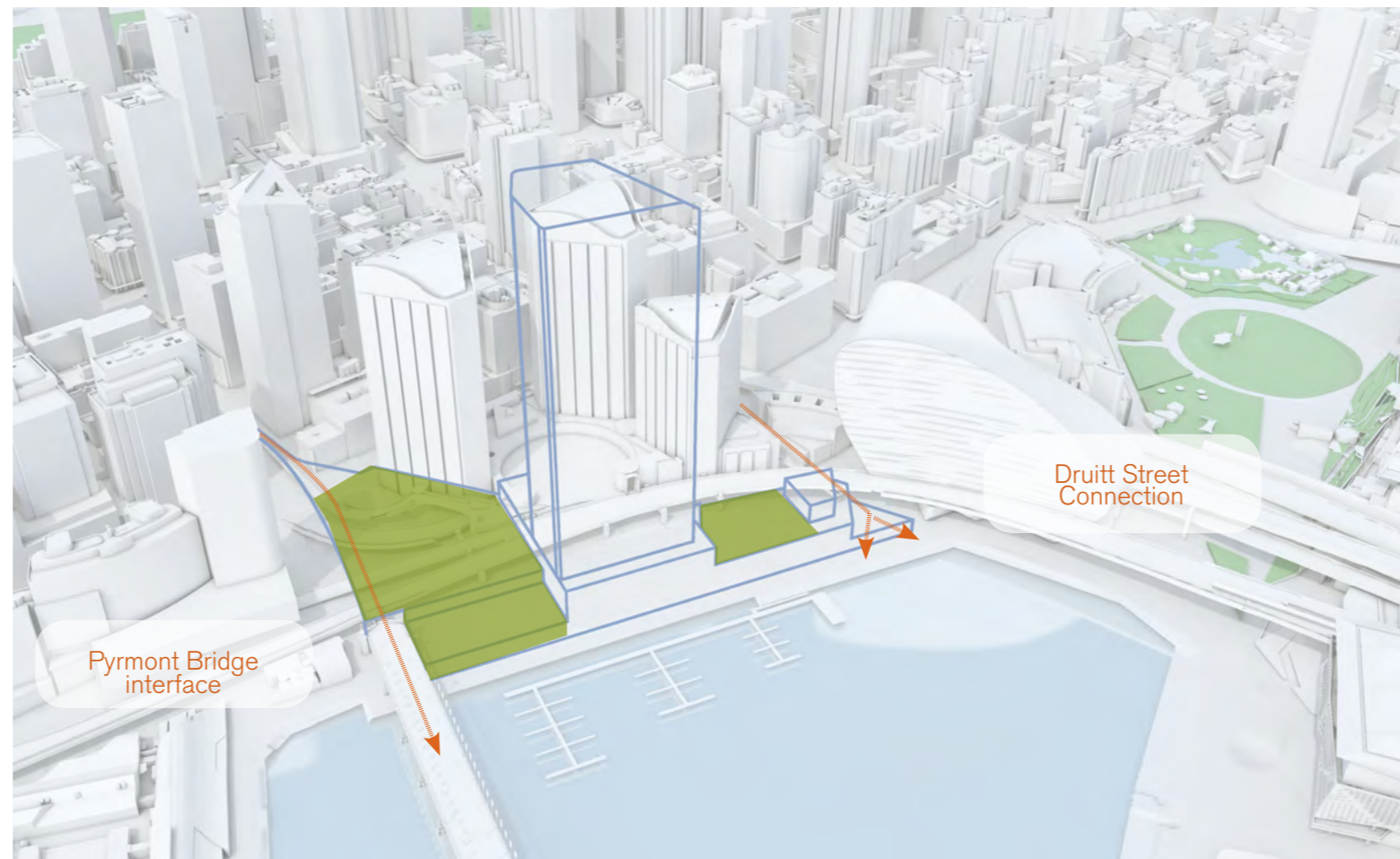




Fig. 77. Artist impression by Doug & Wolf (Indicative render - subject to design competition)

4.0 Appendices

A. Envelope Drawings 76

B. Public Domain Solar Access 92

A. Envelope Drawings

ENVELOPE PLAN - GROUND LEVEL

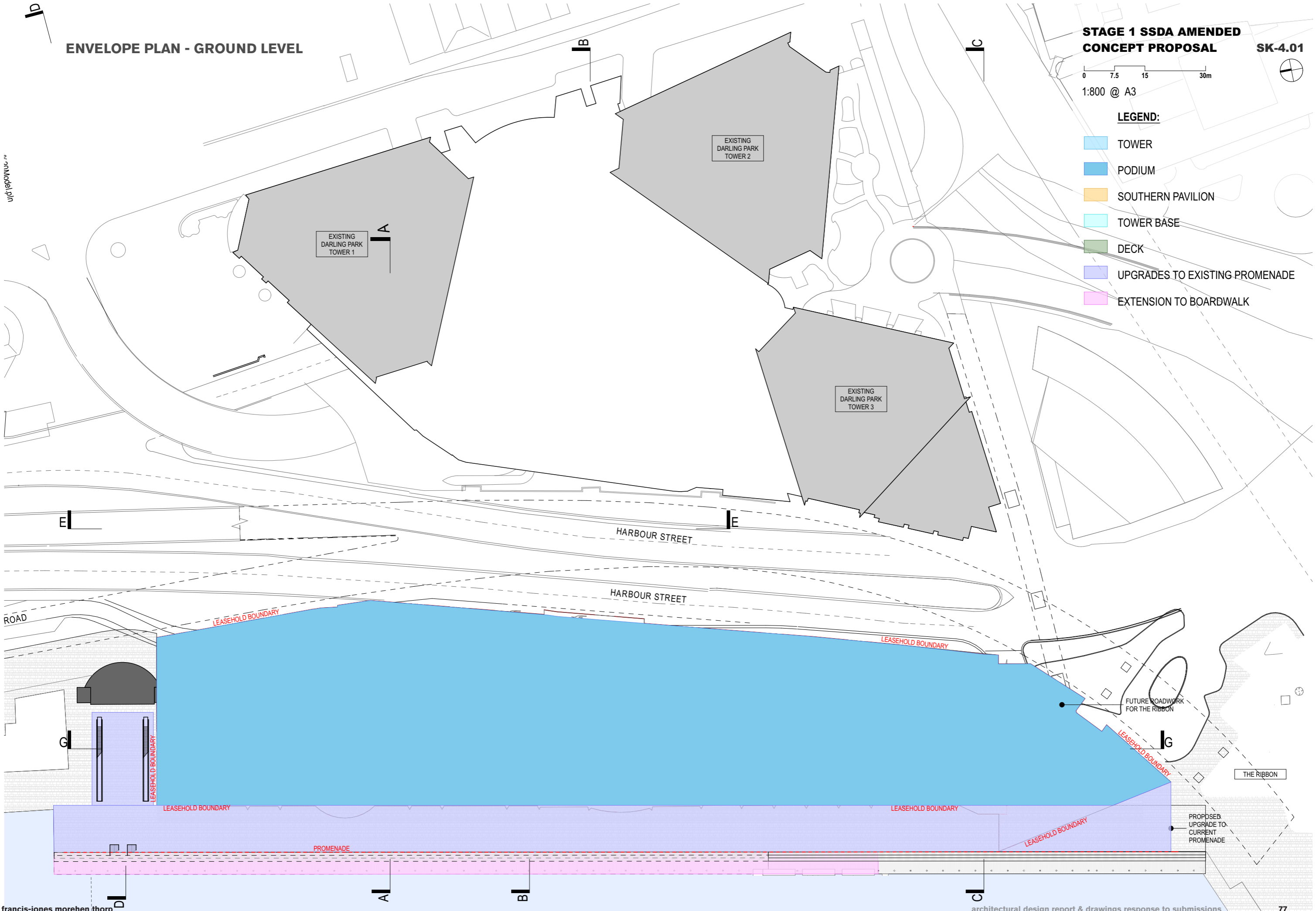
**STAGE 1 SSSA AMENDED
CONCEPT PROPOSAL SK-4.01**

0 7.5 15 30m

1:800 @ A3

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK
- UPGRADES TO EXISTING PROMENADE
- EXTENSION TO BOARDWALK



onModel.pln

10

ENVELOPE PLAN - LEVEL 1

STAGE 1 SSSA AMENDED CONCEPT PROPOSAL

SK-4.02

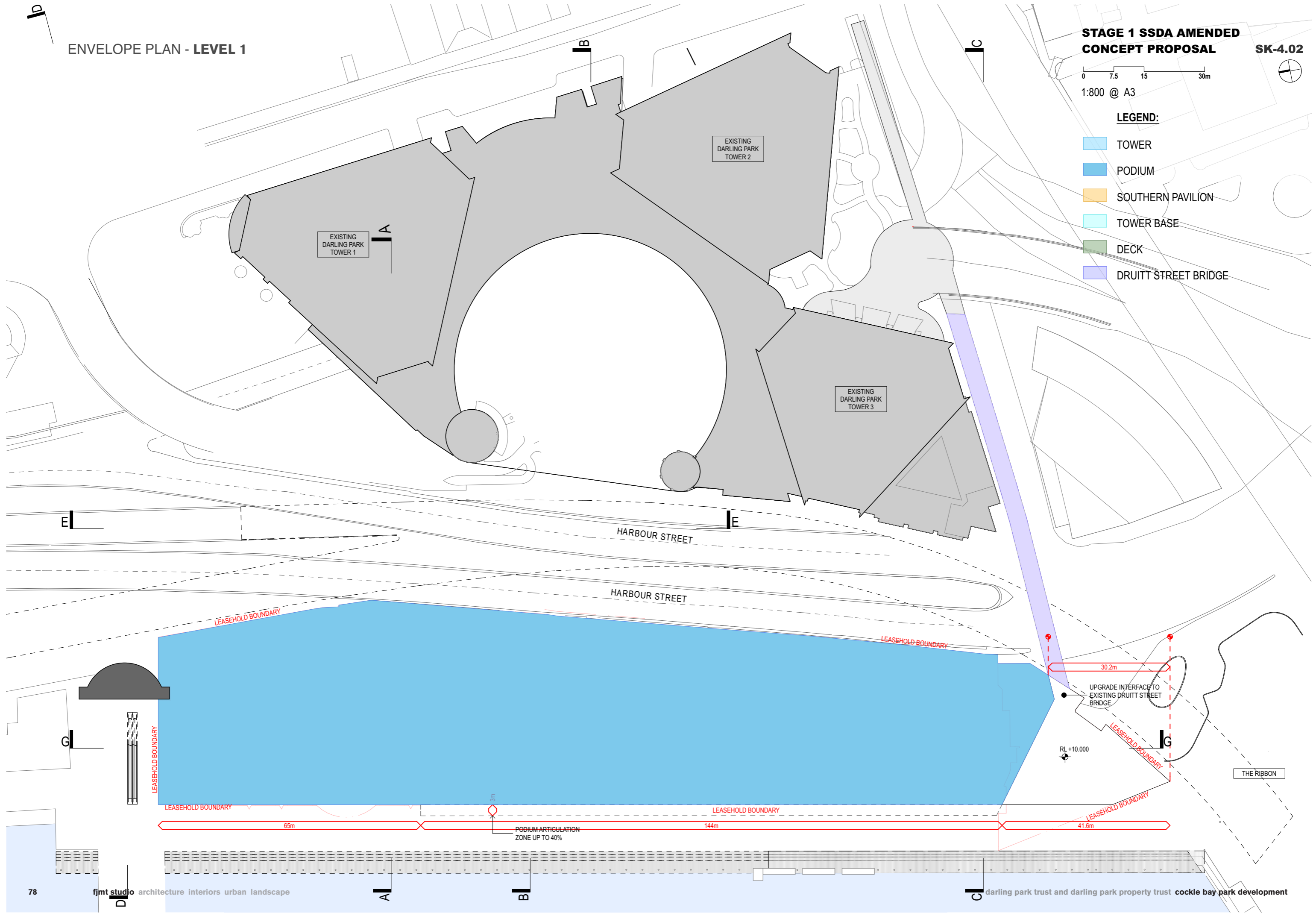
0 7.5 15 30m

1:800 @ A3



LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK
- DRUITT STREET BRIDGE



ENVELOPE PLAN - LEVEL 2

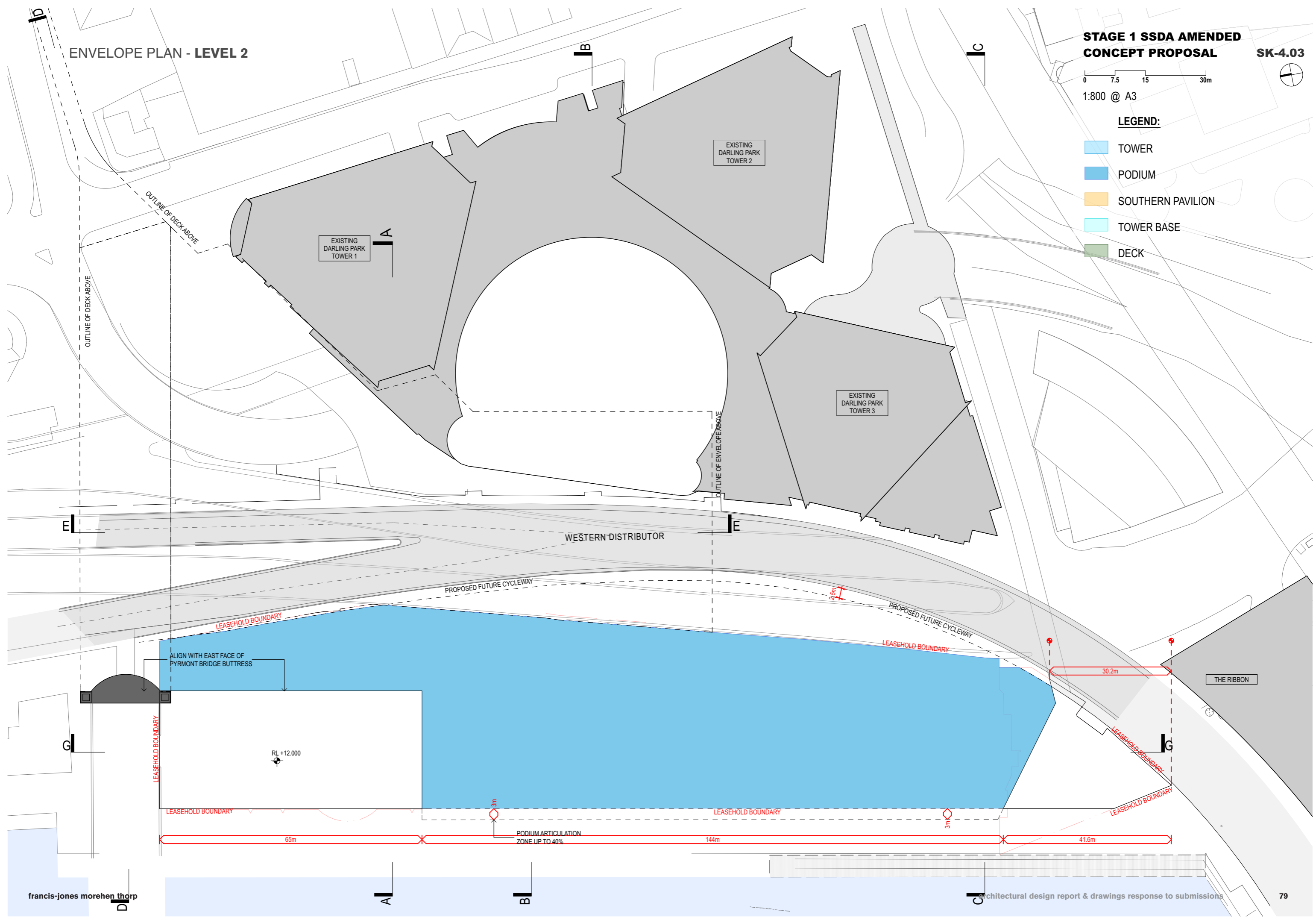
STAGE 1 SSSA AMENDED
CONCEPT PROPOSAL SK-4.03

0 7.5 15 30m

1:800 @ A3

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK



ENVELOPE PLAN - LEVEL 3 PODIUM TERRACE

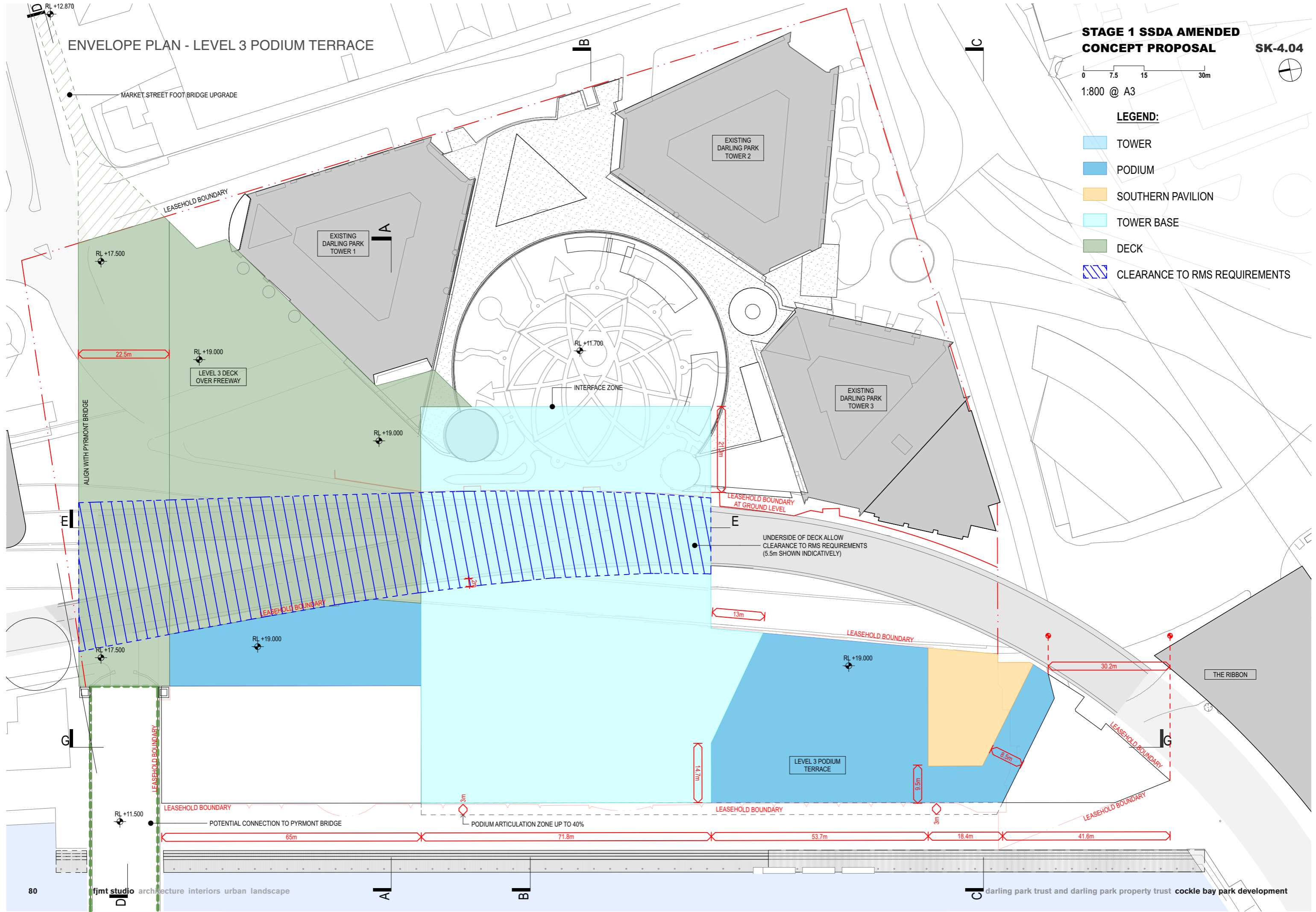
STAGE 1 SSSA AMENDED
CONCEPT PROPOSAL SK-4.04

0 7.5 15 30m

1:800 @ A3

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK
- CLEARANCE TO RMS REQUIREMENTS



ENVELOPE PLAN - LEVEL 4

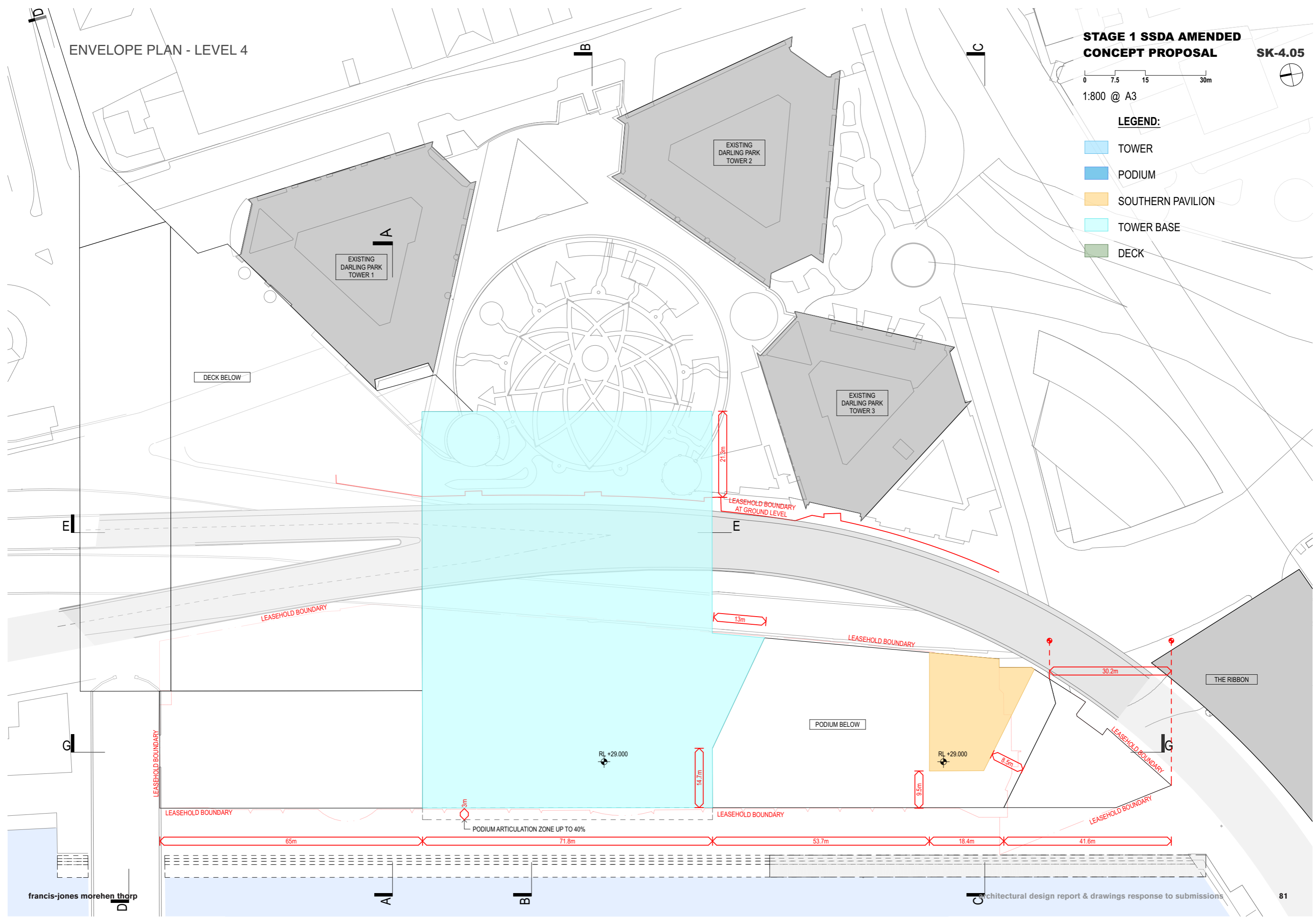
STAGE 1 SSDA AMENDED
CONCEPT PROPOSAL SK-4.05

0 7.5 15 30m

1:800 @ A3

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK



ENVELOPE PLAN - TYPICAL TOWER LEVEL

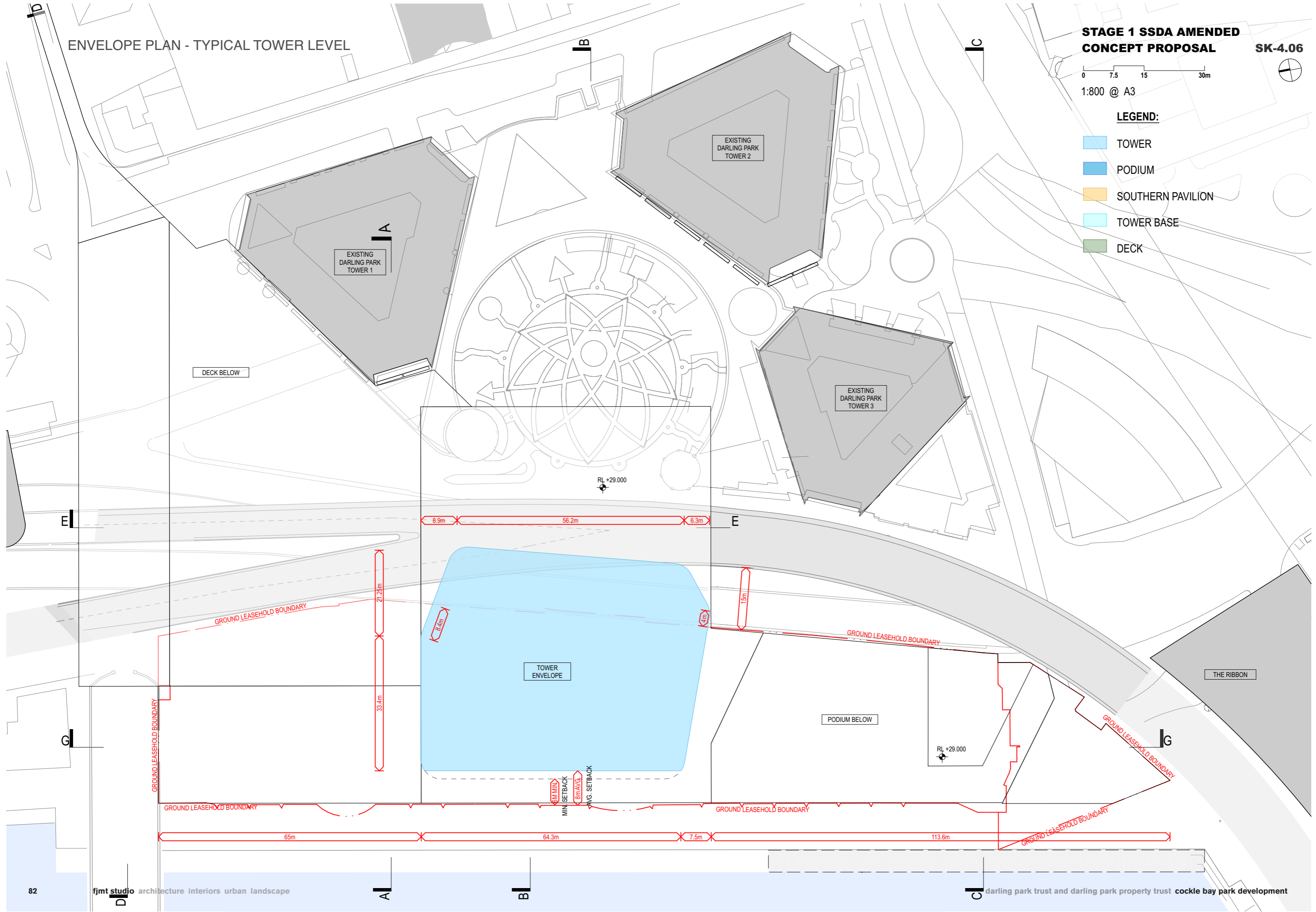
STAGE 1 SSDA AMENDED
CONCEPT PROPOSAL SK-4.06

0 7.5 15 30m

1:800 @ A3

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK



ENVELOPE PLAN - ROOF

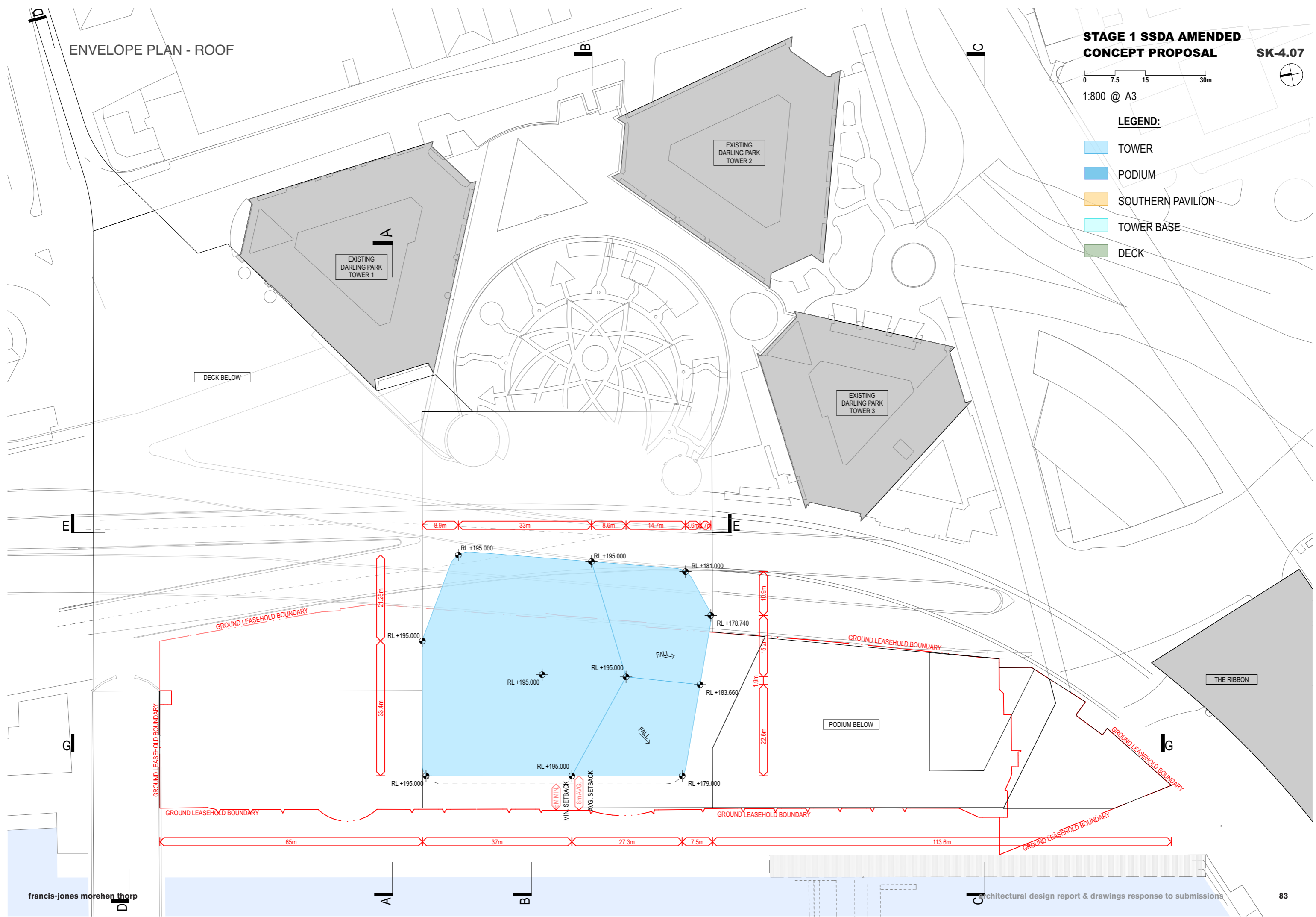
STAGE 1 SSDA AMENDED
CONCEPT PROPOSAL SK-4.07

0 7.5 15 30m

1:800 @ A3

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK

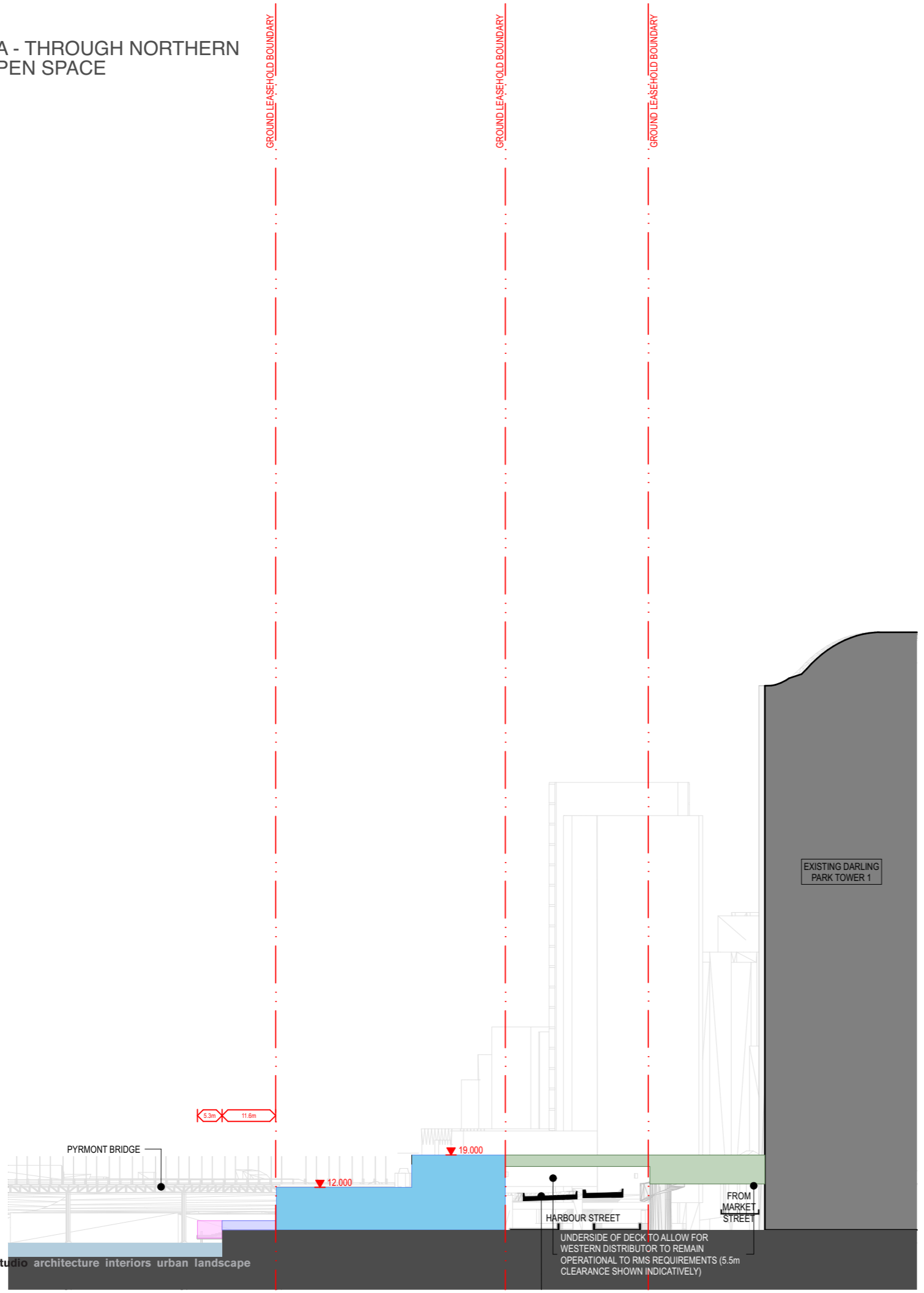
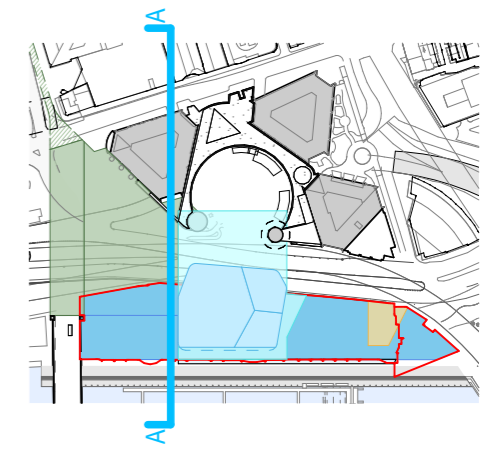


SECTION A - THROUGH NORTHERN PUBLIC OPEN SPACE

STAGE 1 SSDA AMENDED CONCEPT PROPOSAL SK-4.10

1:1000 @ A3

- LEGEND:**
- TOWER
 - PODIUM
 - SOUTHERN PAVILION
 - TOWER BASE
 - DECK
 - UPGRADES TO EXISTING PROMENADE
 - EXTENSION TO BOARDWALK



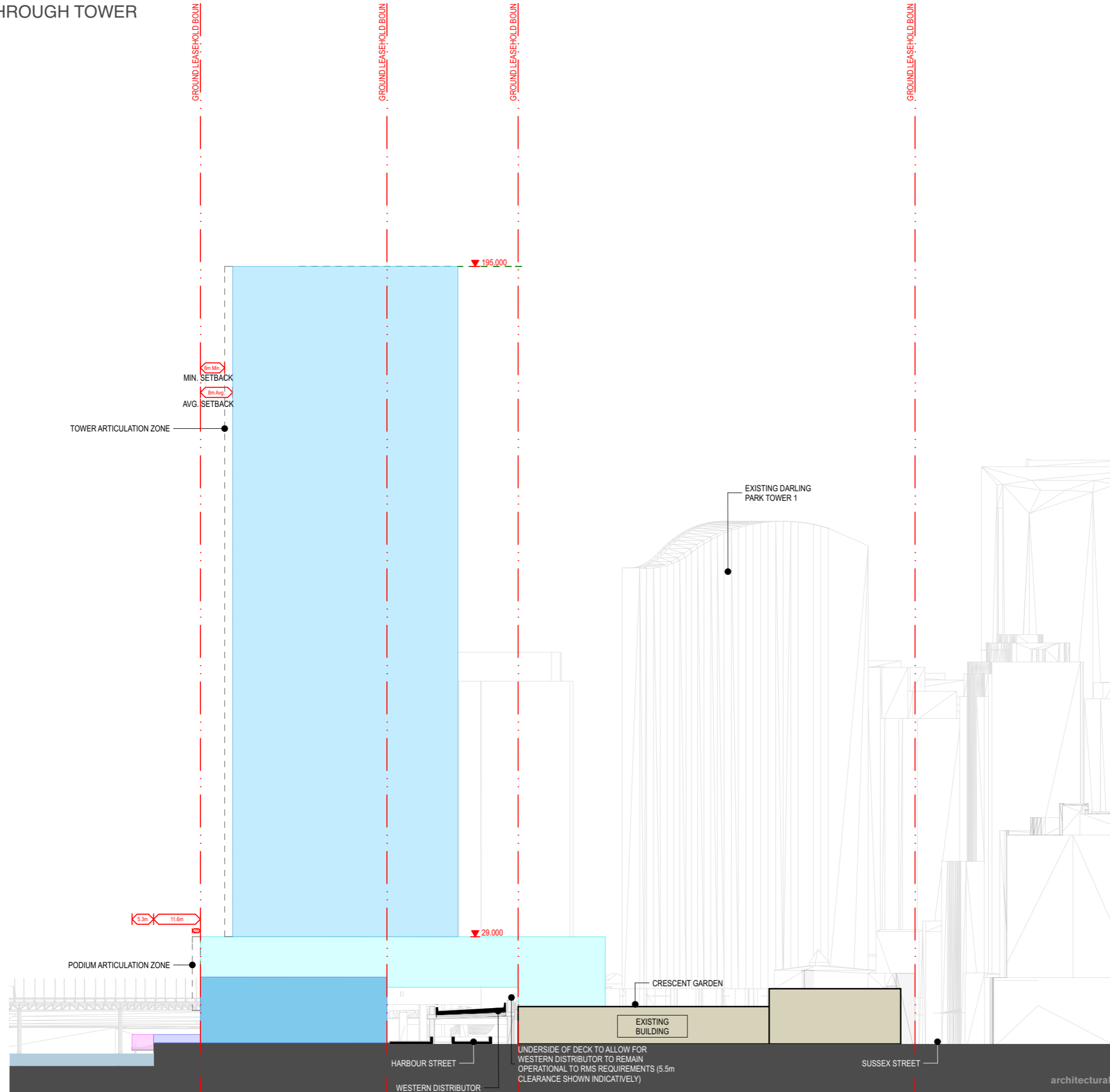
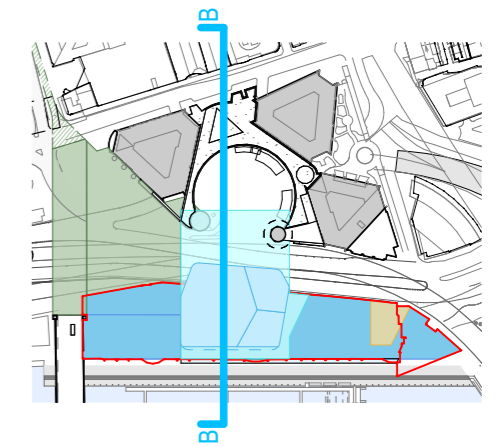
GENERAL NOTE:
BALUSTRADES, PARAPETS, ROOF FEATURES, SERVICES POLES AND ANTENNA/ARIALS, AWNINGS, ARTWORKS, GARDEN PAVILIONS, KIOSKS, VEGETATION, SIGNAGE AND STRUCTURES CAN EXTEND BEYOND THE ENVELOPE

SECTION B - THROUGH TOWER

0 10 20 50m
1:1000 @ A3

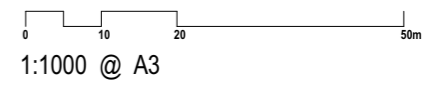
LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK
- UPGRADES TO EXISTING PROMENADE
- EXTENSION TO BOARDWALK



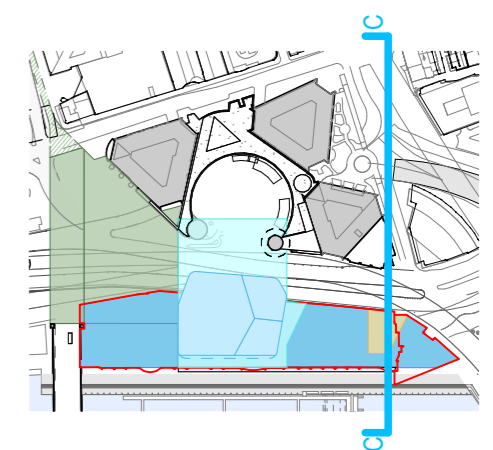
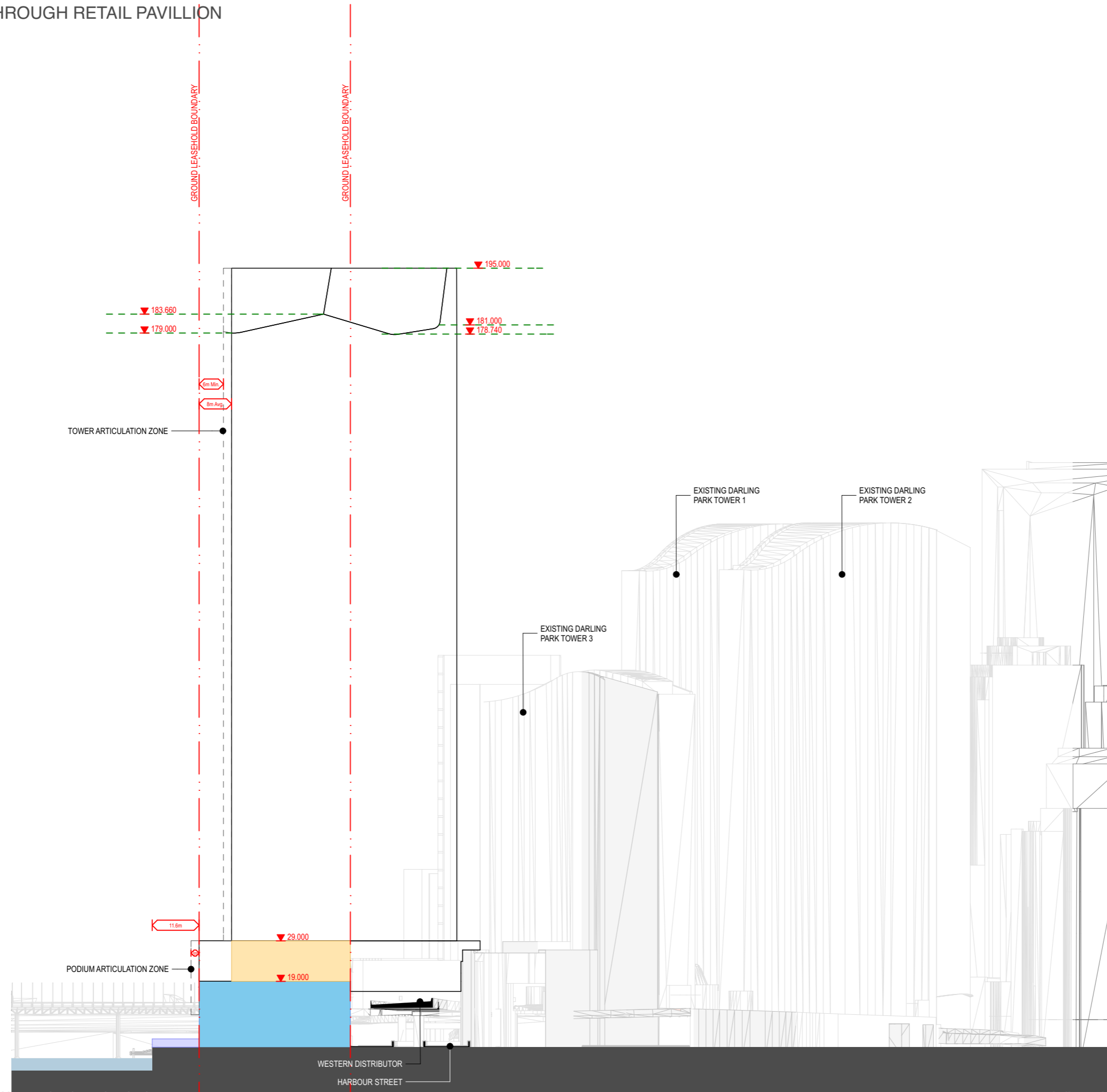
GENERAL NOTE:
BALUSTRADES, PARAPETS, ROOF FEATURES,
SERVICES POLES AND ANTENNA/ARIALS,
AWNINGS, ARTWORKS, GARDEN PAVILIONS,
KIOSKS, VEGETATION, SIGNAGE AND
STRUCTURES CAN EXTEND BEYOND THE
ENVELOPE

SECTION C - THROUGH RETAIL PAVILLION



LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK



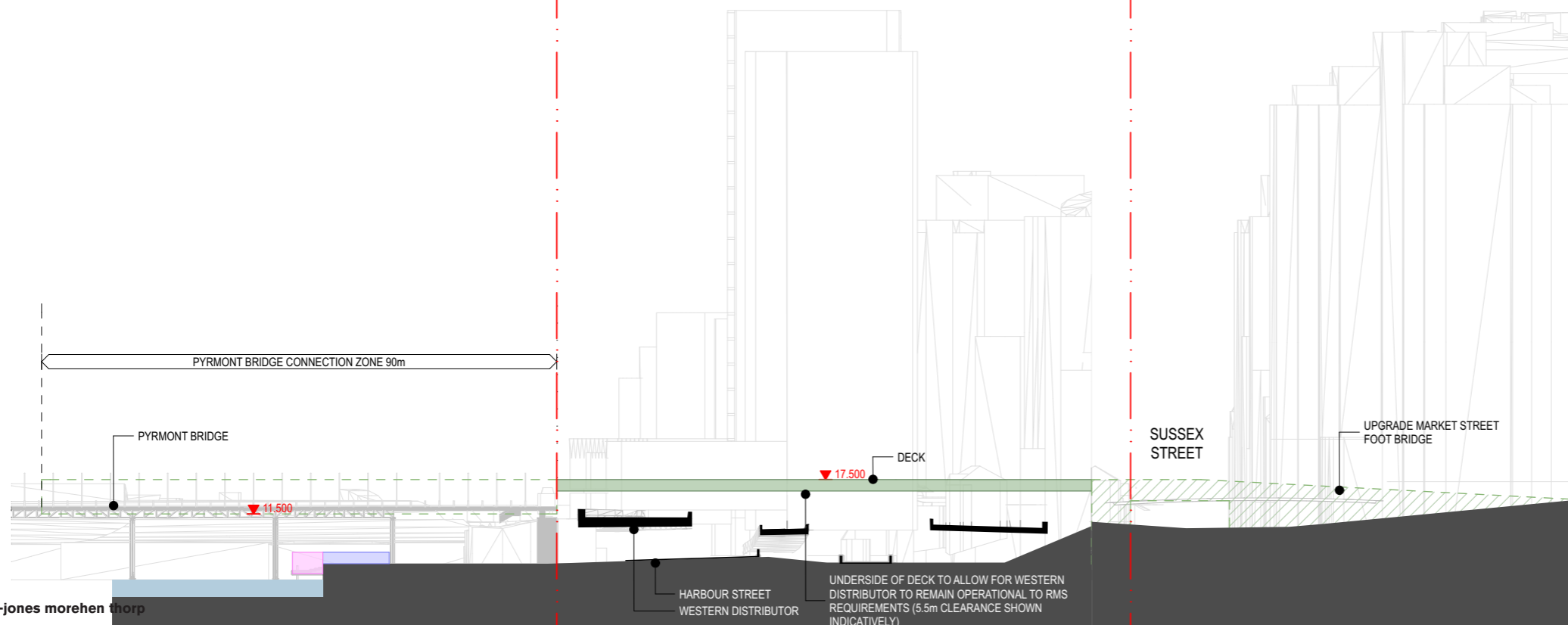
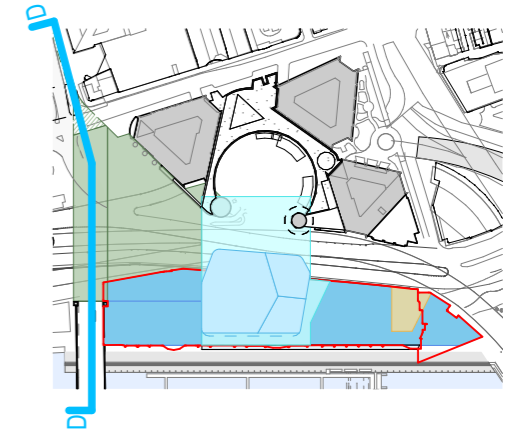
GENERAL NOTE:
BALUSTRADES, PARAPETS, ROOF FEATURES,
SERVICES POLES AND ANTENNA/ARIALS,
AWNINGS, ARTWORKS, GARDEN PAVILIONS,
KIOSKS, VEGETATION, SIGNAGE AND
STRUCTURES CAN EXTEND BEYOND THE
ENVELOPE

SECTION D - THROUGH LAND BRIDGE

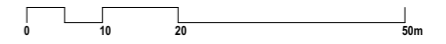
0 10 20 50m
1:1000 @ A3

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK
- UPGRADES TO EXISTING PROMENADE
- EXTENSION TO BOARDWALK



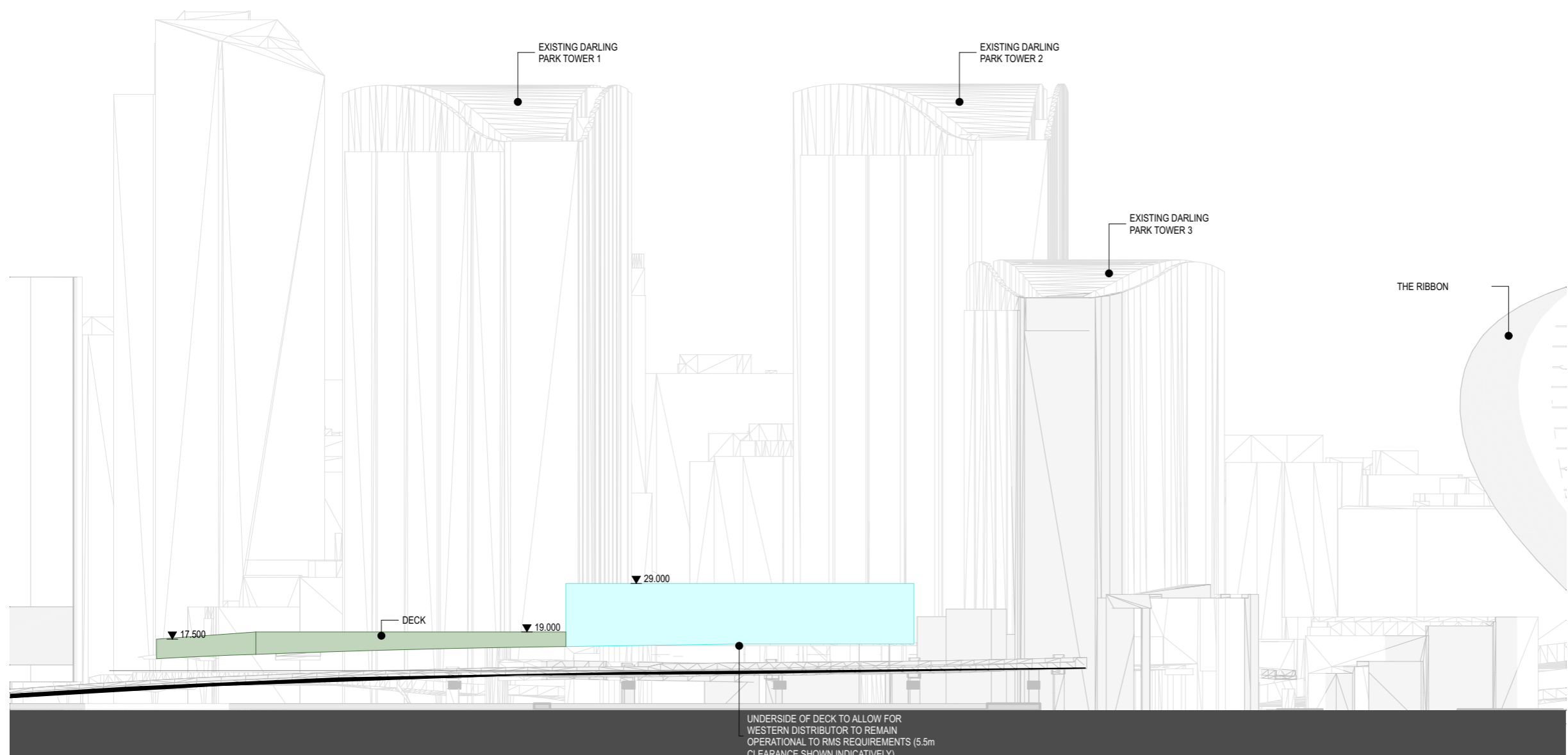
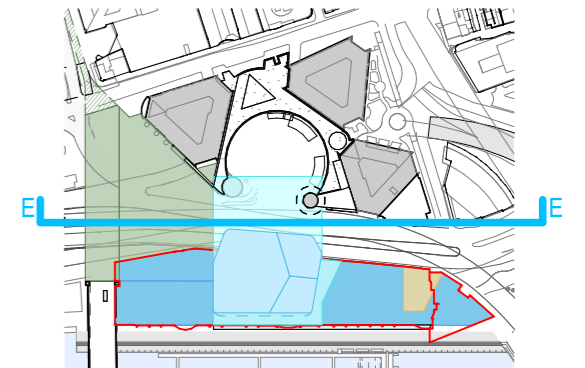
GENERAL NOTE:
BALUSTRADES, PARAPETS, ROOF FEATURES,
SERVICES POLES AND ANTENNA/ARIALS,
AWNINGS, ARTWORKS, GARDEN PAVILIONS,
KIOSKS, VEGETATION, SIGNAGE AND
STRUCTURES CAN EXTEND BEYOND THE
ENVELOPE



1:1000 @ A3

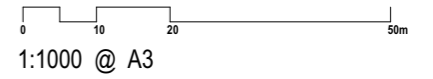
LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK



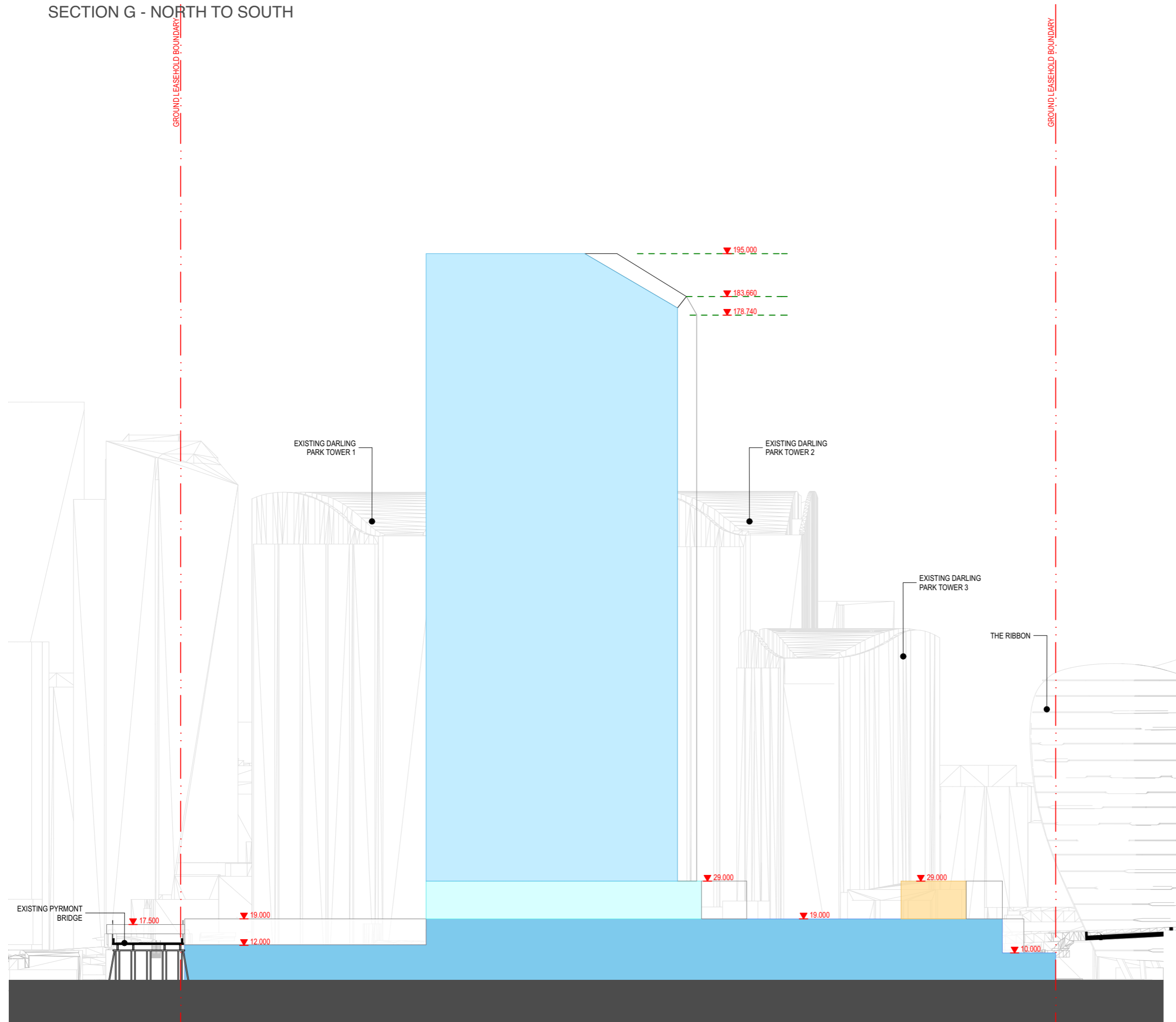
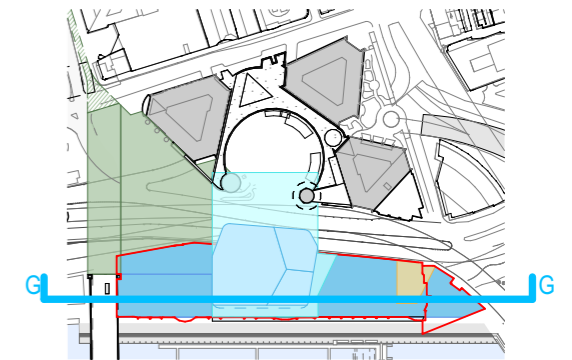
GENERAL NOTE:
BALUSTRADES, PARAPETS, ROOF FEATURES,
SERVICES POLES AND ANTENNA/ARIALS,
AWNINGS, ARTWORKS, GARDEN PAVILIONS,
KIOSKS, VEGETATION, SIGNAGE AND
STRUCTURES CAN EXTEND BEYOND THE
ENVELOPE

SECTION G - NORTH TO SOUTH



LEGEND:

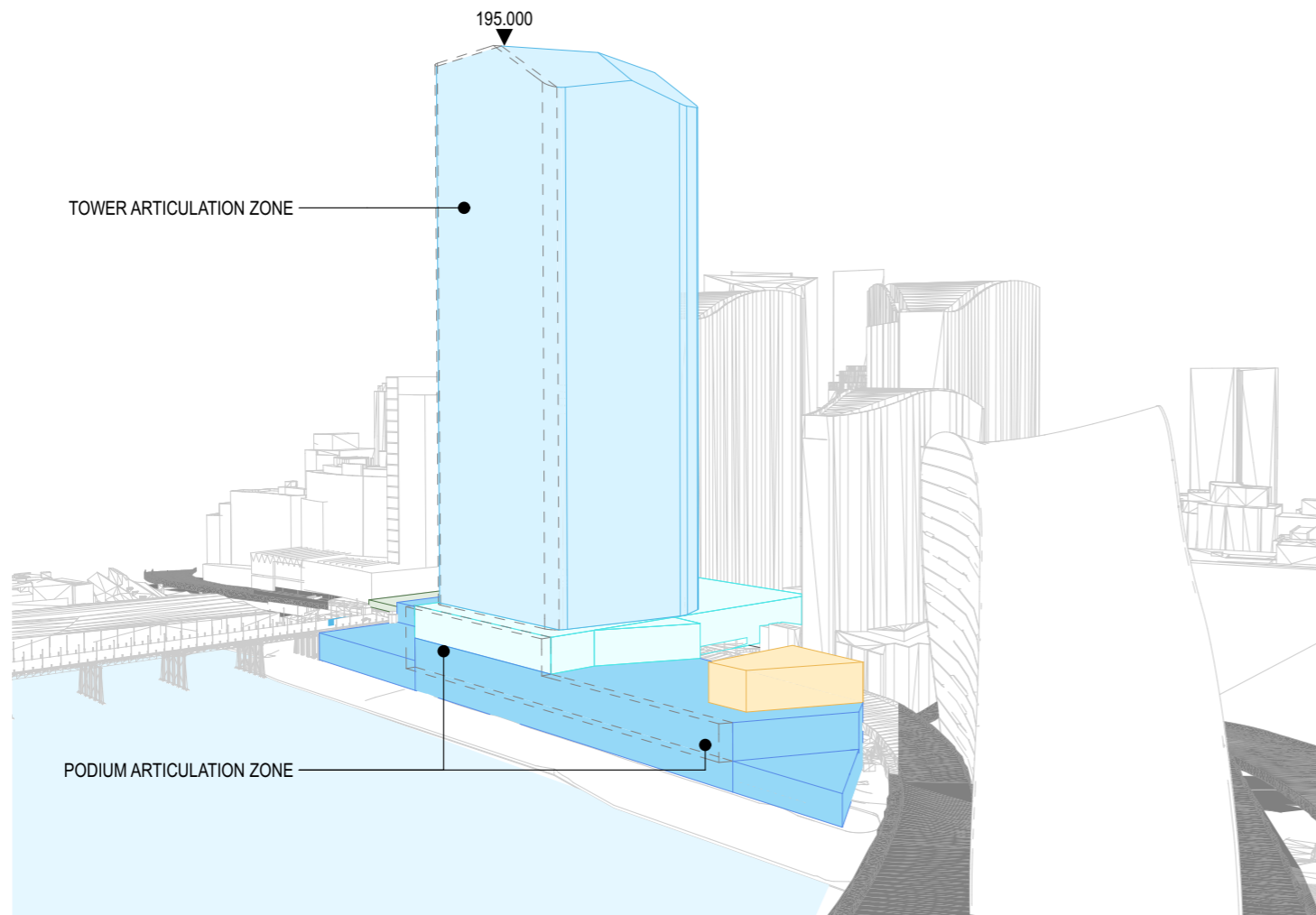
- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK



GENERAL NOTE:
BALUSTRADES, PARAPETS, ROOF FEATURES,
SERVICES POLES AND ANTENNA/ARIALS,
AWNINGS, ARTWORKS, GARDEN PAVILIONS,
KIOSKS, VEGETATION, SIGNAGE AND
STRUCTURES CAN EXTEND BEYOND THE
ENVELOPE

LEGEND:

- TOWER
- PODIUM
- SOUTHERN PAVILION
- TOWER BASE
- DECK



Building Envelope - 3D View 1

GENERAL NOTE:
BALUSTRADES, PARAPETS, ROOF FEATURES,
SERVICES POLES AND ANTENNA/ARIALS,
AWNINGS, ARTWORKS, GARDEN PAVILIONS,
KIOSKS, VEGETATION, SIGNAGE AND
STRUCTURES CAN EXTEND BEYOND THE
ENVELOPE