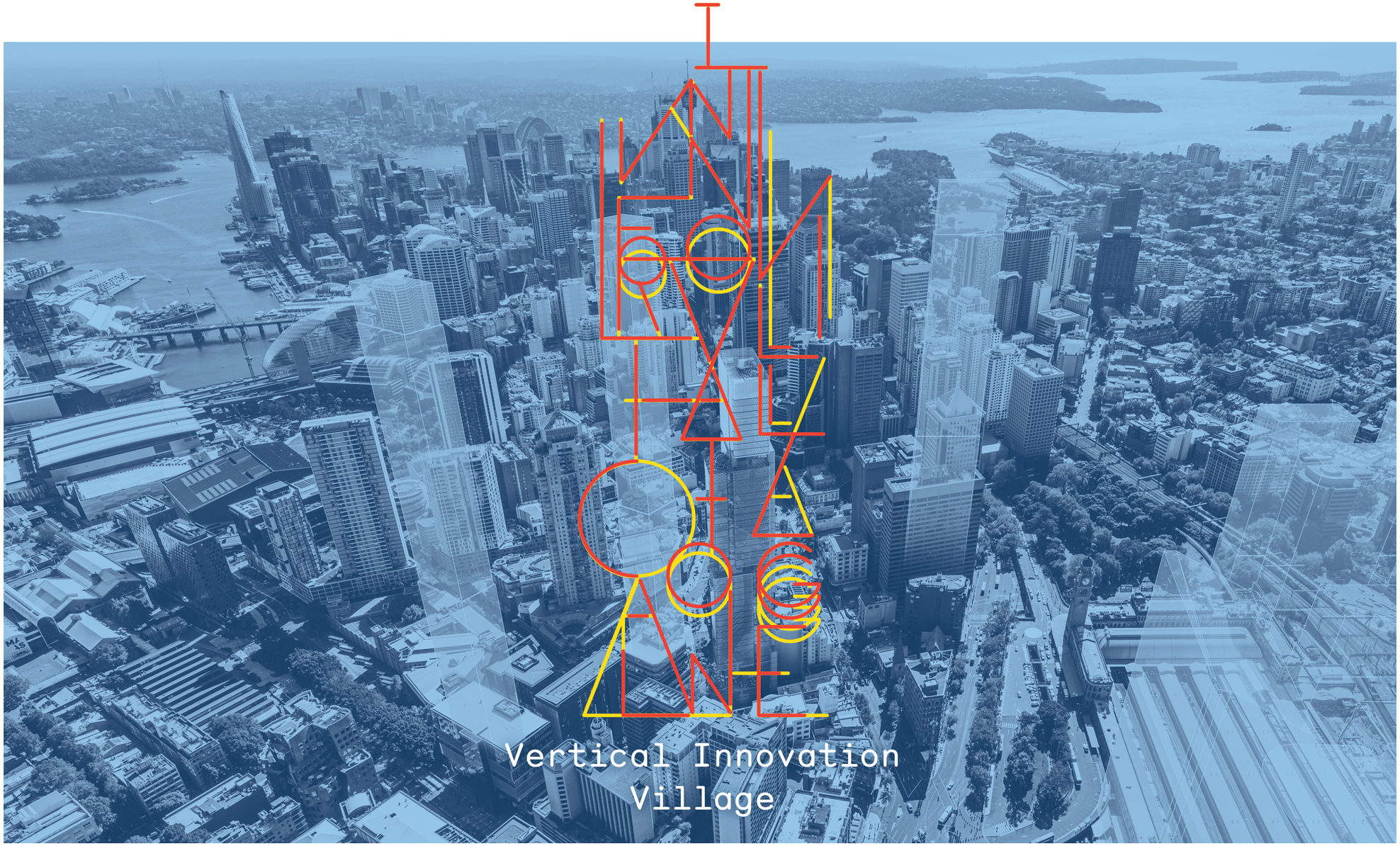
187 THOMAS PLANNING PROPOSAL



JUSTIFICATION REPORT

Part C: Urban Design

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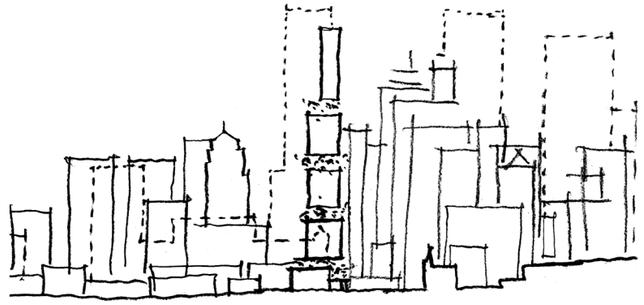

Justification Report
Part C - Urban Design

187 Thomas St, Haymarket, Sydney
Greaton

April 2020

Project Name		187 Thomas Street	
Project Code		G187	
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Contents

1.0 Introduction

The 187 Thomas Street proposal has been developed through a careful analysis of the exiting and future character of the site, its context including the Haymarket Precinct and the urban renewal which is occurring throughout the south end of the Sydney CBD.

By adopting the criteria set out in council's vision for the CBD and the Haymarket precinct, we have developed a building envelope based on a series of environmental performance driven controls. This building envelope is significantly lower than the maximum possible height, delivers the possibility for a mixed-use hybrid tower which will bootstrap the precinct as an innovation and technology hub with a mixture of symbiotic land uses an appropriate sized floor plates.

The hybrid tower combines multiple uses within a vertical arrangement, each with their own identity and requirements but sharing common facilities in the way that a horizontally arranged series of buildings would share a city street. Structured around an innovation hub; related functions such as hotel accommodation for business visitors, work space to support startups through education and co-location and retail and event space provide street level common facilities in a vertical village.

Sustainability is at the core of the proposal with a focus on a low carbon and a healthy environment which is attractive to the potential tenants and workers of an advanced innovation hub in a global CBD location.

Structure of this Report

This Design Justification Report has been structured into 6 parts.

1 - 'Introduction' outlines the site location, the planning strategy, opportunities for the site, ambition of the project and the public benefits.

2 - 'Site Analysis' provides an immediate site analysis and broader urban scale analysis, which includes solar access, prevailing wind directions, primary public views, site identification, site control and opportunity, mode of transport, pedestrian connections and heritage evolution. They translate the urban context into the several layers of acknowledgment and outline the site opportunities and the constraints.

3 - 'Key Urban Design Principles' addresses the site opportunities and the constraints, which includes public domain, street wall height and podium, environmental performance driven setbacks, tower height, urban stratums, views and sustainability initiatives. They define the proposed building massing within the urban contexts.

4 - 'Hybrid Tower' demonstrates the preferred indicative scheme, with a series of diagrams within the proposed envelope. The vision of the project aims to achieve high quality spaces for each use with shared common facilities, yet satisfies all requirements and purposes within a vertical arrangement.

5.- 'Development Options Considered' - provides a summary of the concepts tested.

6. - 'Conclusion' justifies the feasibility and the benefits of the proposed envelope within the urban context.

'Appendices' provide further information and details to the analysis, studies and urban controls.

Background

The *187 Thomas* development site is approximately 2350m^2 purchased by Greaton in 2018. Greaton is a developer investor originating from Adelaide that commenced projects in Sydney in 2015. Its most prominent Sydney project is the Ribbon Hotel in Darling Harbour for which Greaton is the owner and will become the hotel operator on completion.

The combined land area of the site provides a substantial development opportunity located in an active area of Haymarket which has been undergoing change which is escalating. The development site is ripe for redevelopment, located on the corner of George, Valentine and Thomas Streets within 200 / 300 metre walking distance of Central Railway Station and which neighbours UTS. Existing development on the site is at the end of its economic life and detailed consideration has therefore been given to future redevelopment opportunities. Specifically, investigations have been undertaken to determine how redevelopment of the site can support Council's (and broader Government) vision and initiatives for the area, and for Sydney as a whole.

The Planning Strategy and Other Opportunities for the Site

The City of Sydney identified the future of the locality in its *Endorsed Draft CSPS* (the "*Planning Strategy*") as one of four *Zones of high density*. The Haymarket location was designated a *'future' zone of high density*. This proposal embraces the intentions and objectives of the *planning strategy*.

The submission addresses the benefits to the City to allow *187 Thomas* to proceed out of the intended sequence of the *Planning Strategy*, that is now, rather than in the 'future'. Accordingly, *187 Thomas* would proceed in parallel with the designated *Zones of high density* located in the North and Central City, with *187 Thomas* offering alternate capacity in the South of the City distinct from the top end product that will result in the 'Bankers District' of the North of the City.

The consultant team's initial investigations identified the opportunities offered by the site location and afforded by the large site area. Surrounding influences on the escalating change in the locality were noted to include the Innovation Hub being championed by the NSWG taskforce, the Central Station redevelopment, the existing and future of Darling Harbour (just down Quay St) and the UTS Art Precinct around Central Square.

Of those key influences, the opportunity of contributing to the evolution of the innovation tech hubs sector was identified as most appropriate for the development site. Research undertaken by Atlas Urban Economics group indicated that the site presents an invaluable opportunity to meet a critical gap in the technology and innovation market and that a development which includes a Tech Cluster and Innovation Hub would contribute strongly to the City's competitiveness.

Atlas Urban Economics identified that the opportunity presented by the site in terms of the technology space is two-fold, namely;

- Innovative – providing for a genuine cluster opportunity for tech businesses at all life cycle stages ('age-ing in place") and,
- Catalytic – acting as a catalyst for large scale urban renewal in the southern precinct, lifting the profile and amenity of the precinct.

The intended *Tech Cluster & Innovation Hub* component is described further below.

Another benefit of the proposal is that the very poor architecture of the existing building on the Thomas St site will be removed from Sydney's stock of low-quality buildings.

Accordingly, the proposal can deliver on key opportunities, including;

- The *Planning Strategy* to contribute to Council's objective to increase the capacity of Sydney as a Global City.
- The continuingly increasing demand to provide space and facilities for high tech businesses, from startup to maturing, and that sector's contribution to Sydney's position as a Global City.
- The current and expanding involvement of Greaton in tech-hub businesses, from a startup 7 years ago in Adelaide.
- The renewal of a large site in the locality, removal of an existing poor quality building and delivering a high quality Architectural contribution which will become an exemplar for the future of Haymarket, and will join the NSWG led Central Station redevelopment and the Central to Eveleigh Innovation Hub.
- Council's long held initiatives to support and germinate the tech innovation and startup businesses, in a reduced timeframe.
- To be the initiating catalyst to commence delivery of the 3rd City Square identified in the Planning Strategy, by acting as a catalyst to repositioning the perception of the locality and the need of the 3rd City Square as the focal heart of Haymarket and the future Central Station, together with a financial contribution via the *187 Thomas* VPA.

This submission represents the outcome of 18 months of collaboration and dialogue with Council's planning team. 7 presentations of detailed technical analysis have been made and discussed to ensure the proposal is technically substantiated and robust.

Endorsed Draft CSPS- Excerpt 4.1 Structure Plan

Strategic Context

A review of key strategic documents and plans (including the A Metropolis of Three Cities , Eastern City District Plan and available information on the Camperdown to Ultimo Collaboration Precinct) have revealed the following key facts:

- there is a shortage of, and limited capacity for, additional employment floor space (including large floor plate commercial) in the southern CBD
- a historical shortage of large floor plate commercial exists in the southern CBD area
- to establish an technology and innovation precinct in the southern part of the CBD extending from Central to Eveleigh although planning for this is in its infancy, and
- the Greater Sydney Commission's key priority for the Camperdown to Ultimo Collaboration Precinct, in which the site is located, is to support the Area's vitality and economic growth. Issues to be addressed in the precinct include the loss of employment space for health, education, research, innovation and creative sectors, and the need for a global vision, brand and greater collaboration in the area.

Tech Cluster & Innovation Hub

Greaton is committed to delivering a 'state of the art' Tech Cluster and Innovation Hub on the site and has an established reputation in this area having been active in the sector for more than 7 years in South Australia. From it's experience and specialist advice provided by Atlas Urban Economics, key success factors that are critical to the success of a Tech Cluster and Innovation Hub have been identified. These include:

- provision of a range of floorspace – suitable for tech firms at all lifecycle stages
- the delivery of a curated space – provide a mix of uses to create vibrancy to appeal to innovative workers
- high amenity – provide high quality urban environment
- access to talent – competitive edge to attract talent
- start-up support – essential for success
- accessibility – by range of transport modes
- connectivity – internet connectivity critical
- creation of a 'true' community – provide meet up opportunities, and
- delivery of a critical mass – of occupiers and talent required.

This site has locational and site-specific advantages that will allow a future tech hub and innovation precinct to flourish and succeed. It represents a one-off opportunity to create an 'exemplar' development that future facilities (including the Central to Eveleigh Innovation Precinct) can learn from and leverage off. It is well located in terms of public transport, provides high amenity, is collocated in close proximity to the University of Technology Sydney and is ready to develop. Most significantly it offers the opportunity to 'kick start' the delivery of a successful Innovation Precinct in the southern City.

In the recent past a number of sites have been mooted for tech space or innovation hubs including the Bays Precinct and the Eveleigh Technology Park. The subject site has significant advantages over these sites. Notably it is in a highly accessible location, it is owned by a developer with experience in the sector, it is ready to develop and is a site that can create a high level of amenity that would attract creative / innovation workers. There is an opportunity for the City of Sydney to lead the initiative for the establishment of a cluster / hub of significance.

Greaton is intent on building a world class digital and electronic research facility within the site that would target industries in most 'need' following market research. These industries may include researchers from surrounding universities, R&D entities, electronic manufacturers, software and hardware suppliers, start-up talent and others. The facility will be all about nurturing and gathering talent and driving jobs for the next generation in some of the world's fastest growing industries: Artificial Intelligence, Cyber Security, Smart Sensor Networks, Robotics, Big Data and Virtual Reality. It will be a true innovation and creative community and will connect to those businesses that want to utilize cutting edge technologies. It would also leverage off its proximity to the University of Technology Sydney and other knowledge industries within the precinct.

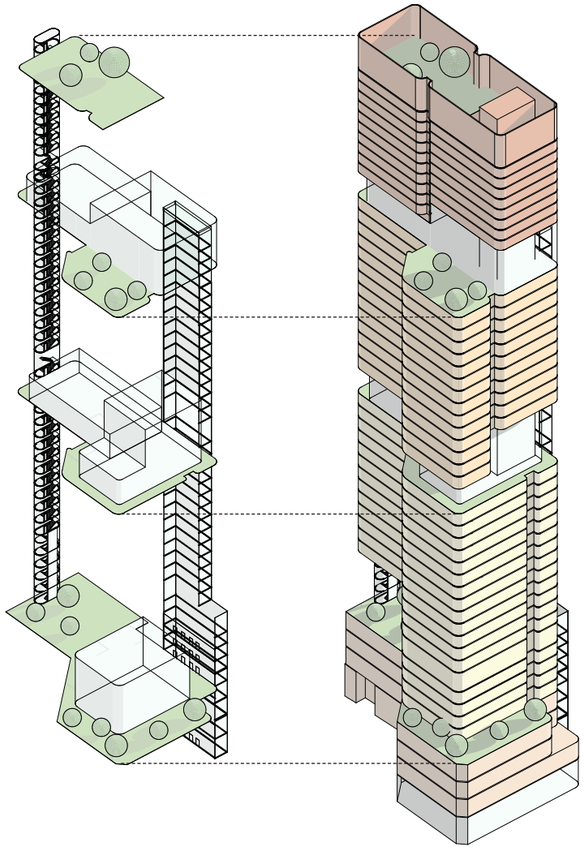
Mixed use to a 'Hybrid Village'

The *Tech Cluster & Innovation Hub* is one component of a proposal for a mix of uses integrated within the development.

The development would deliver in the order of 50,000m^2 floor space for interrelated uses including; Innovation, Education, Employment and Tourism. The combination of uses would provide a genuine "mixed use" facility, is developed as a theme for the building language to reflect the Haymarket locality and the future paradigm of cities. It will provide for evolving uses in proximity to a major transport node, Central Station.

A preliminary *Indicative Scheme* has been derived from the *Hybrid Village* concept to accommodate a mixture of uses, which will remain a WIP during the preparation of a site specific Planning Proposal. Variations to the Land Use Mix will continue to be evaluated. For instance the possibility of increasing the Tech-Hub component from a base 7,500m^2 due to its interface with the other Education, Commercial &/or Hotel components will be considered.

Overall the proposal represents a significant contribution to supply of additional commercial floor space within the City, which is a key objective of the *Planning Strategy*. It will also add to the supply of large floor plate commercial floor space in the southern City which is currently in short supply and for which there is limited opportunity. Early development of the site would deliver significant employment and would make a substantial contribution to the competitiveness of the City both nationally and internationally.



Hybrid Vertical Village -

Green Interconnecting Green Spine & Atrium Gardens

Applying the Planning Strategy

The *Planning Strategy* sets Council's planning vision for how Sydney will grow into the future and includes aims, objectives and actions to promote Central Sydney's role as the State and nation's economic, cultural and social engine. It is intended to unlock economic opportunities and investment in jobs, and support public improvements that make Sydney an attractive place for business, workers, residents and visitors. Notably it will unlock 2.9 million square metres of floor space, provide for over 100,000 jobs and deliver around 300-520 new affordable housing units while also delivering additional open space and essential infrastructure. These benefits will be unlocked while ensuring innovative and world class development solutions.

To implement its aims and objectives, the *Planning Strategy* provides for the removal of FSR and Height as numeric planning controls and puts in place environmental controls to measure the impact of a proposed development, primarily in relation to sun access. FJMT have tested all the controls in accordance with the *Planning Strategy* and have arrived at proposed DCP envelopes with a GFA of 50,514m^2 above ground and a total of 22:1 including basement facilities counted as FSR. FJMT have prepared an indicative scheme measured at 22:1 which was selected from the numerous schemes tested by FJMT.

The outcome of each scheme tested against the *Planning Strategy* considerations, is measured for the resultant FSR, importantly the outcome is not the product of a predetermined FSR number. Additionally, suitable land uses were considered that can be accommodated that meet the strategy's objective to increase the capacity of a global Sydney.

The FJMT document following includes a summary of the analysis of the key considerations required in the *Planning Strategy*, supported by the detailed analysis included in the Appendices. The analysis by FJMT produces the identified capacity range possible on the site within the parameters of the *Planning Strategy*.

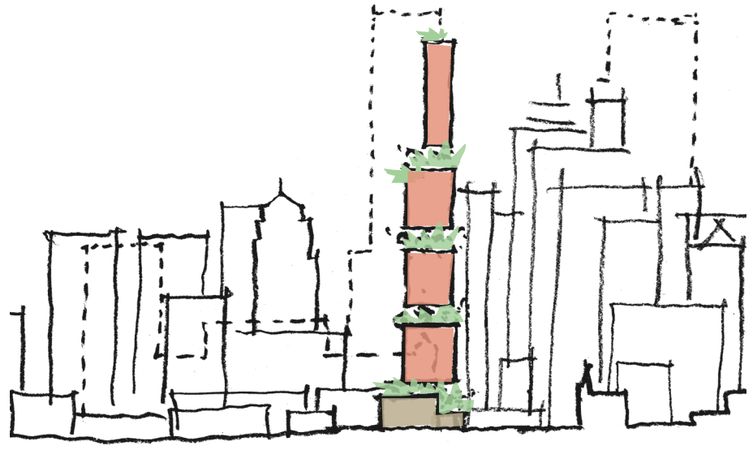
We recognize that the outcome of applying the *Planning Strategy* to *187 Thomas* has arrived at larger building form that may have been anticipated. The supporting *Built Form Capacity Study* (Appendix B) to the *Planning Strategy*, used a formula to estimate the possible increase capacity in Central Sydney, the formula was applied across the whole city area, whereas the FJMT analysis is site specific and applies the Planning Strategy considerations in detail as intended in by strategy.

The suite of the strategy documents described the assessments undertaken to identify the potential of increasing capacity in Sydney, to the tune of 2.9 million square metres of floorspace, but the assessments were not to become the limiting control. To do so would undermine the fundamental principle of the strategy, namely; to remove numeric controls in favour of environmental parameters to achieve quality outcomes ie. a sophisticated planning regime to protect the true value of a city, namely access to sun in public spaces.

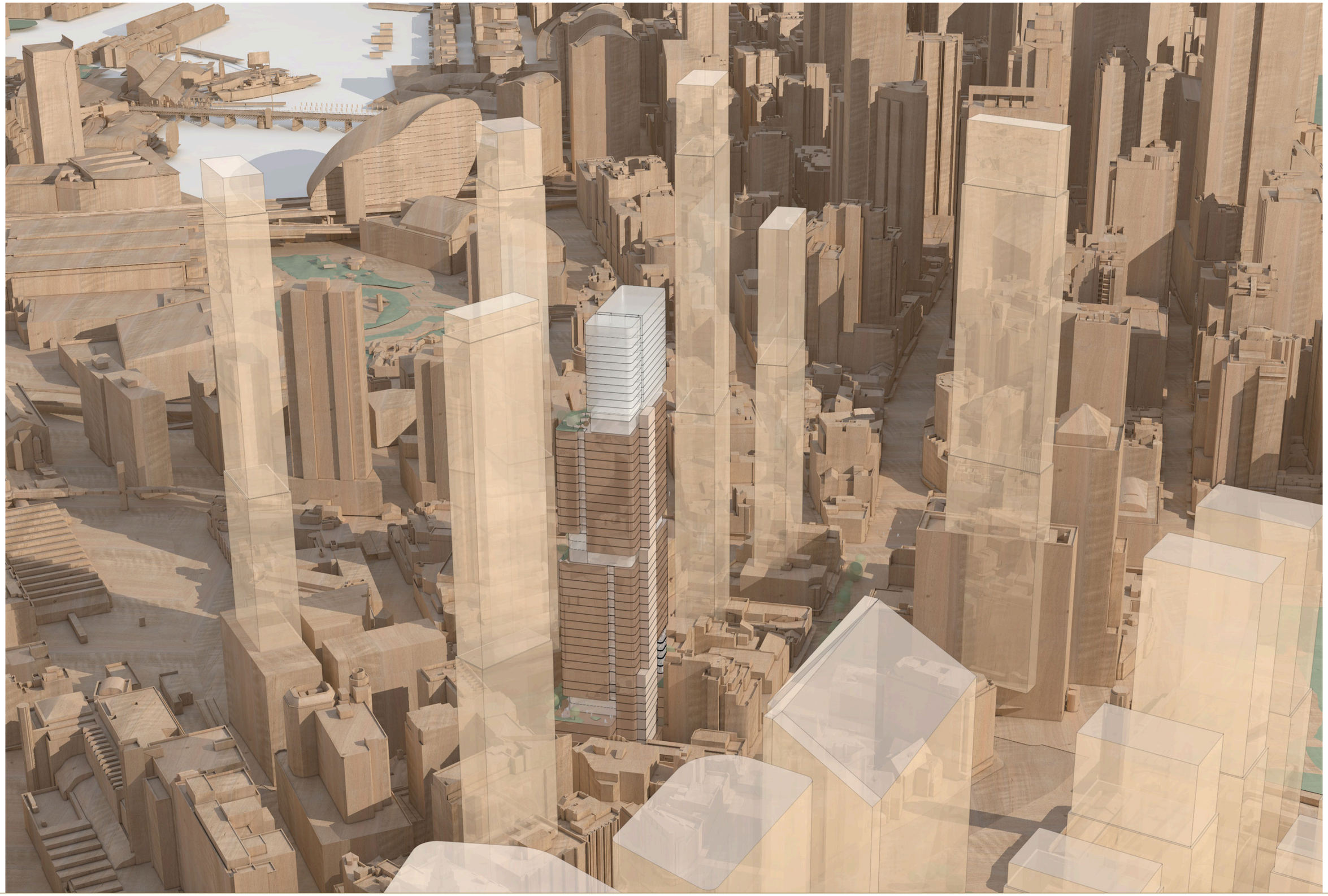
As we were cognizant of the scale of the possible outcome, FJMT very particularly assessed the key Strategy considerations that allowed that scale, namely;

- Tower (Height)
  The *Planning Strategy* determines the maximum building height for the site by overshadowing controls to protect sun access to Prince Alfred Park and by airspace controls, which together results in a possible Tower height of RL275m.

- Environmental Performance Driven Setbacks
  FJMT applied the mechanism provided in the *Planning Strategy's* Draft DCP for varying Setbacks, in accordance with the procedures set out in Schedule 11 for the Sky View Factor Analysis. Additional setbacks to George Street respond to the heritage context and improve residential amenity for the neighbouring strata building. The podium roof garden and elevated tower to the north also mitigates residential impact.
  The scale of the possible Tower by applying the *Planning Strategy* is reflective of tower development in the City over time, where a series of steps, or stratums, have resulted as planning controls and technology have evolved, and the design theme of the proposed "Hybrid Village", responds to that evolution.



City Cross Section - With Hybrid Vertical Village



2.0 Site Analysis

Site Analysis is explained over the following pages. They translate the urban context into the several layers of acknowledgment and outline the site opportunities and the constraints by analysing immediate site and broader urban scale.

Site Analysis includes:

2.1 Solar Access, Prevailing Winds and Views

2.2 Primary Public Views

2.3 Site Identification

2.4 Tower Cluster Area Map

2.5 Technology Precinct Context

2.6 Mode of Transport and Pedestrian Connection

2.7 Immediate Context

2.8 Heritage Evolution

2.1 Solar Access, Prevailing Winds and Views

187 Thomas Street is a part of Tower Cluster Area identified in the DRAFT CSPS, which as the potential for 360 degree views and high levels of natural light.

The critical wind directions are identified from the south-east (where there are numerous proposed large buildings that would be expected to reduce the incident wind speed and direction) and the west.

187 Thomas Street

Residential Buildings within study zone

Views

2.2 Primary Public Views

The Primary Public Views are set as indicated in the map. The public view impacts are examined based on those set views.

1. Aerial view: Tower And Future City Tower Cluster From The South

2. Street view: Looking West Along Foveaux Street

3. Street view: Looking North From Railway Square

4. Street view: Looking South Along Dixon Street

5. Street view: Looking South Along George Street

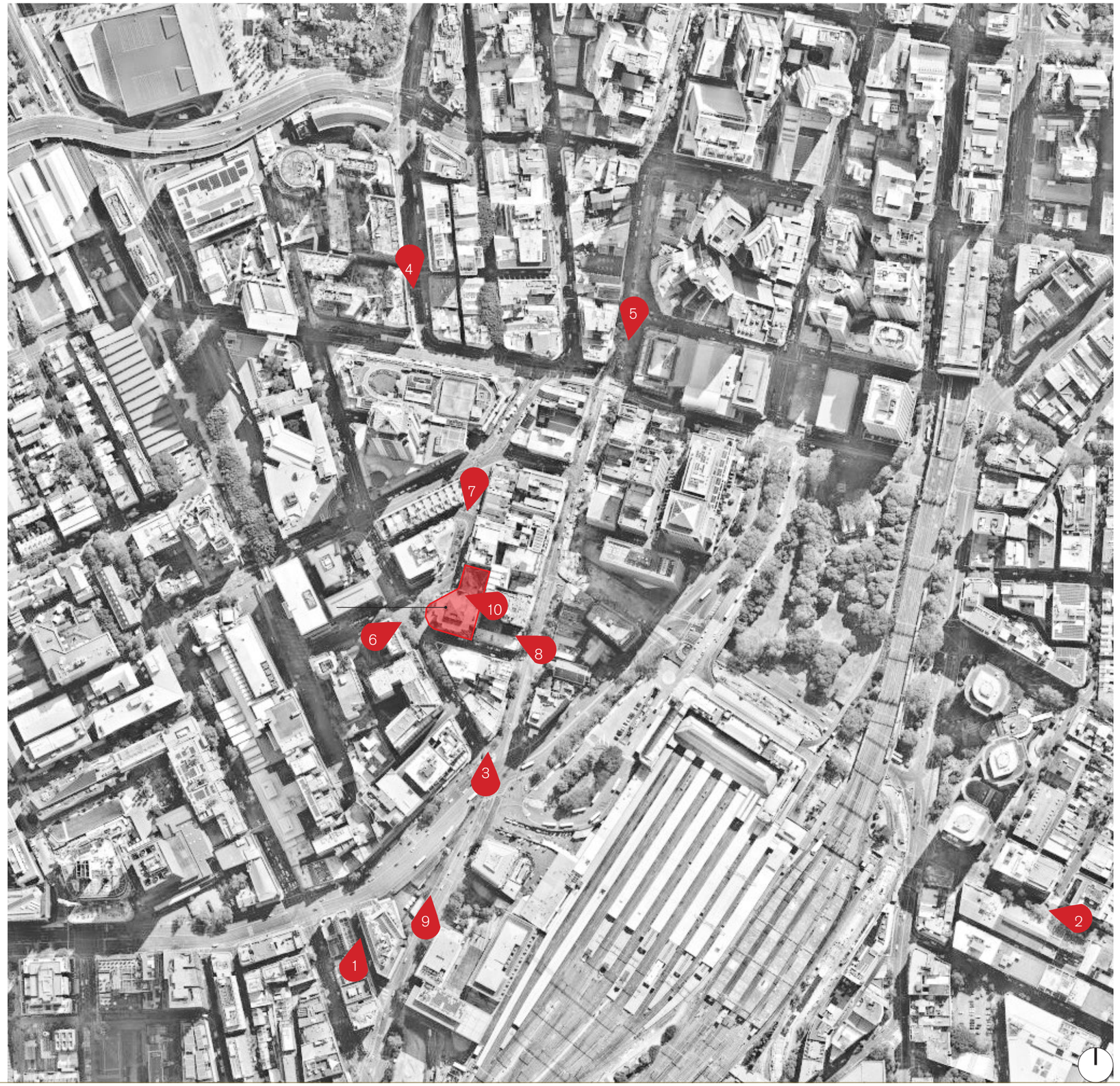
6. Podium view From West

7. Podium view From North

8. Podium view From East

9. Aerial view: Tower And Future City Tower Cluster From The South

10. Private view: from 743-755 George St Neighbouring residential building



2.3 Site Identification

187 Thomas Street is located in a key strategic precinct in the City of Sydney.

The site is identified in the Draft Central Sydney Planning Strategy 2016 as one which can contribute to the future employment capacity of the city and is located in a future zone of high density.

The Haymarket precinct is a special character area with a number of heritage buildings in the surrounding streetscape and which is the subject of a series of pedestrian priority projects by the City of Sydney in the public domain.

Draft CSPS identified sites with potential commercial development capacity (Appendix B - Built Form Capacity Study)

Site area 2,351m2 meets minimum requirement for tower development

Railway Square (Draft CSPS)

Heritage Buildings (Sydney LEP)

Western Gateway Sub-Precinct Boundary (Draft Design Guide - Western Gateway Sub)

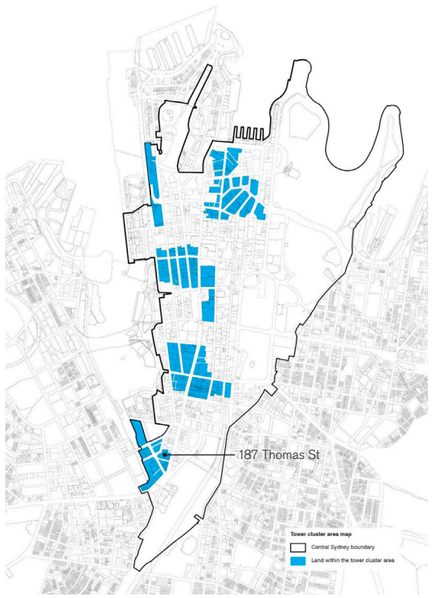
Quay, Thomas & George Street Pedestrian Priority Projects (City of Sydney)

2.4 Tower Cluster Area Map

Planning Proposal: Central Sydney February 2020

Site area 2,351m2 meets minimum requirement for tower development

Land within the tower cluster area



Tower Cluster Area Map (Draft CSPS)

2.5 Technology Precinct Context

187 Thomas Street forms part of identified site 153 in Built form capacity study, which is an Appendix B of the Draft Central Sydney Planning Strategy 2016.

The site falls within a number of significant and emerging precincts including: The Southern Precinct which has been identified for mixed-use revitalisation, The Chinatown/Haymarket Special Character area, Education and related industries in South Ultimo, and the proposed Central; to Eveleigh Technology and Innovation Precinct.

A major new development is possible which can contribute to both the capacity and complementary requirements of the precincts and of the City of Sydney whilst revitalising and enhancing the local Character.

Identified Site 153 Anticipated GFA
123,498 To 141,698

187 Thomas Street

Site Area : 2,351m2
GFA : 51,714m2
FSR : 22:1
Maximum Building Height: 278m

Hotel
Premium Commercial
Innovation / Hotel
Ground Level Retail

Central To Eveleigh Innovation And Technology Hub (Urban Transformation Strategy 2016)

South Ultimo Education, Media And Telecommunications (Camperdown-Ultimo Place Strategy 2019)

Haymarket / Chinatown Special Character Area (Draft CSPS)

Southern Precinct Mixed Use

2.6 Mode of Transport and Pedestrian Connection

The site is in a precinct planned for pedestrian priority and within easy walking distance of major public transport and green space and with strong connections to the City, Darling Harbour, Pyrmont/Ultimo, Central Park and Surry Hills.

Draft CSPS Identified Site

187 Thomas Street

Green Open Spaces

Quay, Thomas & George Street Pedestrian Priority Projects (City of Sydney)

CBD and South East Light Rail

Inner West Light Rail

Major Transport Interchanges
1. Central Station
2. Railway Square
3. Haymarket
4. Chinatown

Railway Square Future Public Open Space (Draft CSPS)

Pedestrian Link under Central Station

2.7 Immediate Context

The immediate vicinity of the site includes a number of heritage buildings, an adjacent strata residential building built prior to the current residential buildings standards.

An existing arcade runs through the residential building and the 187 Thomas Street site to connect Thomas and George Street. Potential enhancements to Valentine Street and Thomas Street have been identified as part of this study. Public domain conditions such as Wind, daylight and solar access need to be considered.

187 Thomas Street

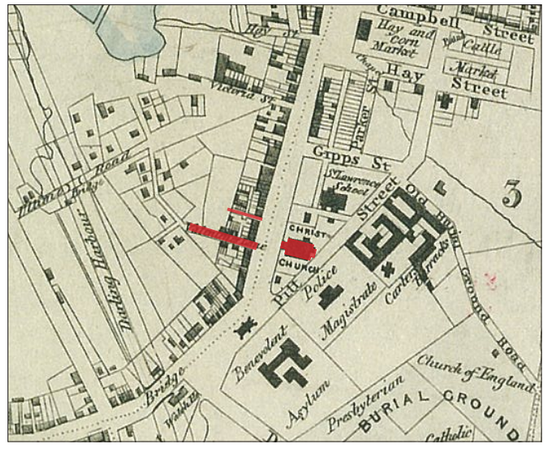
Heritage Buildings (Sydney LEP)

Existing Pedestrian Connection To George Street

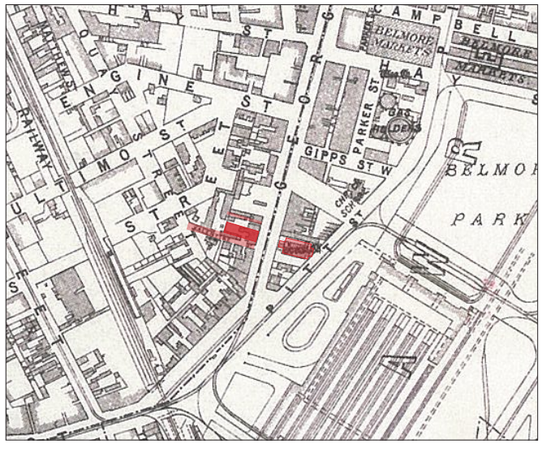
Quay, Thomas & George Street Pedestrian Priority Projects (City of Sydney)

Potential Future Tower Envelopes (Draft CSPS)

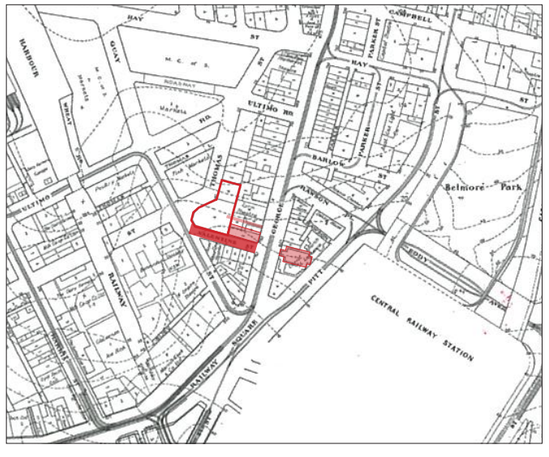
2.8 Heritage Evolution



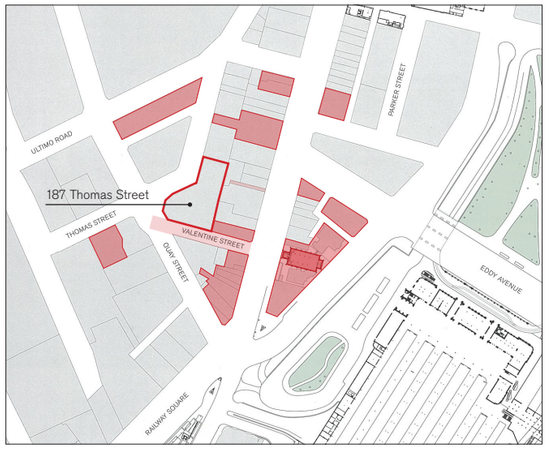
Woolcott & Clarke's Map Of The City Of Sydney 1854



Map Of The City Of Sydney, Department Of Lands 1903



Civic Survey, 1938-50



Today

The Christ Church St Laurence was built 1839 - 1845, with a strong commitment to the socially marginalised, the church provided education to the local community and undertook much needed mission work in the surrounding slums.

Valentine St and an Alleyway north of 757 George Street are important historical elements on George Street and were formed prior to the 1850's.

The Sutton Forest Meat Building opened in 1875, associated with the wholesale meat trade, it was part of the major development of primary produce markets at Haymarket at the turn of the century.

When the City of Sydney sold the building in the 1950's it's association with the meat industry and small goods production ended, becoming a restaurant which has remained it's primary function.

In 1905, the City Council gained the power to resume properties in order to knock them down to widen the streets - 761-763 George Street, was resumed for the widening of Valentine, Thomas and Quay Streets in Haymarket. Valentine Street was widened to 40 feet, allowing for the only unobstructed view of the Christ Church St Laurence, from this street.

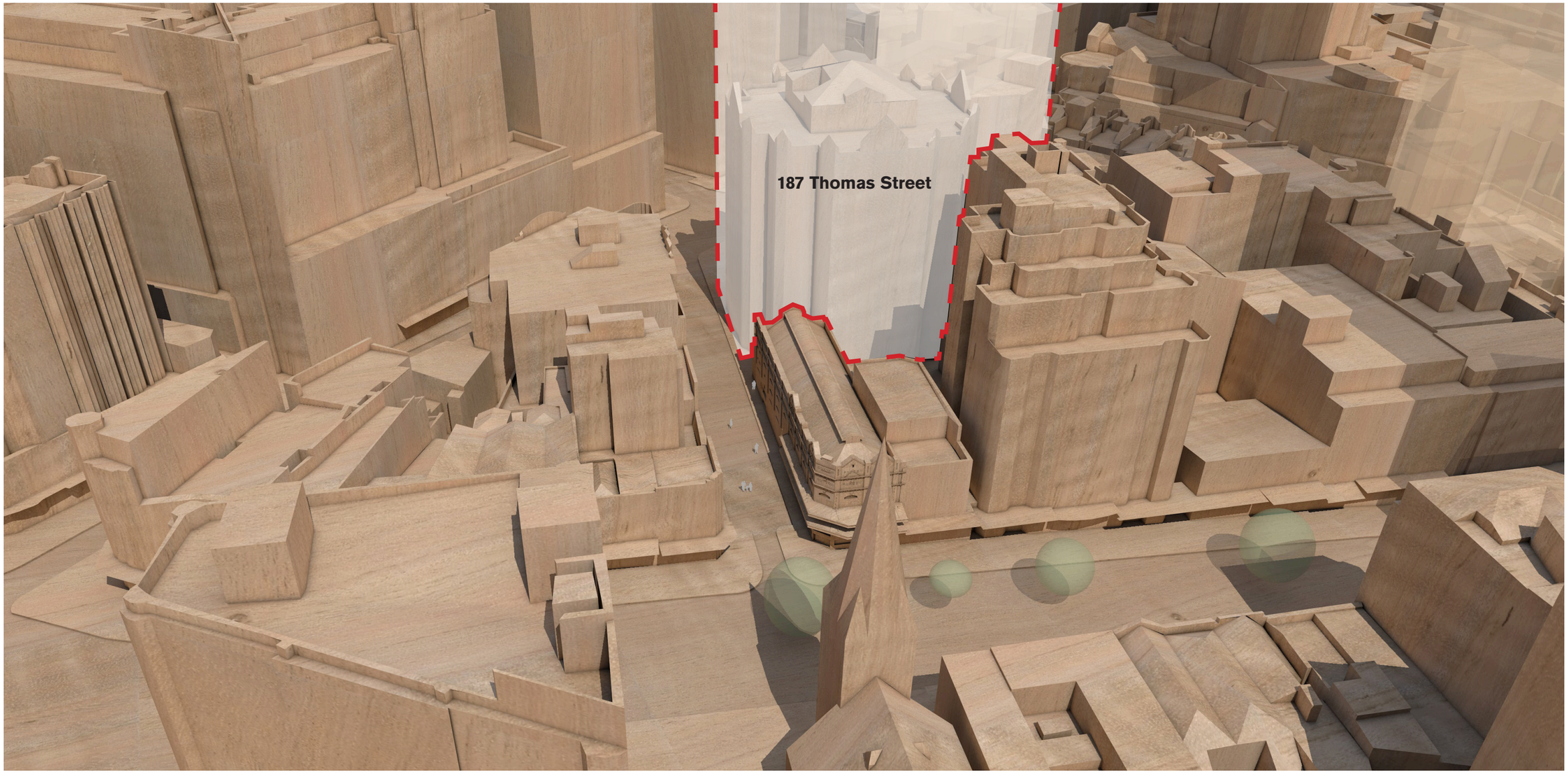
Located within a city block whose only development, apart from the shop display windows, remains largely unchanged since the 1930's, 187 Thomas Street must respect and respond carefully to a number of important historical elements, including; protecting and framing the existing view to Christ Church St Laurence along Valentine Street, maintaining the through site link north of 757 George Street, infilling with an appropriate new building and strengthening the street wall to George, Quay and Thomas streets.

George St showing alleyway at north of 757 George Street which was formed in the 1850's.

761-767 George Street Sutton Forest Meat Company in George St prior to the widening of Valentine St.

Valentine St looking toward George St, Haymarket in Sydney in 1910, prior to the widening of Valentine St.

Valentine St looking toward George St, Haymarket in Sydney in 2019.



A City Block of 187 Thomas Street

3.0 Key Urban Design Principles

A series of development scenarios have been evaluated to understand the potential of the Site and determine the best use of the land as it relates to the immediate and wider site context and connections.

The following criteria were considered in determining the building envelope:

- Daylight and shadowing
- Wind impacts
- Protection of heritage items and views
- Orientation of CBD views
- Relationship to neighbouring buildings including in particular the residential development immediately to the east
- Varied massing to break down scale and street wall heights
- Variety and flexibility of commercial and innovation floor plates
- Integration and shared use and management of innovation and hotel facilities
- Core locations to optimise the layout of the podium and tower floorplates.

Those Key Urban Design Principles are illustrated by the series of diagrams. They identify the site opportunities and the site constraints within the urban context, which defines the proposed building envelope.

The contents of this chapter are as listed below.

3.1 Public Domain

Streetscapes and Future Potential Opportunities

The following diagrams identify key urban design considerations and potential future opportunities for George Street, Valentine Street, Thomas Street and Quay Street.

Valentine street is characterized by its axial orientation to Christ Church St Laurence, low scale street wall buildings and heritage buildings on the corners of George Street. The future Valentine Street is imagined a more pedestrian friendly activated space which links George Street with the new boulevard of Quay Street.

187 Thomas Street

Streetscape / Street wall heights

Permeability / Pedestrian Priority

Potential Pedestrian Priority

Fine grain retail / Activation

Third City Square

Heritage

George Street

Valentine Street

At the corner of Quay Street and Thomas Street a new Square is proposed by the City of Sydney. 187 Thomas Street has the opportunity to enhance this new space by setting back the podium to allow axial vistas along Thomas Street to the square and providing activation and pedestrian connectivity through to George Street.

187 Thomas Street

Street Wall Heights and Alignment

Service Vehicle Access

Permeability

Pedestrian Amenity

Third City Square

New Square proposed by City of Sydney (Improving Quay Street, Haymarket)

Thomas Street

Thomas Street Pedestrian Upgrade Opportunities

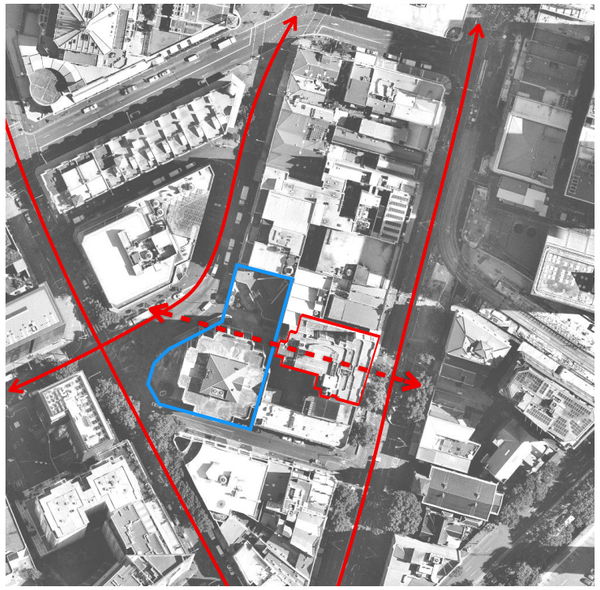
Quay Street

Quay Street Pedestrian Upgrade Opportunities

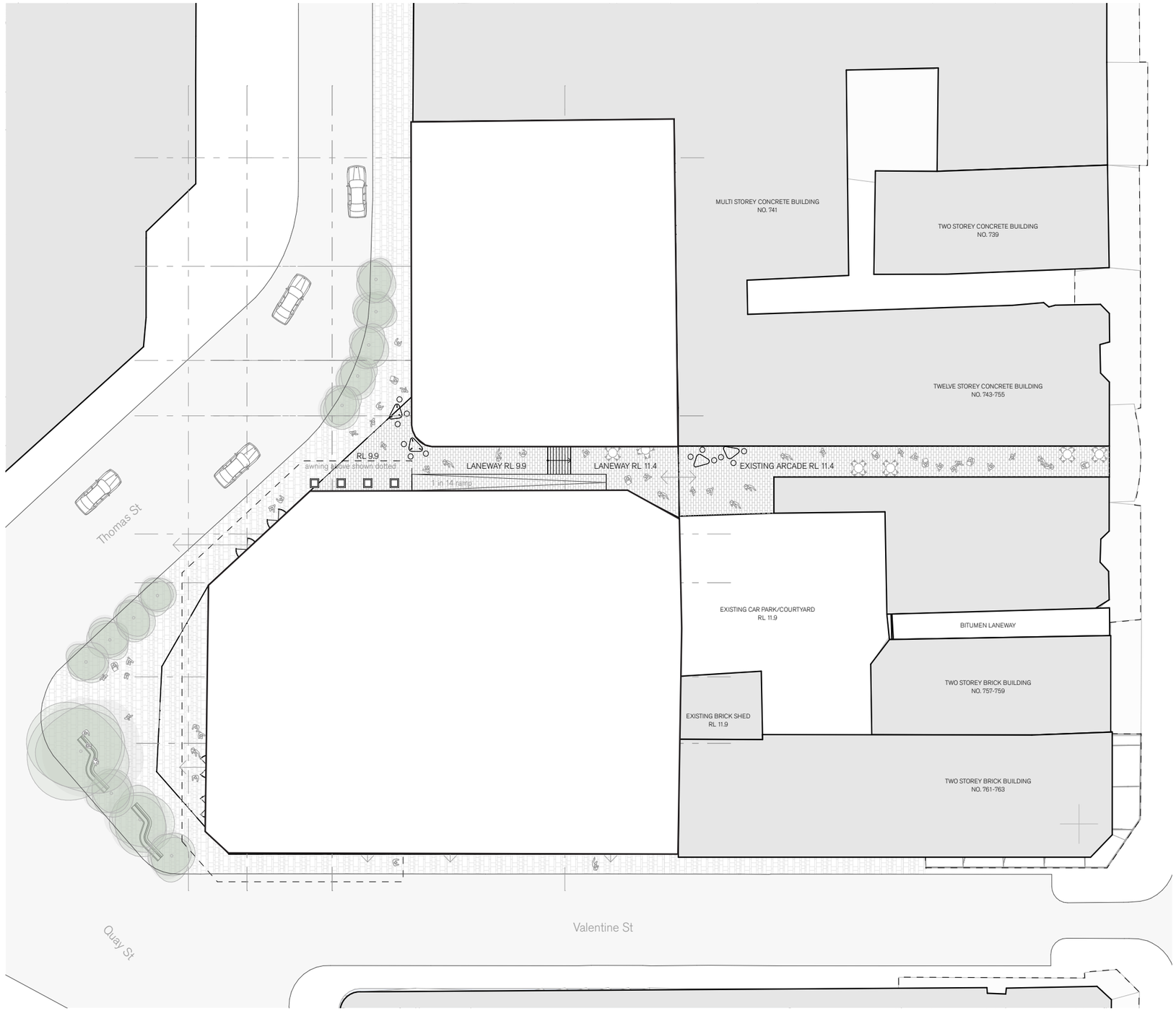
Lane Way Access to George Street

An existing arcade connection exists from Thomas Street to George Street via the residential building at 743-755 George Street. The existing condition has many level changes requiring ramping and an indirect approach over the podium level of 187 Thomas Street.

The new proposal provides a more direct connection through an extended arcade on 187 Thomas Street activated with additional retail and building entries.



Lane Way Access to George Street



Public Domain Ground Floor Plan

Improving Quay Street, Haymarket

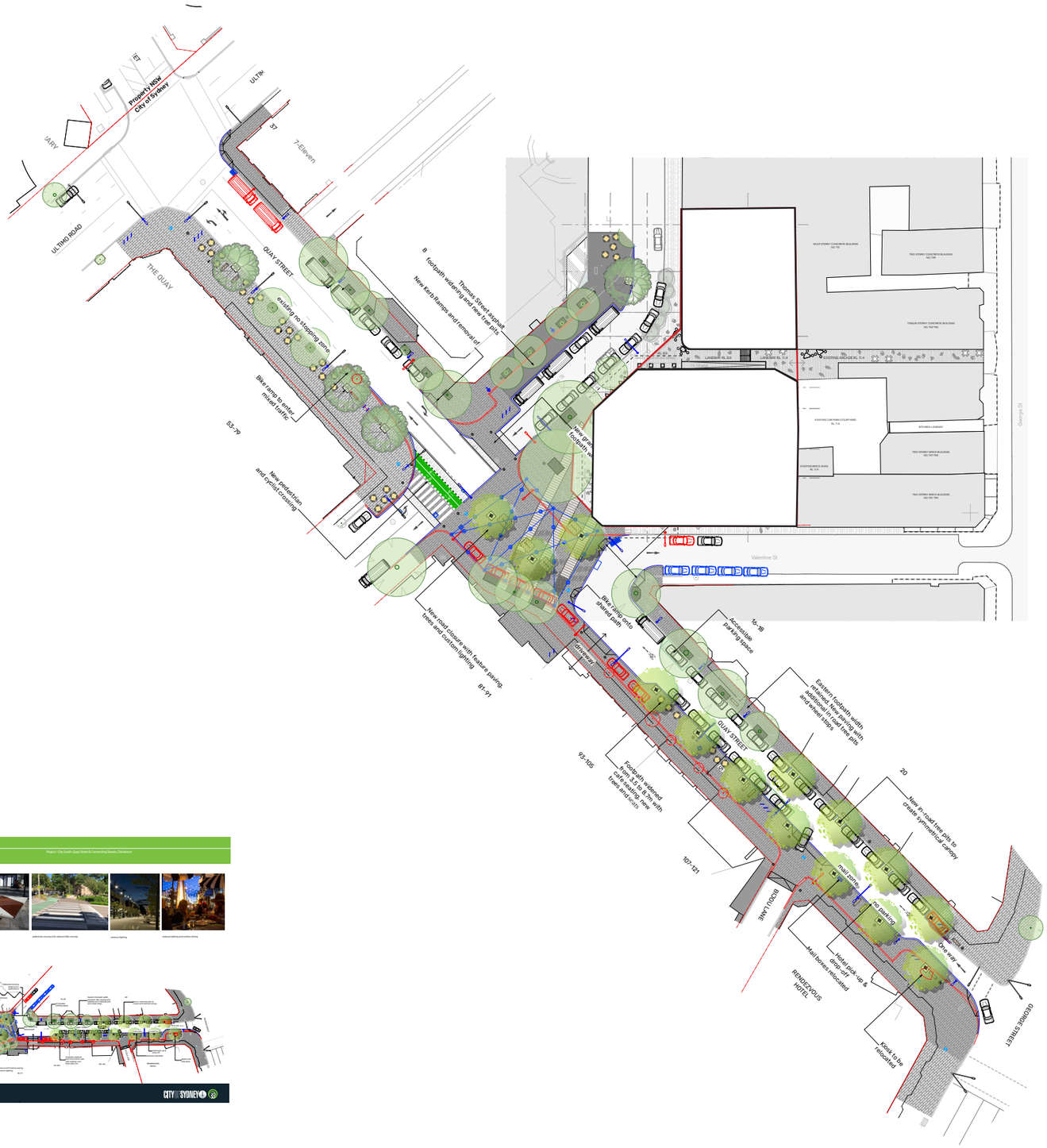
The City of Sydney is planning to upgrade Quay Street in Haymarket to improve connections for people walking and riding bikes. This will include a road closure at Thomas Street to create a new public plaza. We're seeking your feedback on the project.

The street upgrade and new public plaza will include trees, lighting and seating. We'll also widen footpaths and install a new pedestrian crossing to improve safety for people walking. Quay Street is a popular walking connection between Central station and Darling Quarter.

(City of Sydney website)

New shared path on the western side of Quay Street between George Street and Ultimo Road was proposed. This will include new bike lanterns on Ultimo Road, George and Lee streets to connect riders to Central station.

If this proposal and design are approved by Roads and Maritime Services, work is expected to start in early 2021.



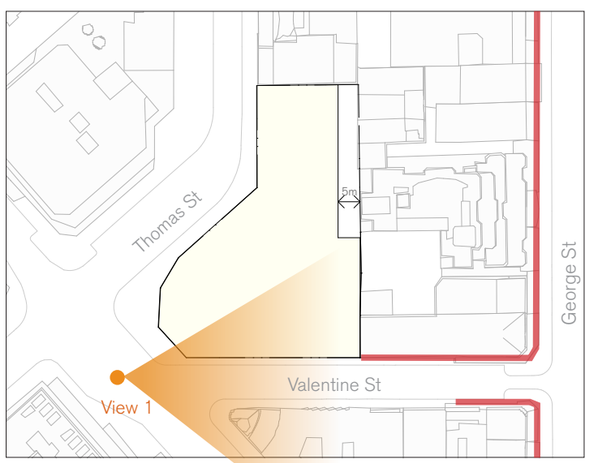
Improving Quay Street, Haymarket - City Of Sydney

Thomas Street asphalt
8 footpath widening and new tree pits
New Kerb Ramps and removal of
Podium Setback to allow Axial Vistas and
Increased Public Space
Valentine St
MULTI STOREY CONCRETE BUILDING
NO. 741
TWO STOREY CONCRETE BUILDING
NO. 739
TWELVE STOREY CONCRETE BUILDING
NO. 749-755
LANEWAY RL 9.9
LANEWAY RL 11.4
EXISTING ARCADE RL 11.4
EXISTING CAR PARK/COURTYARD
RL 11.9
BITUMEN LANEWAY
TWO STOREY BRICK BUILDING
NO. 757-759
EXISTING BRICK SHED
RL 11.9
TWO STOREY BRICK BUILDING
NO. 761-763

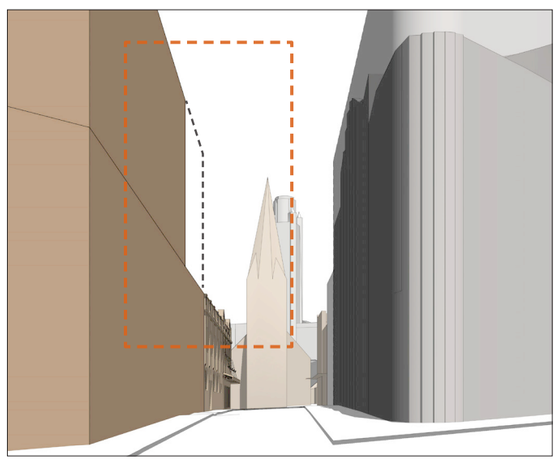
3.2 Street Wall Height and Podium

The surrounding street wall heights are carefully analyzed and the podium height are set with consideration of the site context and streetscapes.

Further analysis and option studies are provided in Appendix E.



Plan - Street Wall **Proposed Option**

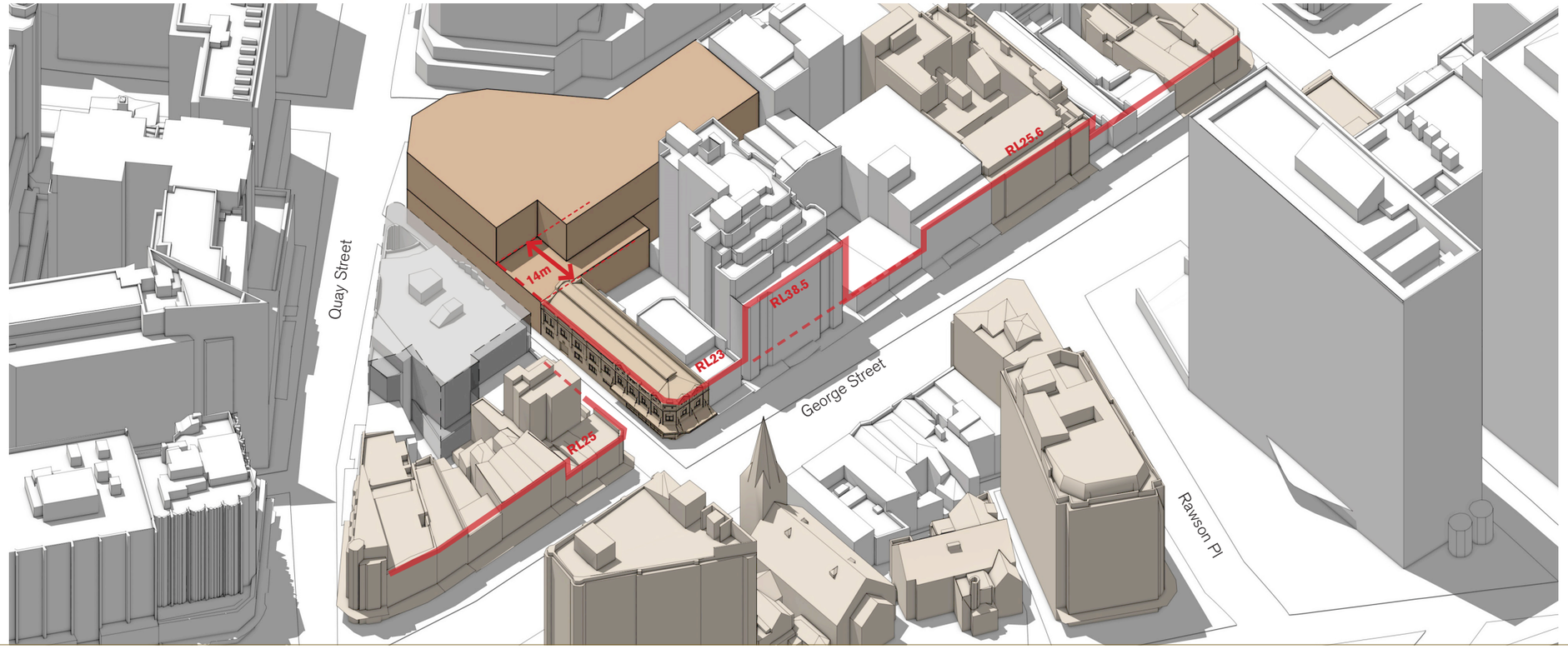


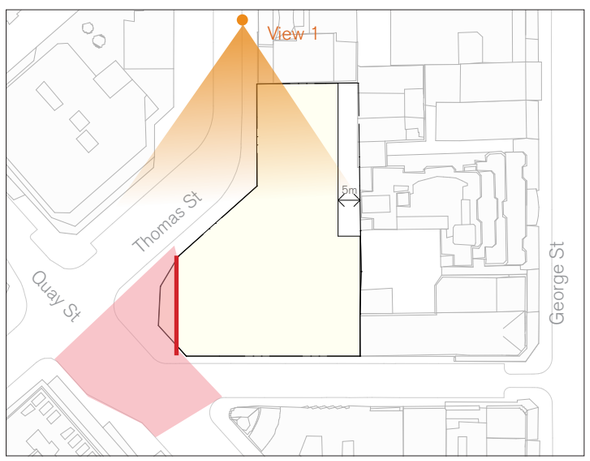
View 1 - Street Wall **Proposed Option**

View 1 - Google Street View

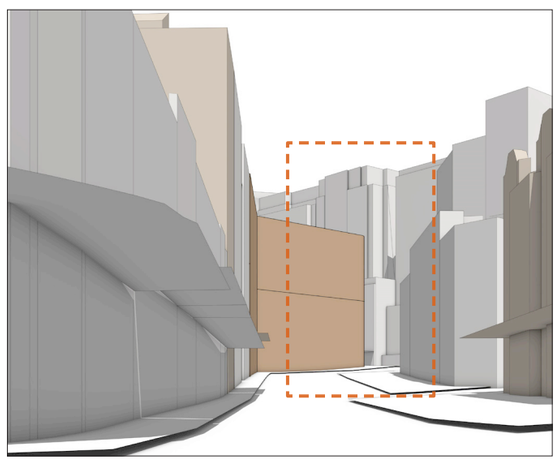
George Street and Valentine Street

Provides additional sky space around Christ Church St Lawrence when viewed from Quay Street.





Plan - Street Wall **Proposed Option**

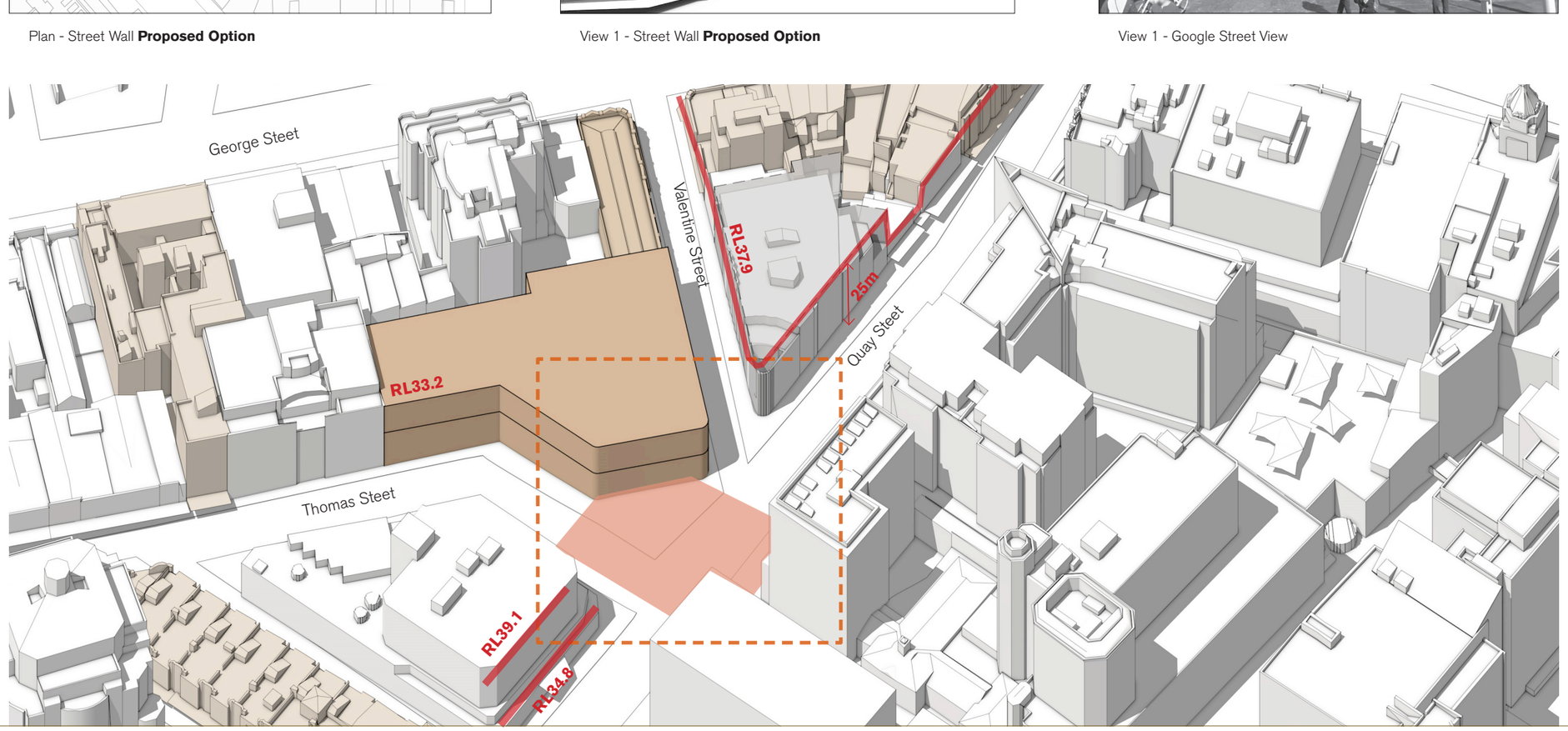


View 1 - Street Wall **Proposed Option**

View 1 - Google Street View

Thomas Street and Quay Street

The street wall could be squared off parallel to Thomas street to provide greater sunlight access to the square and further open out the vista along Thomas Street.



City of Sydney Proposed New Square

3.3 Environmental Performance Driven Setbacks

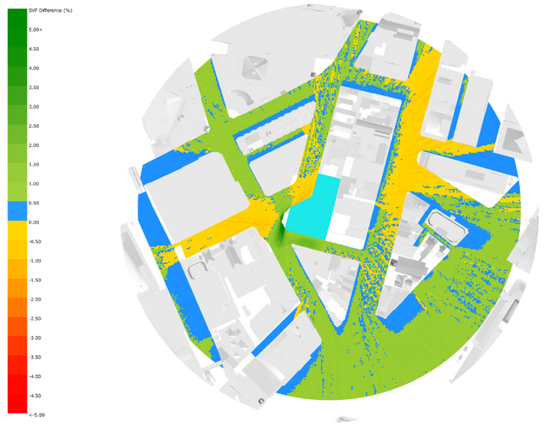
Tower setbacks have been determined by environmental performance as well as other urban design considerations.

In particular wind and daylight studies in the public domain have driven street wall and upper level setbacks to maintain amenity in the public domain.

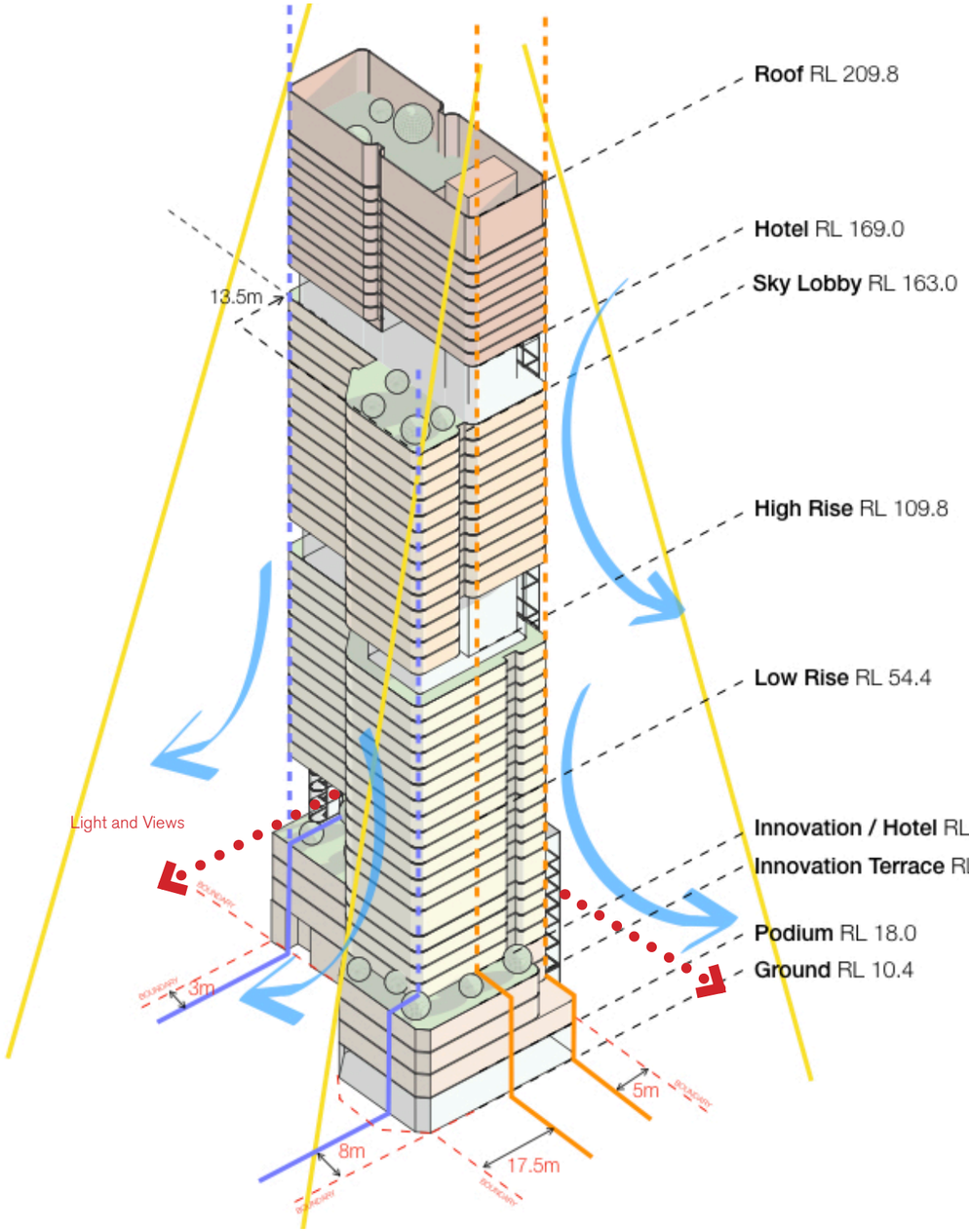
Additional setbacks to Valentine Street responds to the heritage context. The podium roof garden and elevated tower to the north improves residential amenity for the neighbouring strata building.

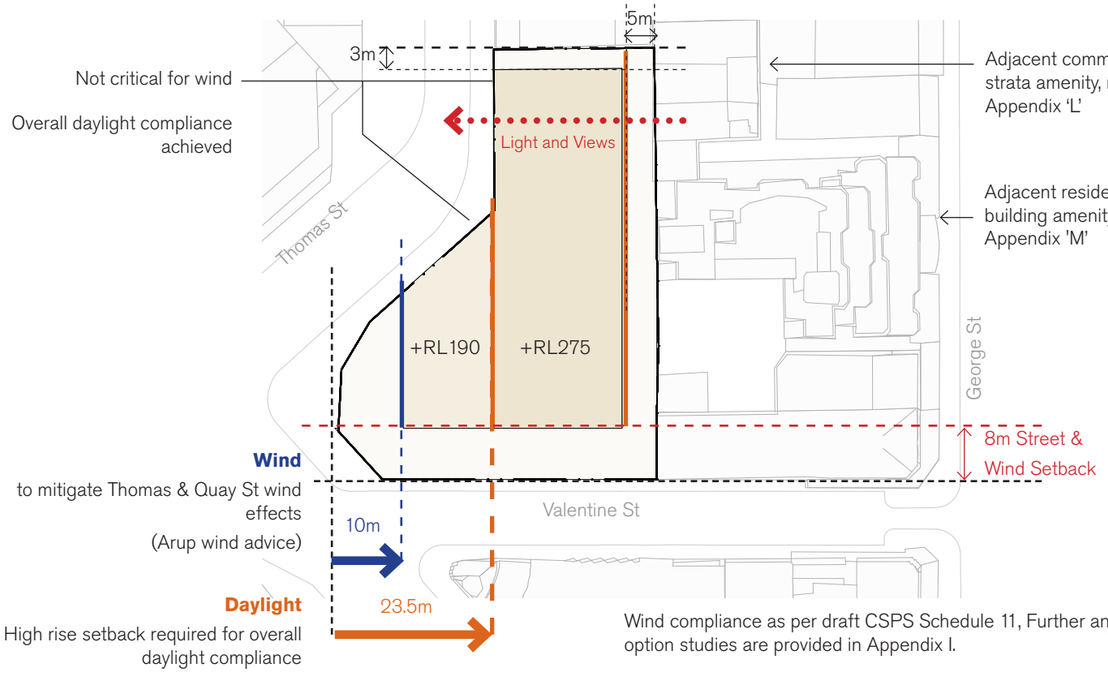
The draft CSPS - Schedule 11 provides a mechanism to vary setbacks from the draft controls.

This mechanism is based on daylight and wind analysis. A preliminary wind report has been undertaken by Arup which is summarized in Appendix 'I'. A detailed daylight analysis has been undertaken with further information available in appendix 'H'.



Daylight compliance as per draft CSPS Schedule 11, Further analysis and option studies are provided in Appendix I.





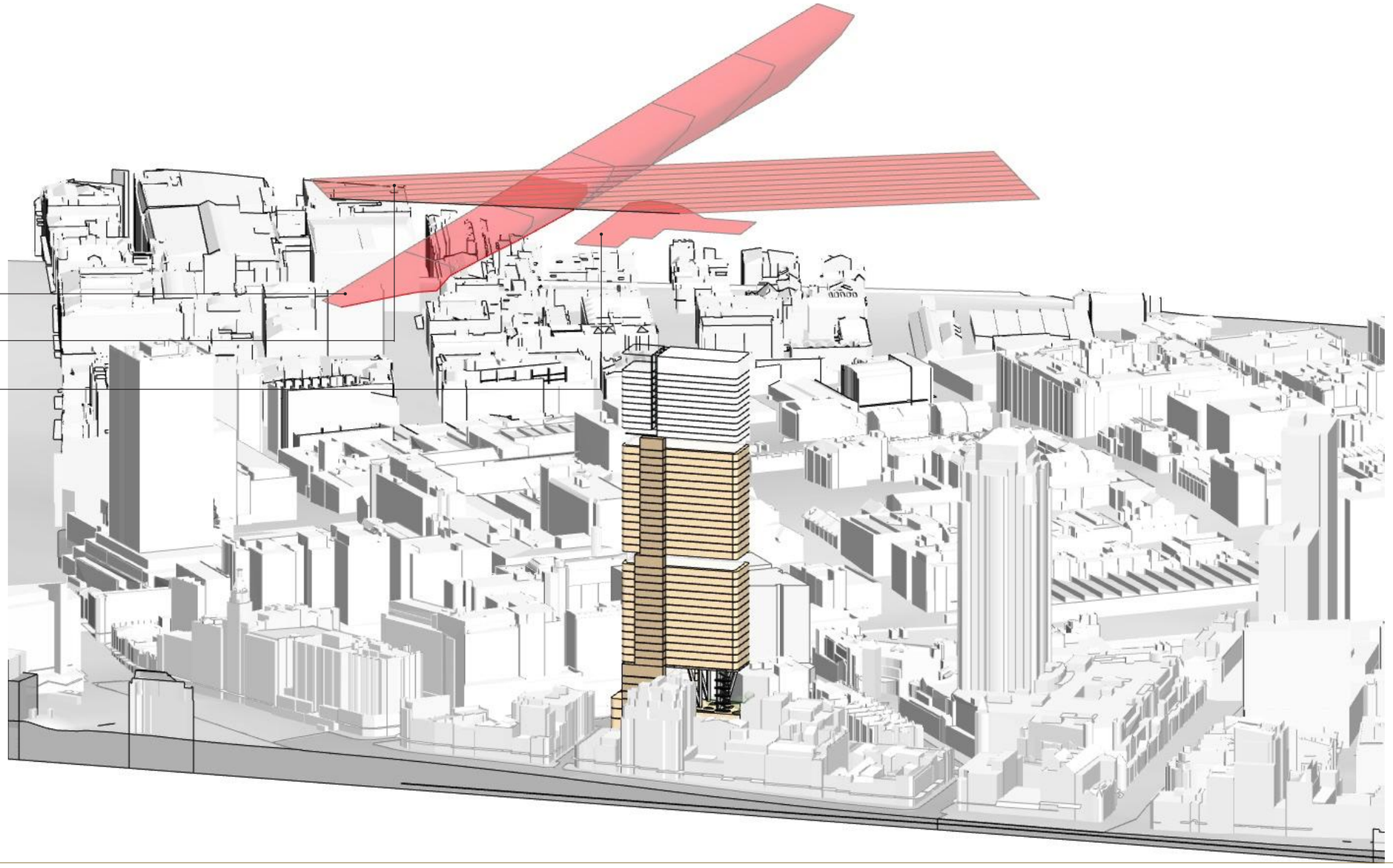
Wind compliance as per draft CSPS Schedule 11, Further analysis and option studies are provided in Appendix I.

3.4 Tower Height

Under the draft Central Sydney Planning Strategy the maximum building height for this site is limited by overshadowing controls for Prince Alfred Park (The proposed sun access plane for the new square at Central Station does not impact this site) and by airspace controls.

Airspace controls are lower in this case and a 15m crane zone must be provided below the airspace control to determine the maximum height.

The top surface under these constraints is at RL290. The ground level around the perimeter of the site ranges from RL12 to RL8, resulting in a potential maximum building height of 278m.



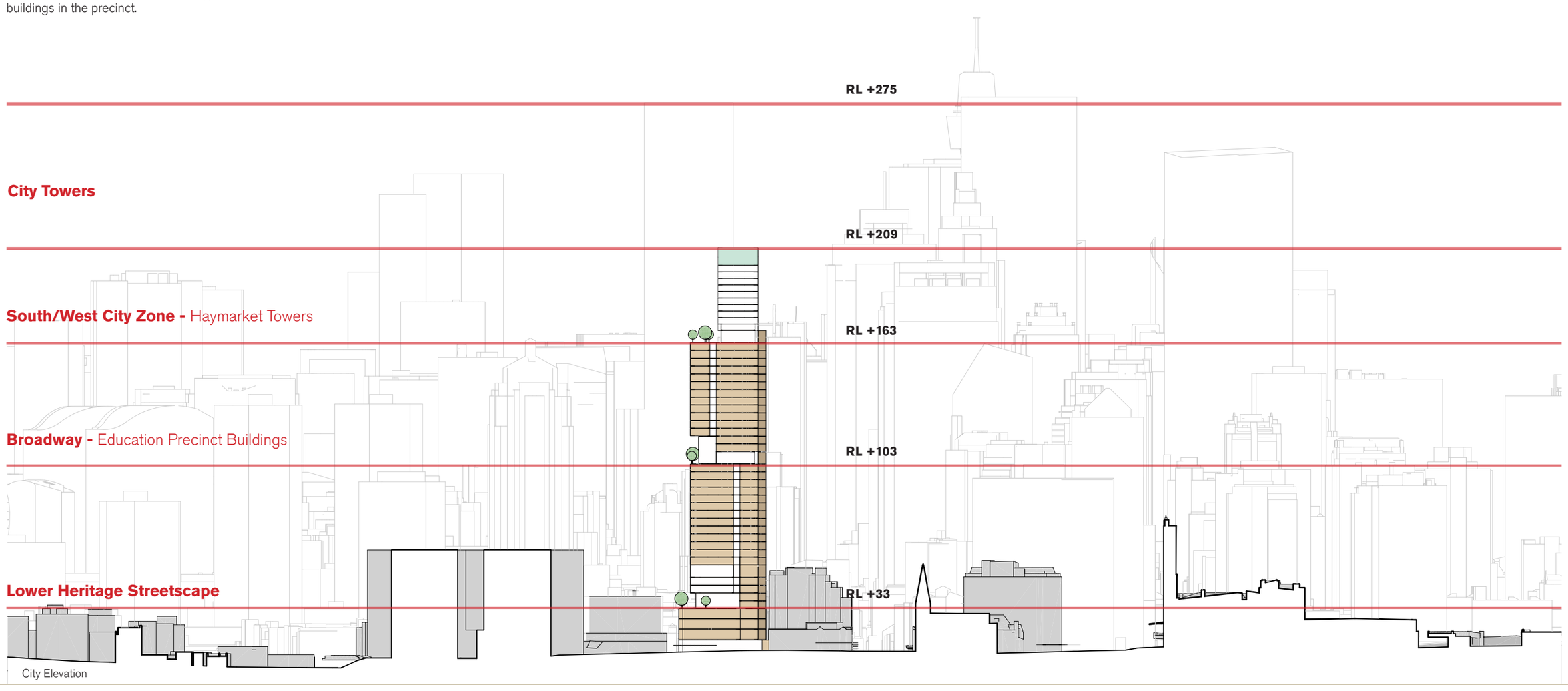
3.5 Urban Stratums

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

A mixed use development can respond to these stratifications.

The proposed building envelope broken up into 4 key elements: podium, void tower, commercial tower and skyrise tower reflecting the existing stratification of buildings in the precinct.

The articulation at the interface levels of tower element scan contain green spaces, which are sky lobbies, transfer lobbies or shared facilities and roof terraces.

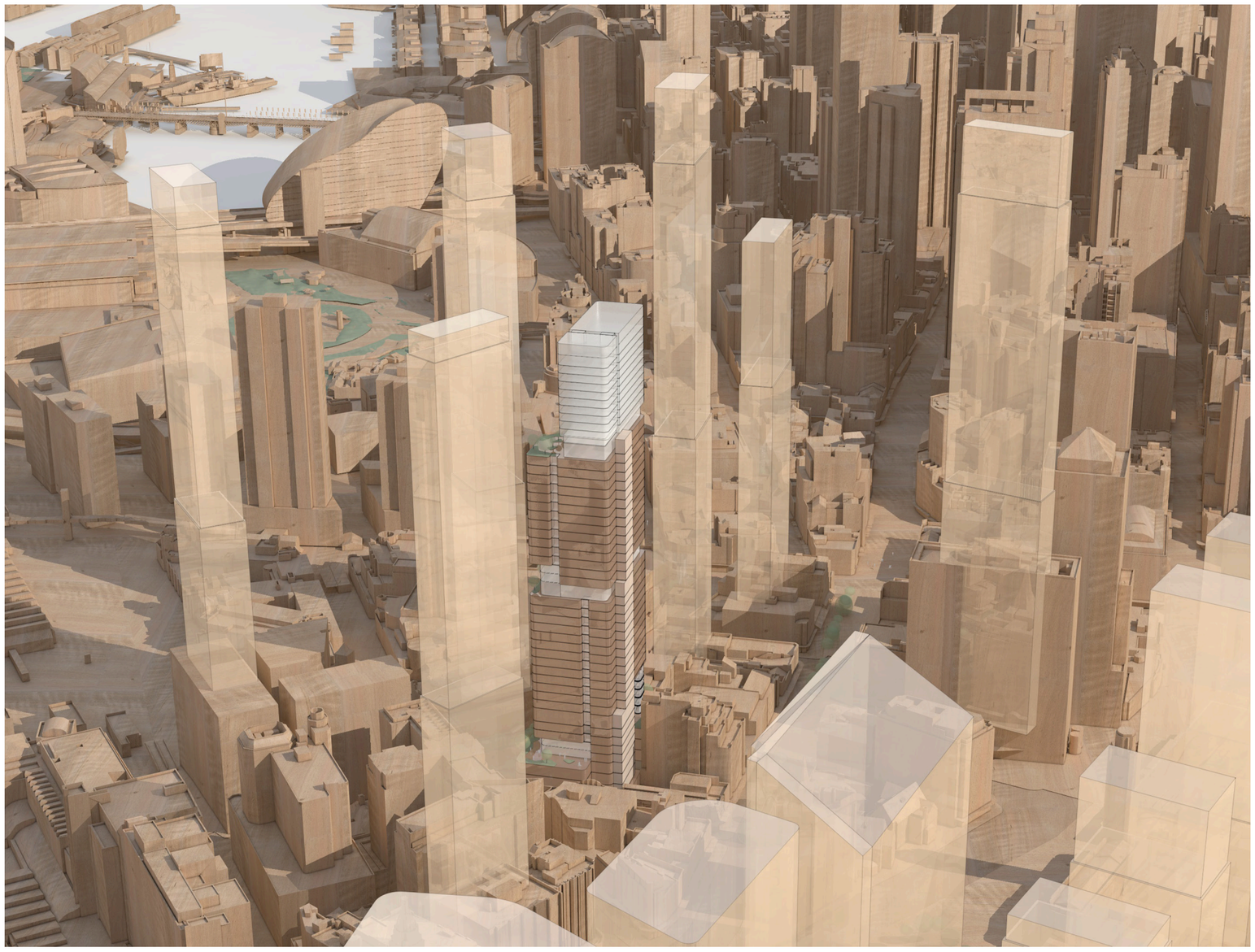


City Elevation

3.6 Views

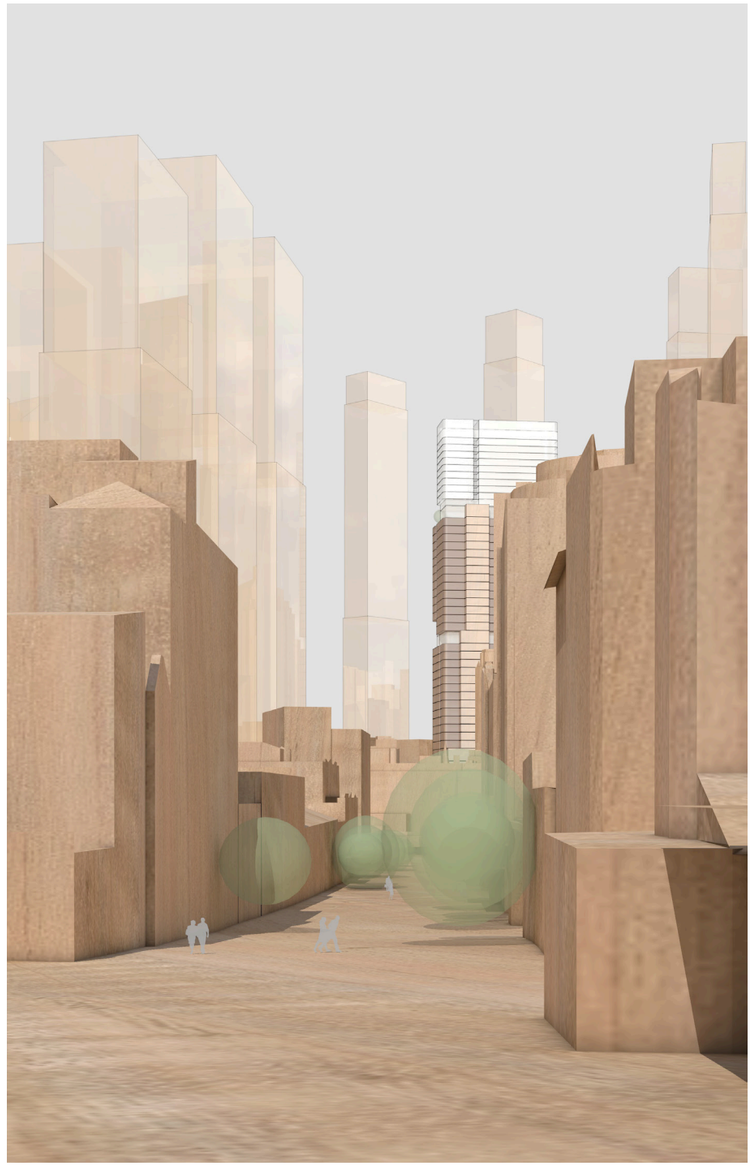
Concept model views have been taken from key city streets including estimated massing of other potential future towers as envisioned by the draft CSPS and the Central to Eveleigh initiative.

View Study Location Plan

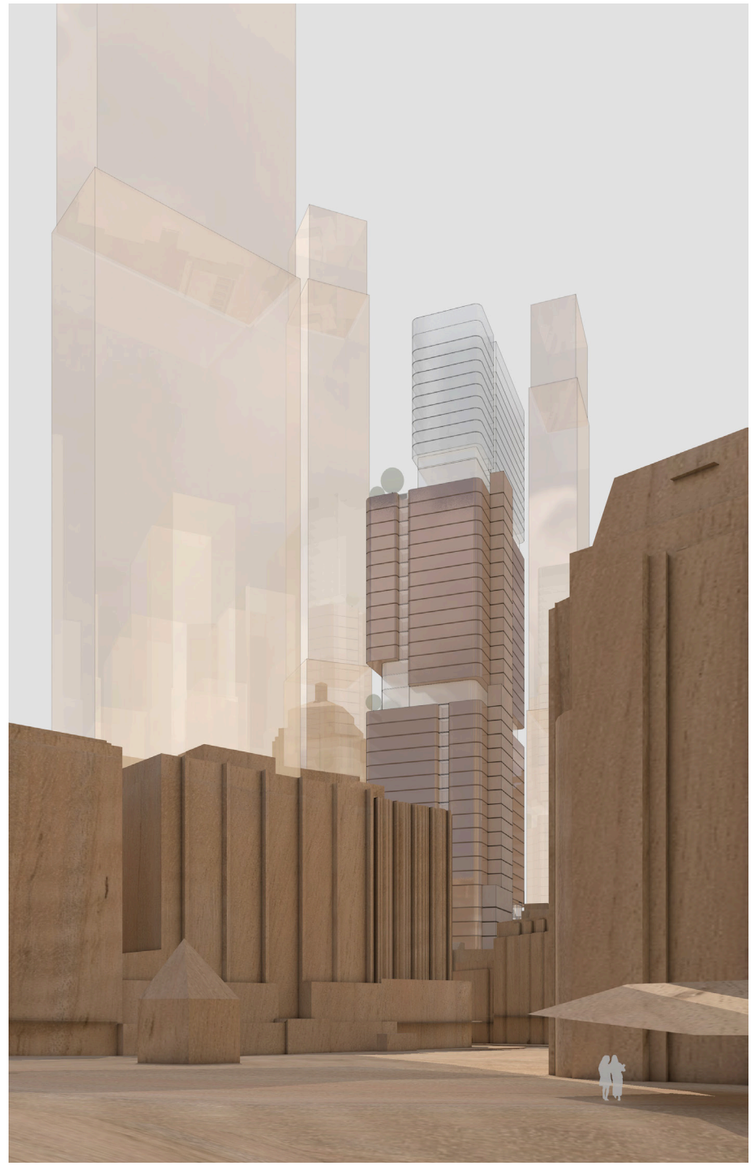


Aerial View 1: Tower And Future City Tower Cluster
From The South

View Study Location Plan



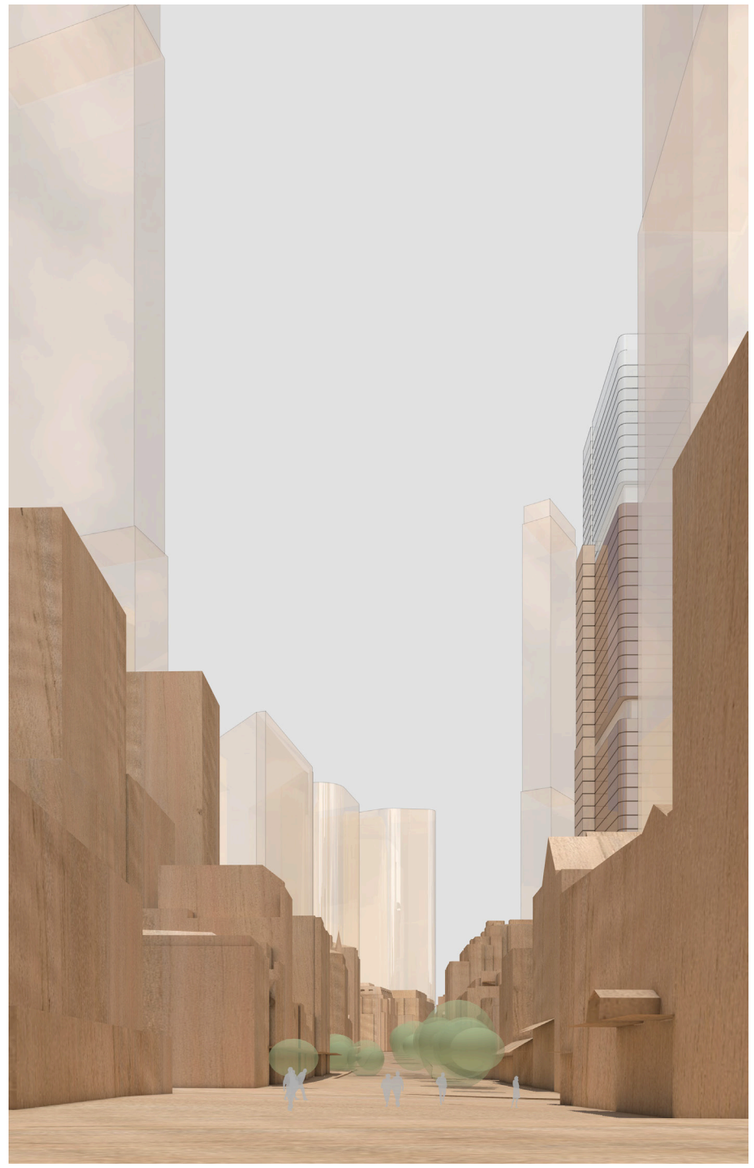
View 2 Streetscape: Looking West Along Foveaux Street



View 3 : Streetscape: Looking North From Railway Square

View Study Location Plan

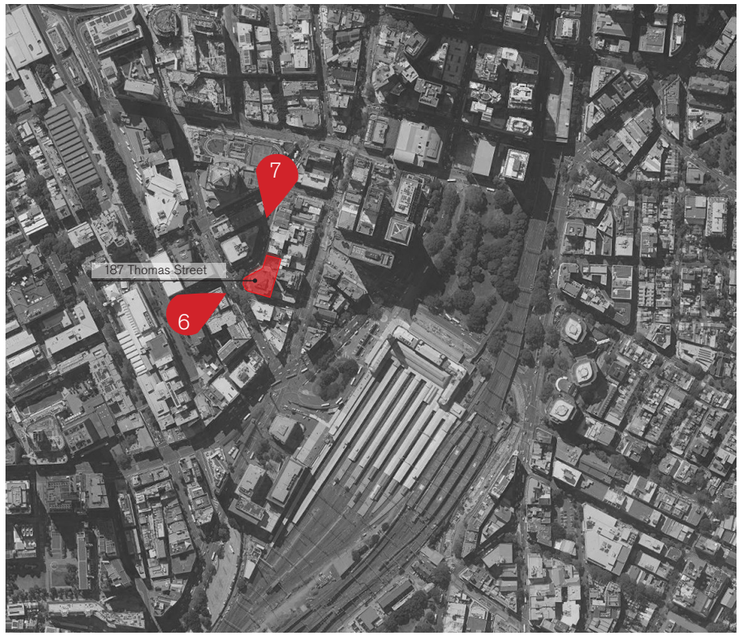
View 4 Streetscape: Looking South Along Dixon Street



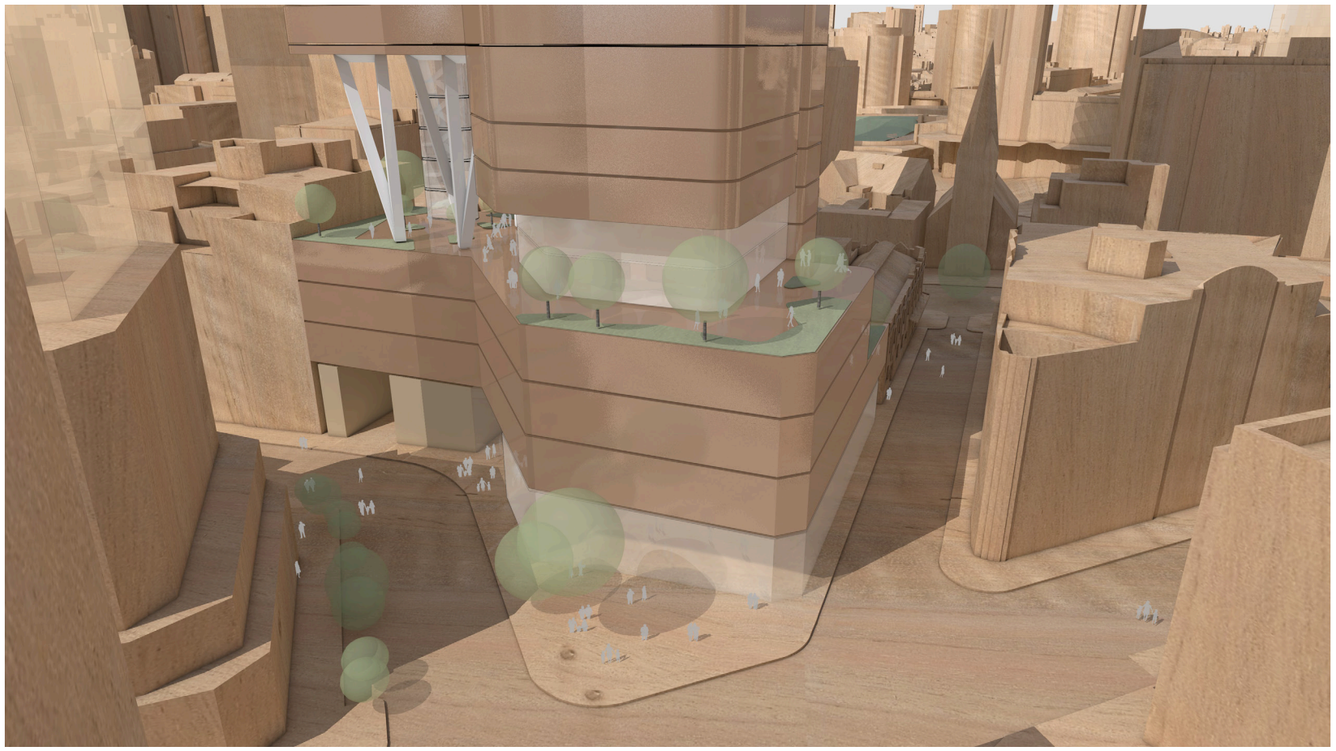
View 5: Streetscape: Looking South Along George Street

Detailed concept model views which show the interlocking of the streetscape, podium heritage building and tower setbacks.

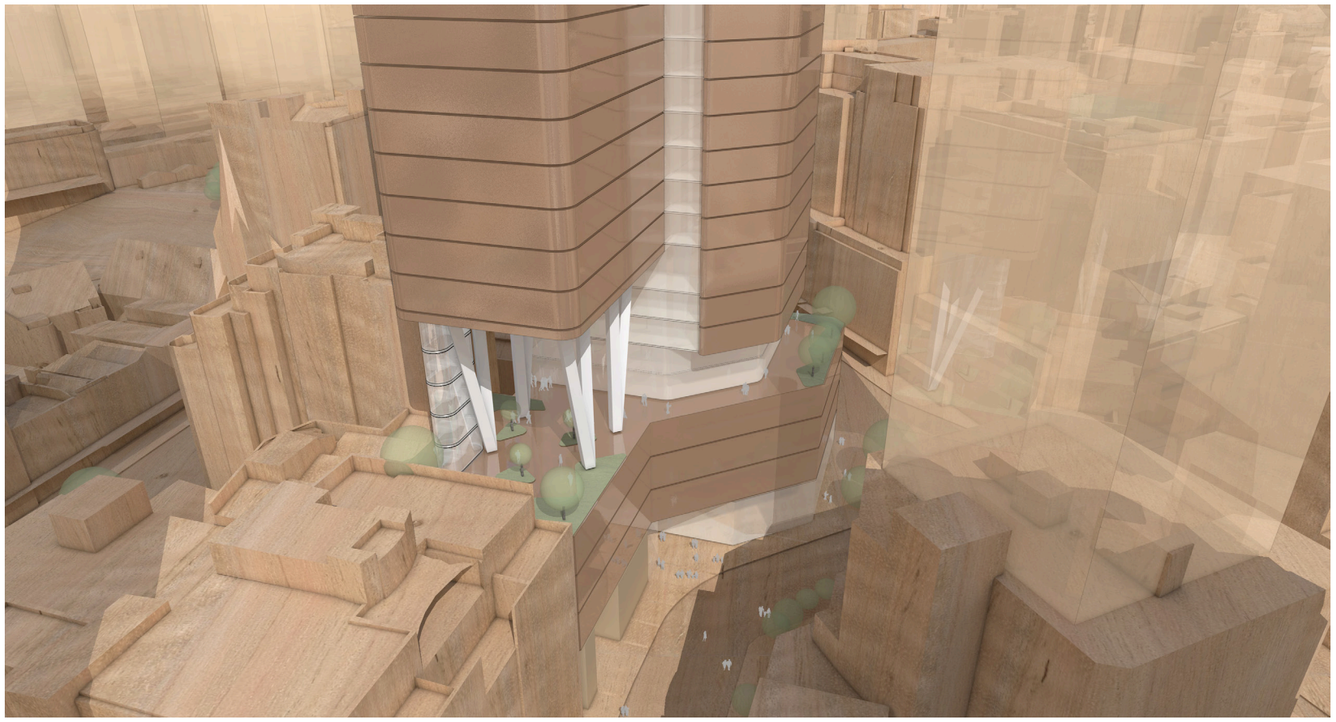
The north tower is elevated approximately 18m with a garden terrace to allow improved access to natural light and views for the neighbouring residential building.



View Study Location Plan

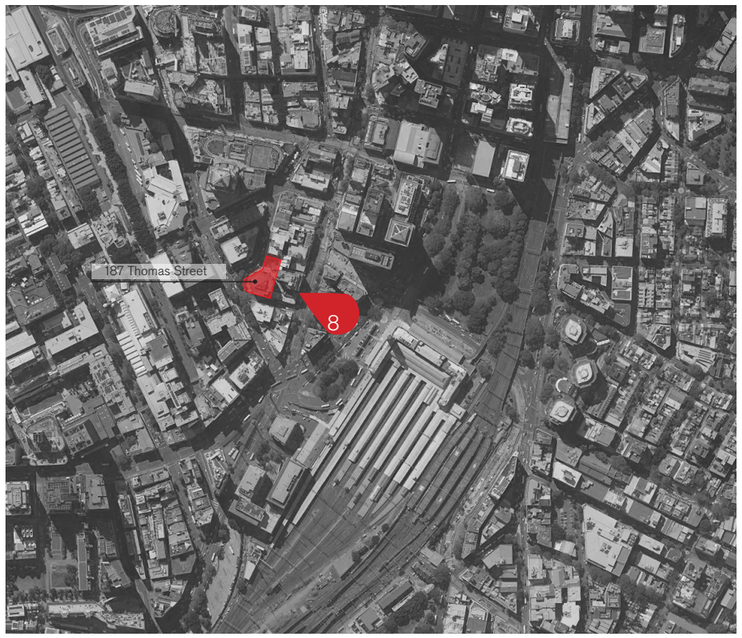


View 6: Podium View From West



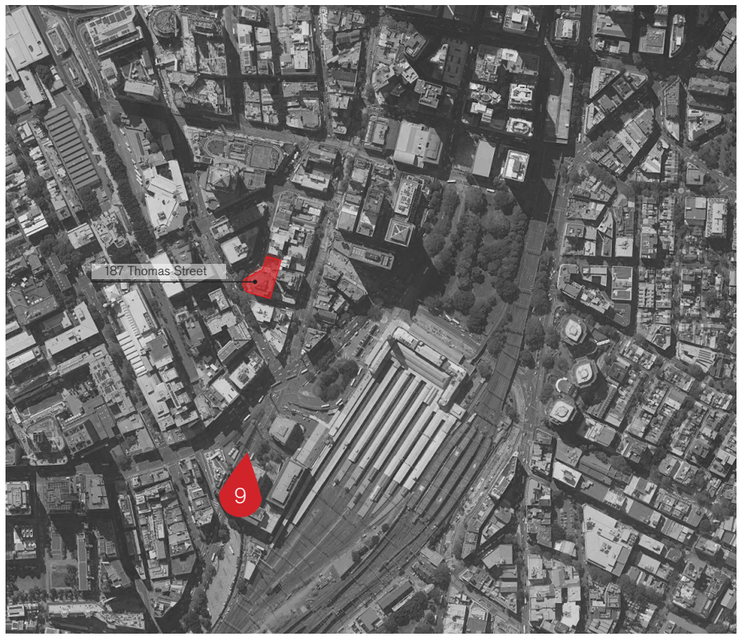
View 7: Podium View From North

View 7: Podium View From North

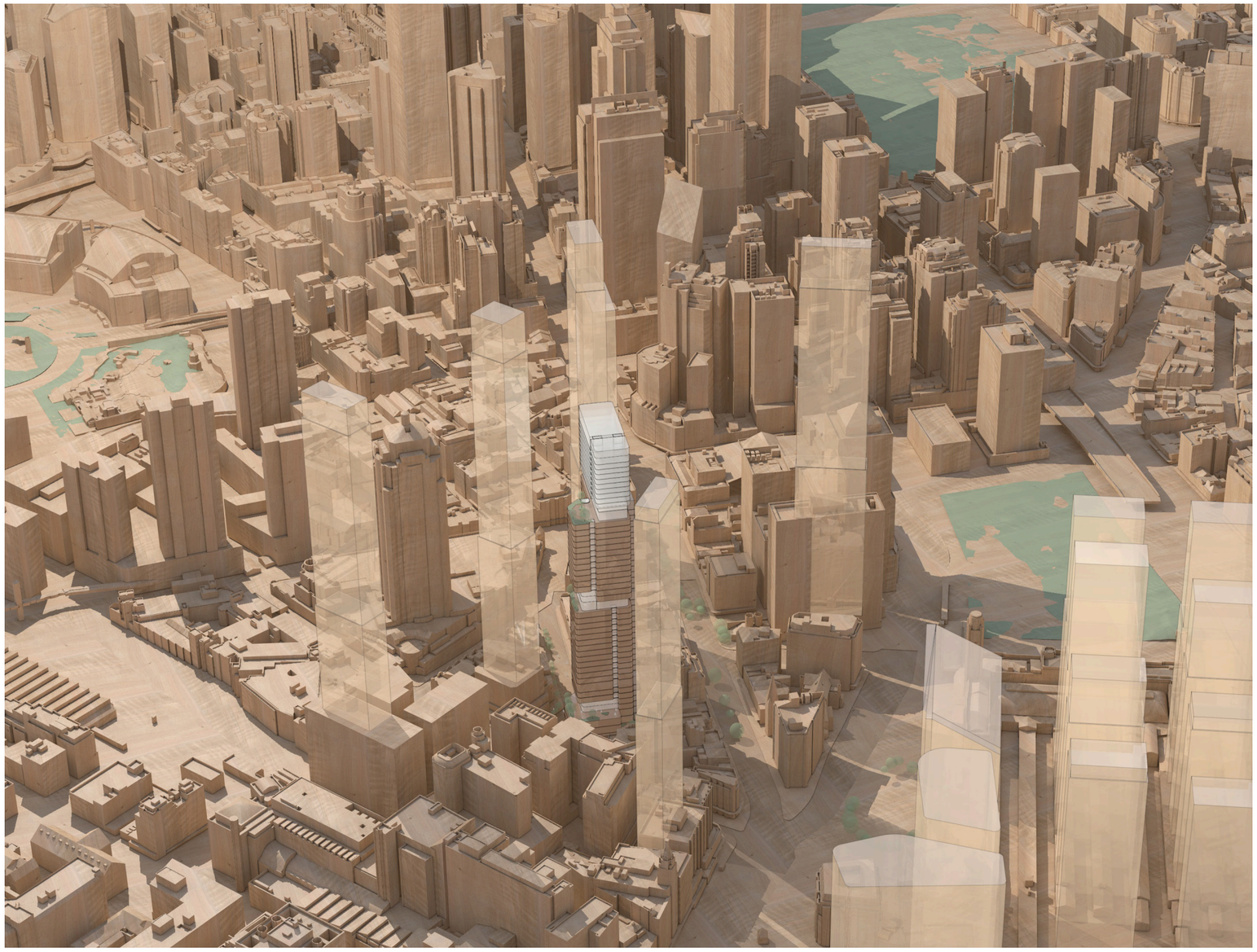


View Study Location Plan

View 8: Podium View From East



View Study Location Plan



Aerial View 9: Tower And Future City Tower Cluster From The South

3.7 Sustainability Initiatives

A sustainable work place, health and wellbeing are the core of this proposal. This is an interconnected hybrid tower with access to fresh, clean air, natural light and a vertical community of innovators and the organisations that support them.

The building will need to pass the ESD site test outlined in the draft Central Sydney Planning Strategy, which represents very high standards of sustainable design and energy performance.

The following initiatives will be implemented to deliver the objectives of the Sydney Development Control Plan (DCP) 2012 along with several other policies influencing development in the Sydney CBD.

_Net zero carbon
_Zero waste
_NABERS Energy 5.5 and NABERS Water 4 in office areas
_NABERS Energy 4.5. and NABERS Water 4 in the hotel areas

In addition, the entire development will implement a range of other sustainability initiatives including the following:

Energy

_Passive design techniques

_High efficiency mechanical / lighting

_High performance glazing

_Photovoltaics

_Metering

Water

_Efficient fixtures and fittings

Waste

_Waste management & operations

Materials

_Recycling / low VOC

Biodiversity and Landscape

_Tree Canopy cover

_Native species

Transport

_Electric vehicle charging stations

_End of trip facilities

Climate Change

_Assessment of risks and potential impacts

Social Sustainability / Community Benefits Initiatives

_Social and cultural infrastructure to enhance the social and cultural life of the locality

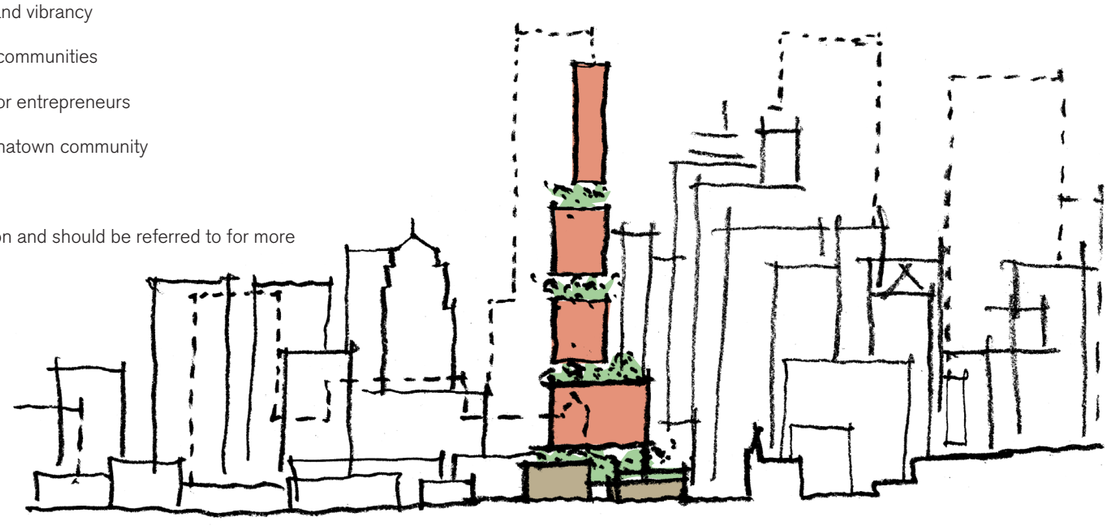
_Public domain enhancements to improve liveability and vibrancy

_Infrastructure tailored to the needs of local student communities

_Infrastructure opportunities for social/ creative sector entrepreneurs

_Culturally-specific responses to the Haymarket/Chinatown community

A comprehensive ESD report is part of this submission and should be referred to for more detail.



4.0 The Vision - A Hybrid Tower

The following sections demonstrate the Preferred Indicative Scheme, with a series of diagrams within the Proposed DCP Envelope. The vision of the project aims to achieve high quality spaces for each use with shared common facilities, yet satisfies all requirements and purposes within a vertical arrangement.

Those visions are listed as below.

4.1 A Hybrid Tower

4.2 Work/Stay/Play/Learn/Rest/ Invent

4.3 Innovation Hub

4.4 Innovation Podium

4.5 Innovation Park

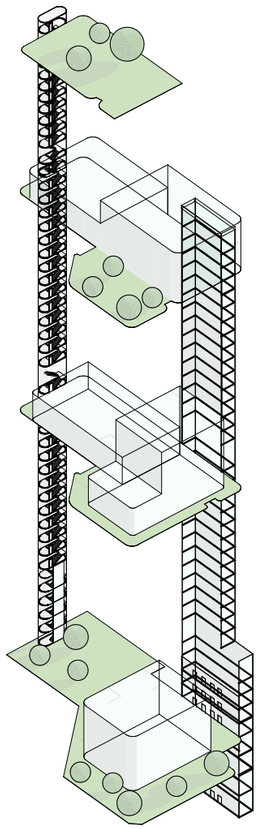
4.6 Innovation Void Tower

4.7 Lifting Diagram

4.8 Lift Lobby Interchange and Hotel Facilities

4.1 A Hybrid Tower

A hybrid tower combines multiple uses within a vertical arrangement, each with their own identity and requirements but sharing common facilities in the way that a horizontal series of buildings would share a city street. Structured around an innovation hub; related functions such as hotel accommodation for business visitors, work space to support startups through education and co-location and retail and event space provide street level common facilities in a vertical village.

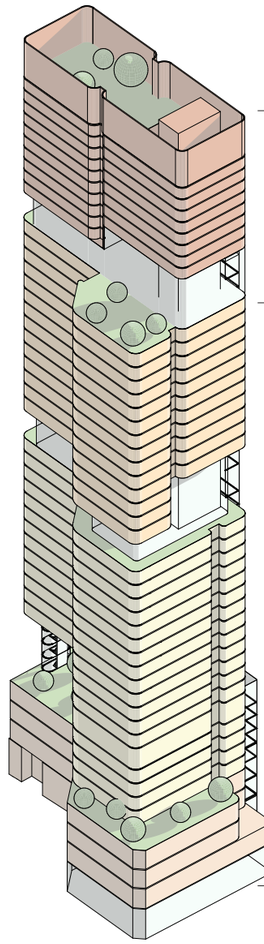


Observation Deck

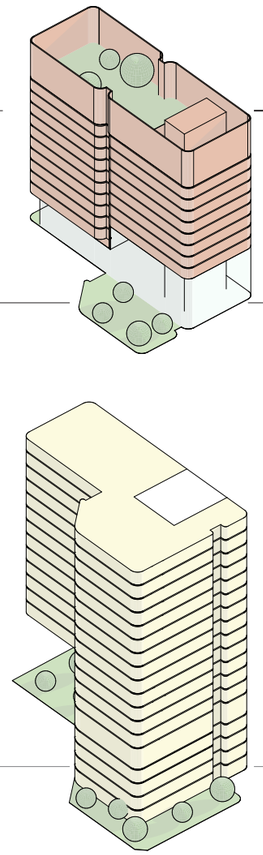
Sky Garden

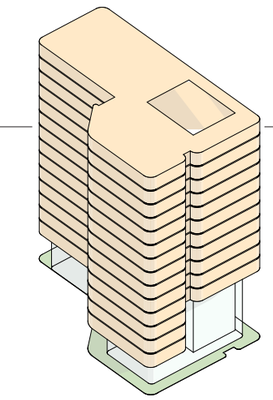
Innovation Park

Vertical Urbanism

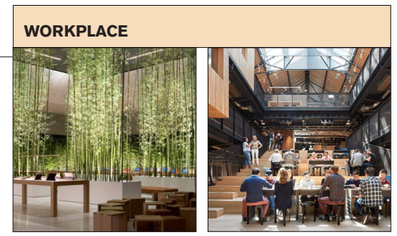


Hybrid Tower





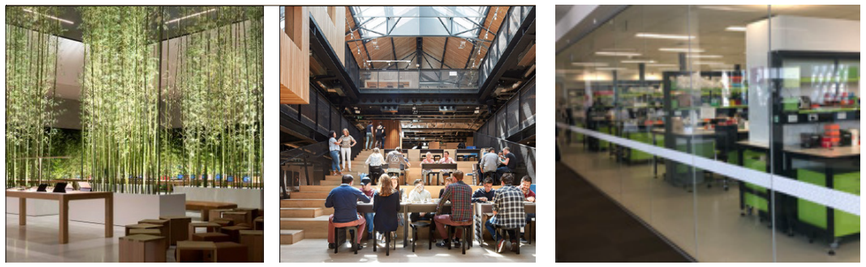
Hybrid Uses



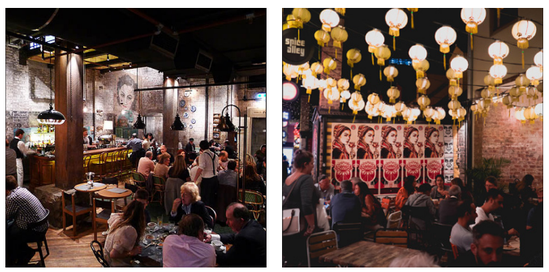
4.2 Work / Stay / Play / Learn / Rest / Invent

The hybrid tower approach combines synergistic spaces built around the daily needs and experiences of the innovator. The innovation hub will have close ties to business and education in the commercial tenancy floors, the hotel will provide short term accommodation for visiting collaborators, dual use event space will cater for both innovation hub and hotel needs, the sky lobby, rooftop terrace, innovation terrace and ground level retail will provide breakout and 3rd spaces for work, rest and networking.

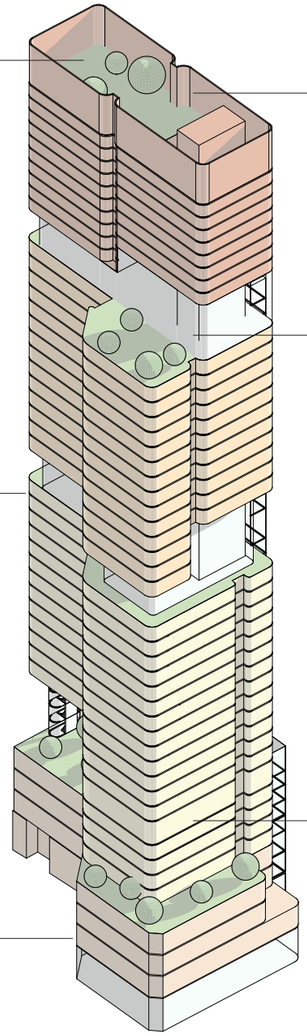
Observation Deck



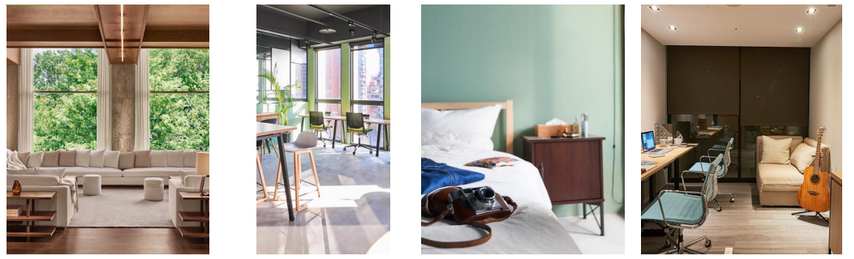
Commercial / Education/ Research



Retail / Entertainment / Collaboration / Education



Hybrid Tower



Integrated Urban Hotel

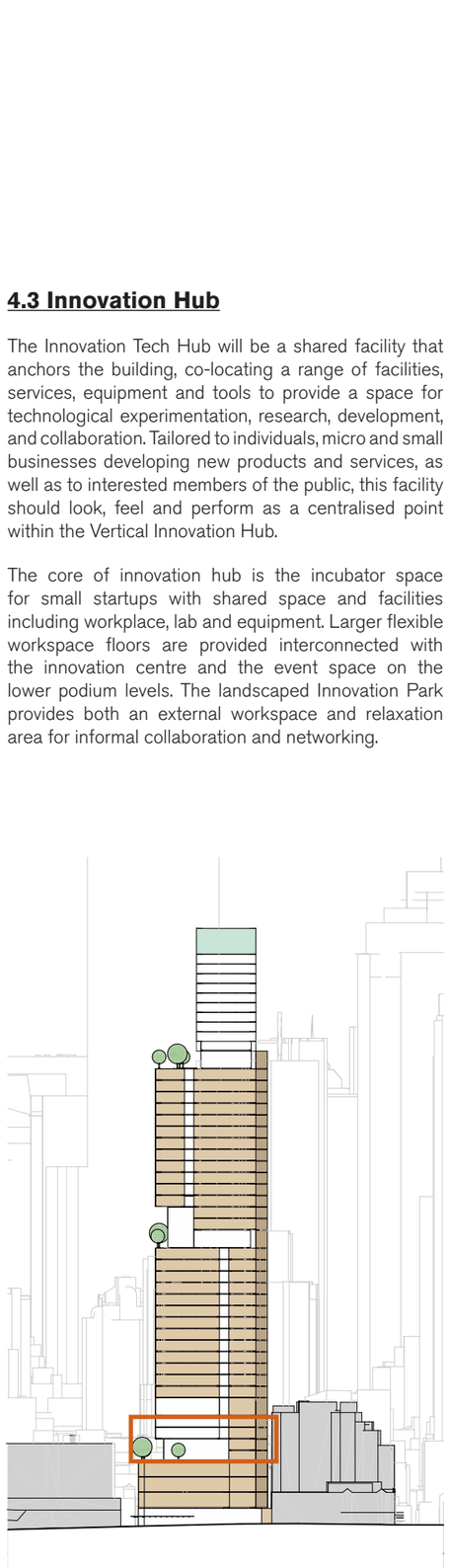
Sky Garden

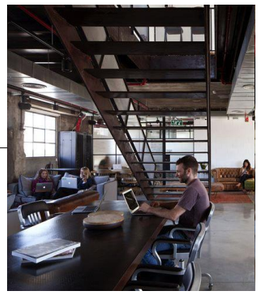
Education And Innovation Hub

4.3 Innovation Hub

The Innovation Tech Hub will be a shared facility that anchors the building, co-locating a range of facilities, services, equipment and tools to provide a space for technological experimentation, research, development, and collaboration. Tailored to individuals, micro and small businesses developing new products and services, as well as to interested members of the public, this facility should look, feel and perform as a centralised point within the Vertical Innovation Hub.

The core of innovation hub is the incubator space for small startups with shared space and facilities including workplace, lab and equipment. Larger flexible workspace floors are provided interconnected with the innovation centre and the event space on the lower podium levels. The landscaped Innovation Park provides both an external workspace and relaxation area for informal collaboration and networking.

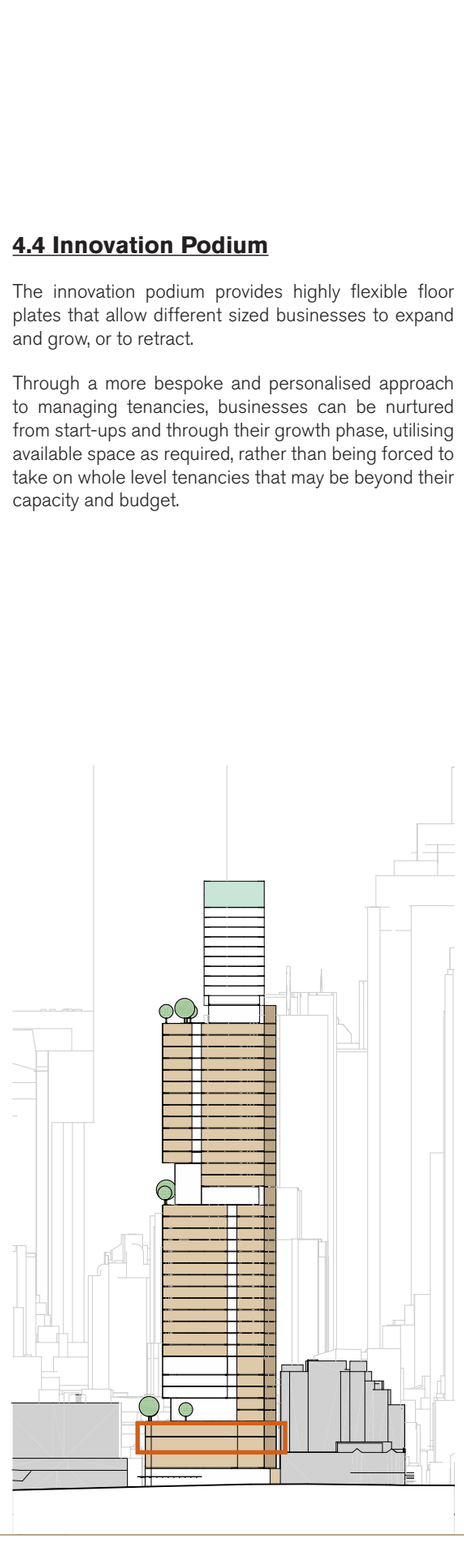




4.4 Innovation Podium

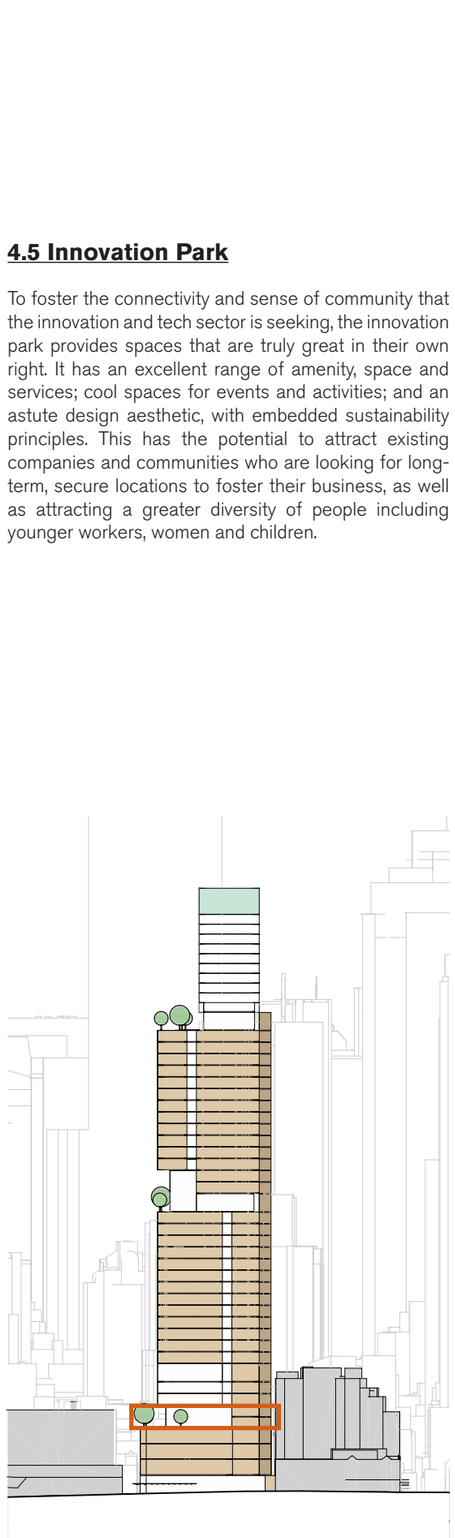
The innovation podium provides highly flexible floor plates that allow different sized businesses to expand and grow, or to retract.

Through a more bespoke and personalised approach to managing tenancies, businesses can be nurtured from start-ups and through their growth phase, utilising available space as required, rather than being forced to take on whole level tenancies that may be beyond their capacity and budget.



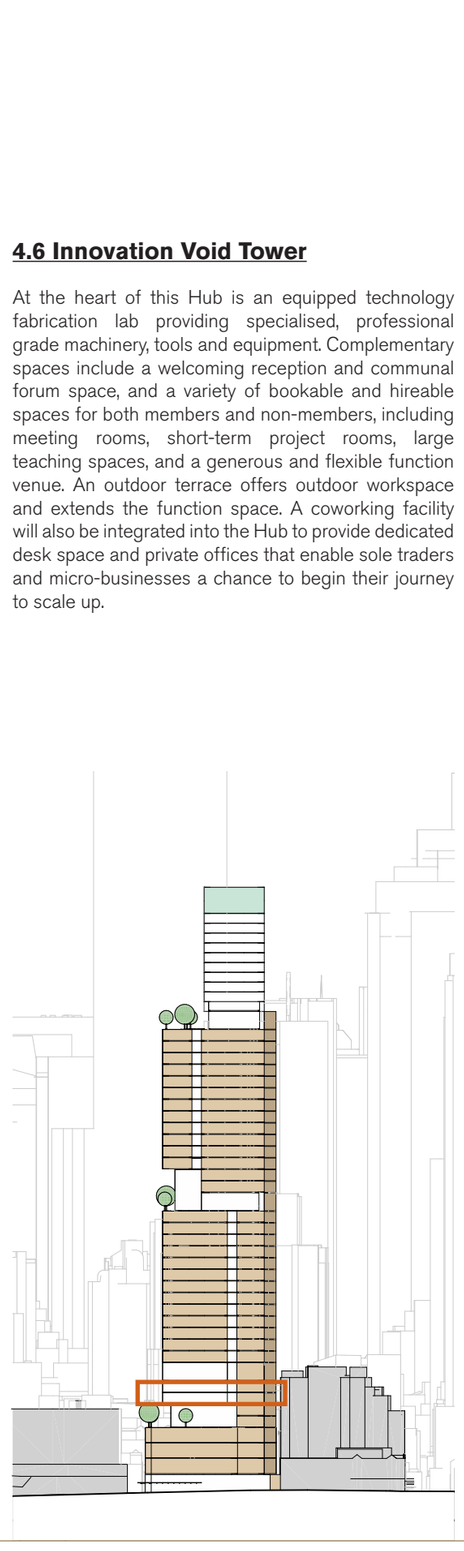
4.5 Innovation Park

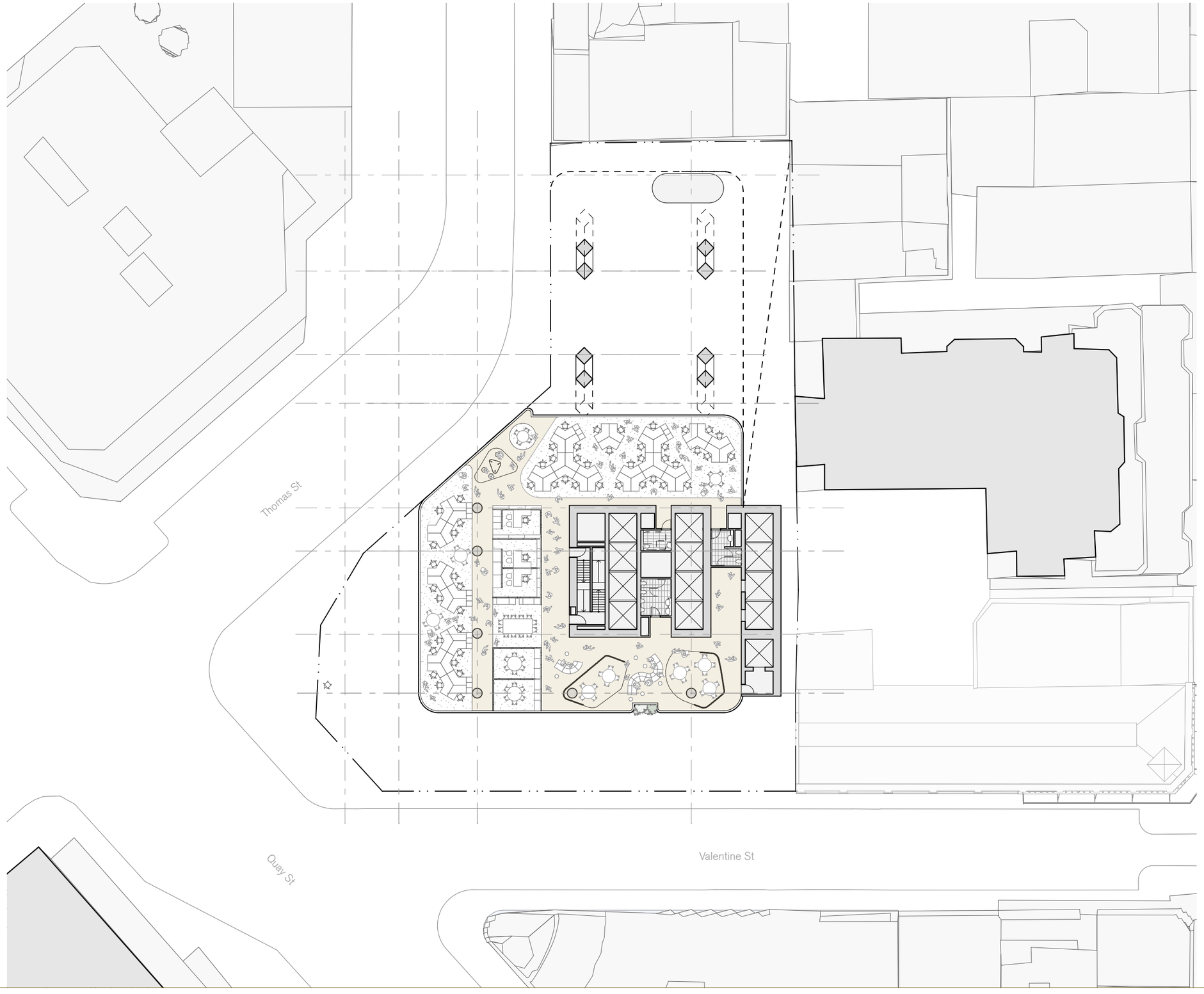
To foster the connectivity and sense of community that the innovation and tech sector is seeking, the innovation park provides spaces that are truly great in their own right. It has an excellent range of amenity, space and services; cool spaces for events and activities; and an astute design aesthetic, with embedded sustainability principles. This has the potential to attract existing companies and communities who are looking for long-term, secure locations to foster their business, as well as attracting a greater diversity of people including younger workers, women and children.



4.6 Innovation Void Tower

At the heart of this Hub is an equipped technology fabrication lab providing specialised, professional grade machinery, tools and equipment. Complementary spaces include a welcoming reception and communal forum space, and a variety of bookable and hireable spaces for both members and non-members, including meeting rooms, short-term project rooms, large teaching spaces, and a generous and flexible function venue. An outdoor terrace offers outdoor workspace and extends the function space. A coworking facility will also be integrated into the Hub to provide dedicated desk space and private offices that enable sole traders and micro-businesses a chance to begin their journey to scale up.



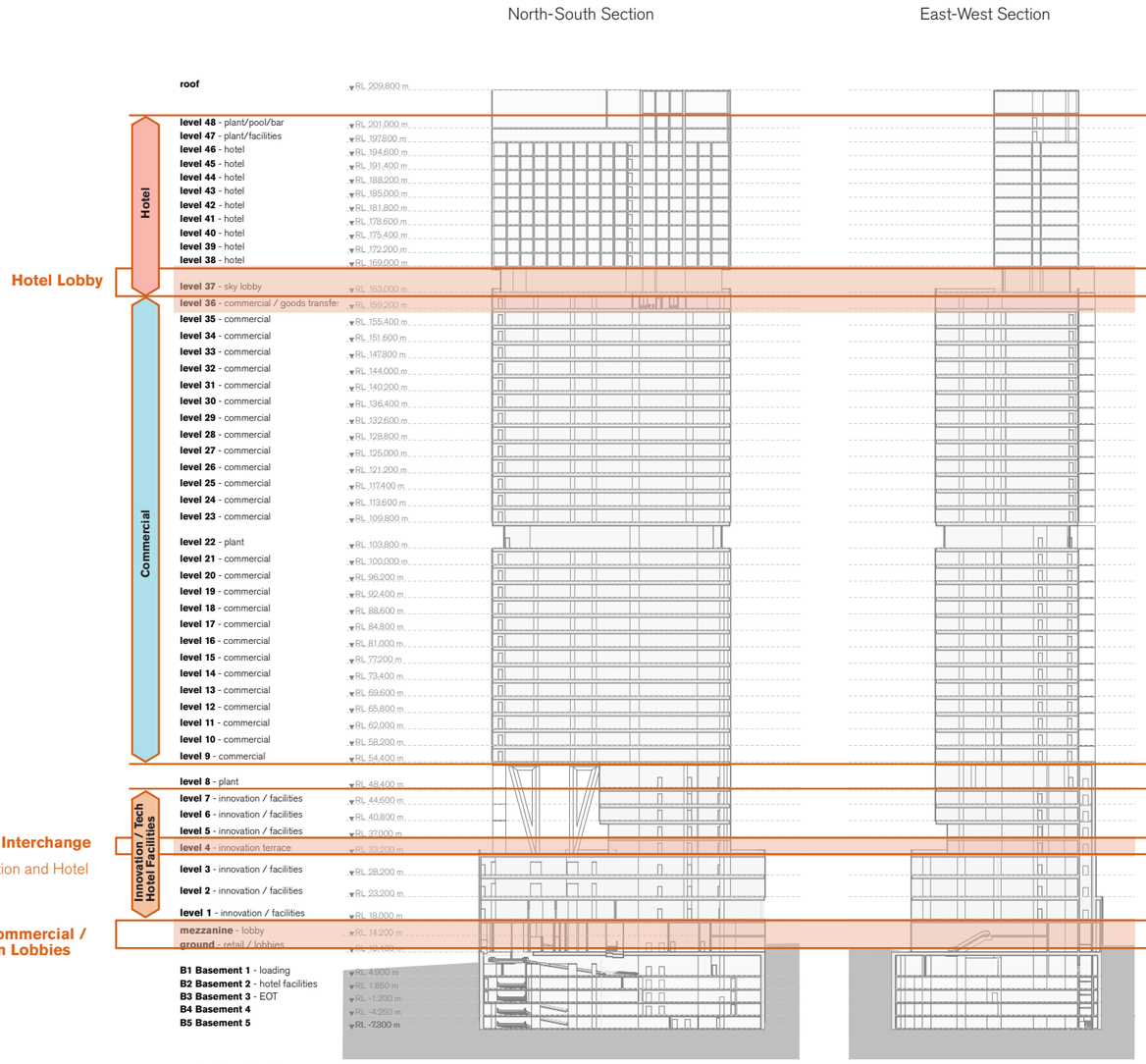


4.7 Lifting Diagram

A hybrid tower requires a variation in the lifting strategy where, instead of all lifts going to ground, there are a series of destinations throughout the tower commonly served by lifts from the various components.

Express lifts run from ground and stop at the Innovation hub and the sky lobby. Both rises of commercial lifts also stop at the innovation hub as well as the dedicated innovation hub lifts.

Double decker lifts are used to take advantage of the natural topography for lift access and a more efficient core footprint.

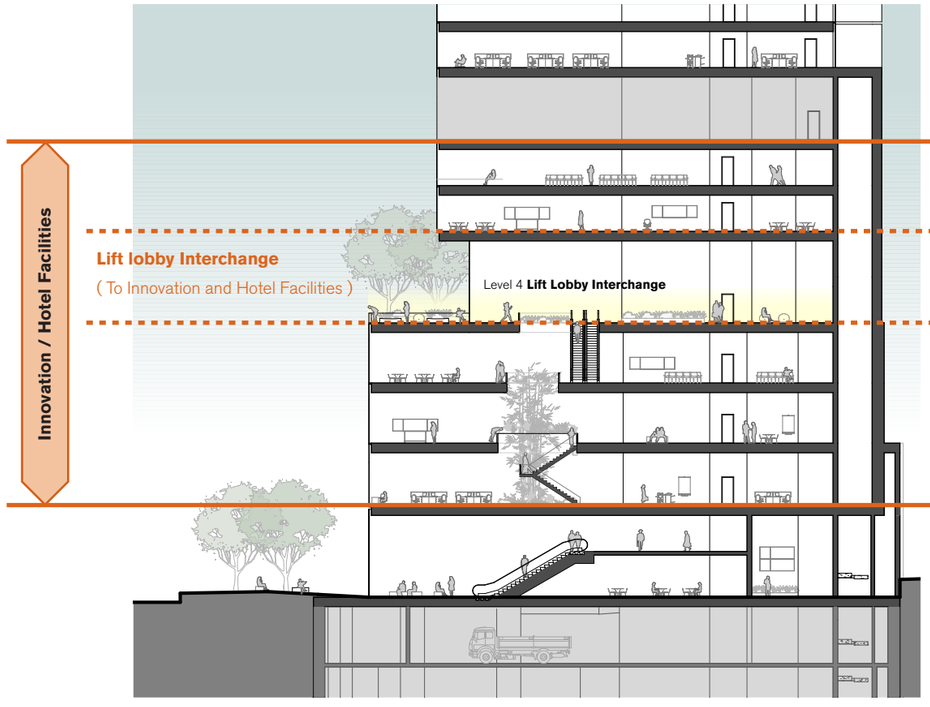


Lift Lobby Locations In Section Diagram

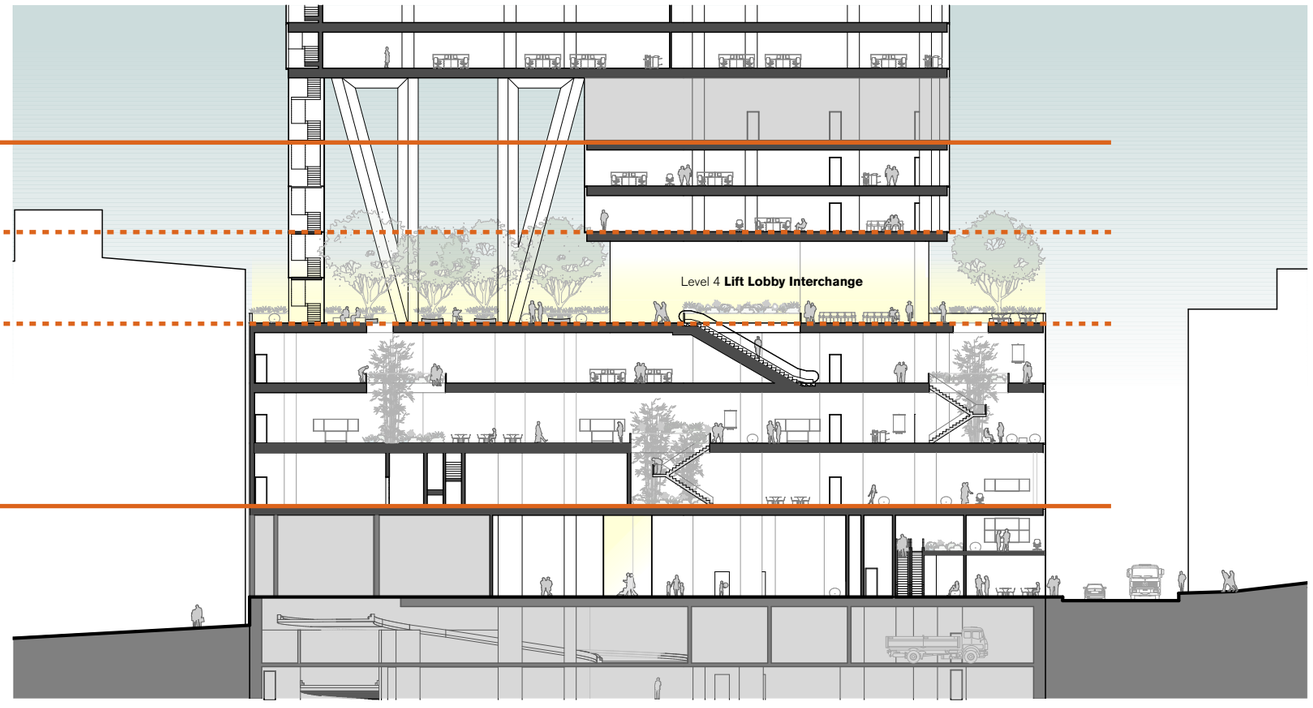
Lifting Diagram

4.8 Lift Lobby Interchange and Hotel Facilities

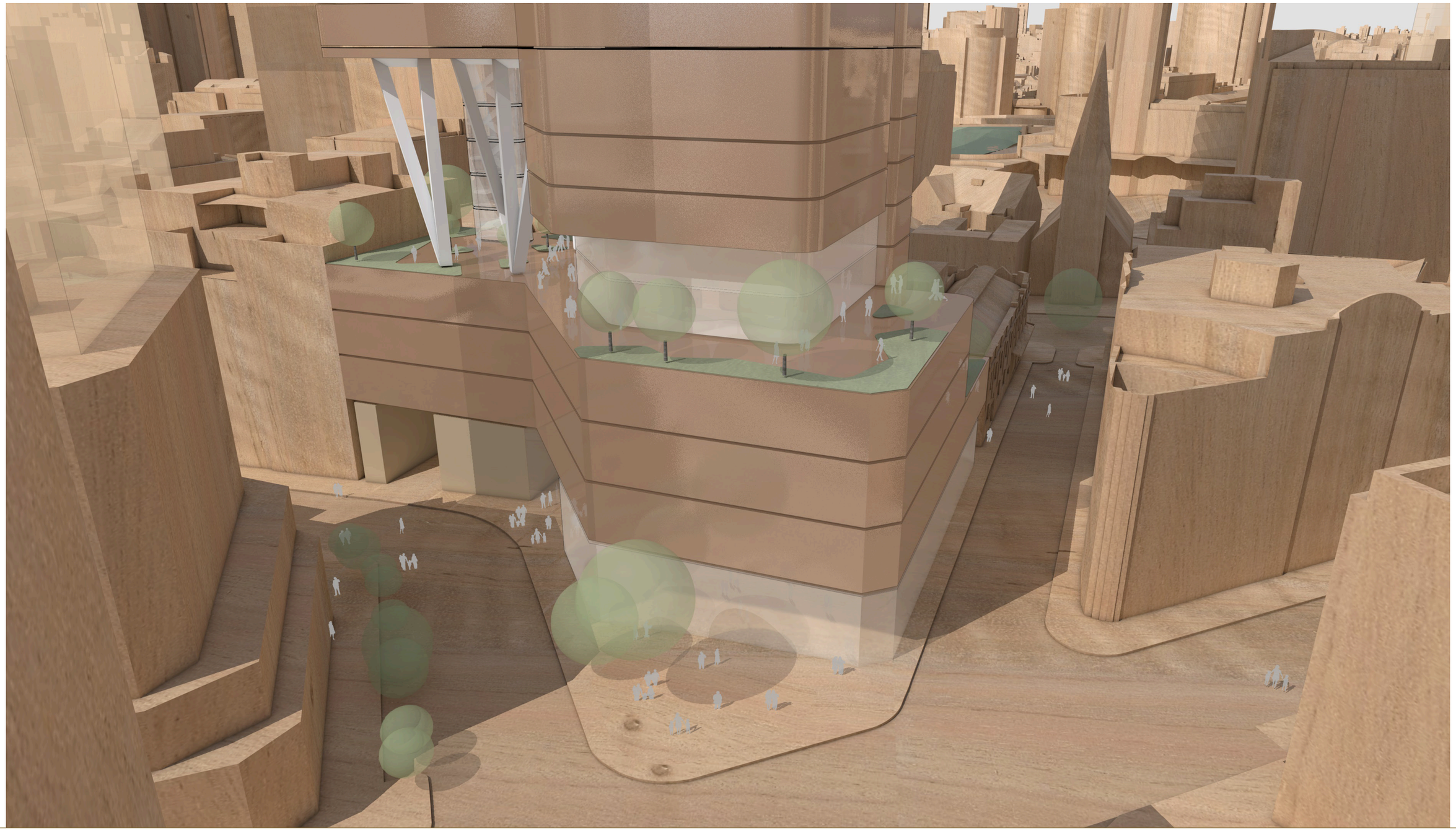
The Lift Lobby Interchange was introduced on Level 4, where the lifts of all uses stop and access to the Innovation and the Hotel facilities. This floor is vertically well connected with the other podium floors by series of voids, open stairs and escalators which facilitates the multi story activities and interactions between different uses. The Innovation Park was also located on this floor, which provides an excellent range of amenity, spaces and services for events and activities to the all uses within the tower.



North-South Section - Innovation / Hotel Facilities and Vertical connections



East-West Section - Innovation / Hotel Facilities and Vertical connections



5.0 DEVELOPMENT OPTIONS CONSIDERED

Development Options considered are explained over the following pages.

5.1 Summary of Uses and Options Considered

5.2 Consideration of Uses

5.3 Consideration of Lifting Strategy

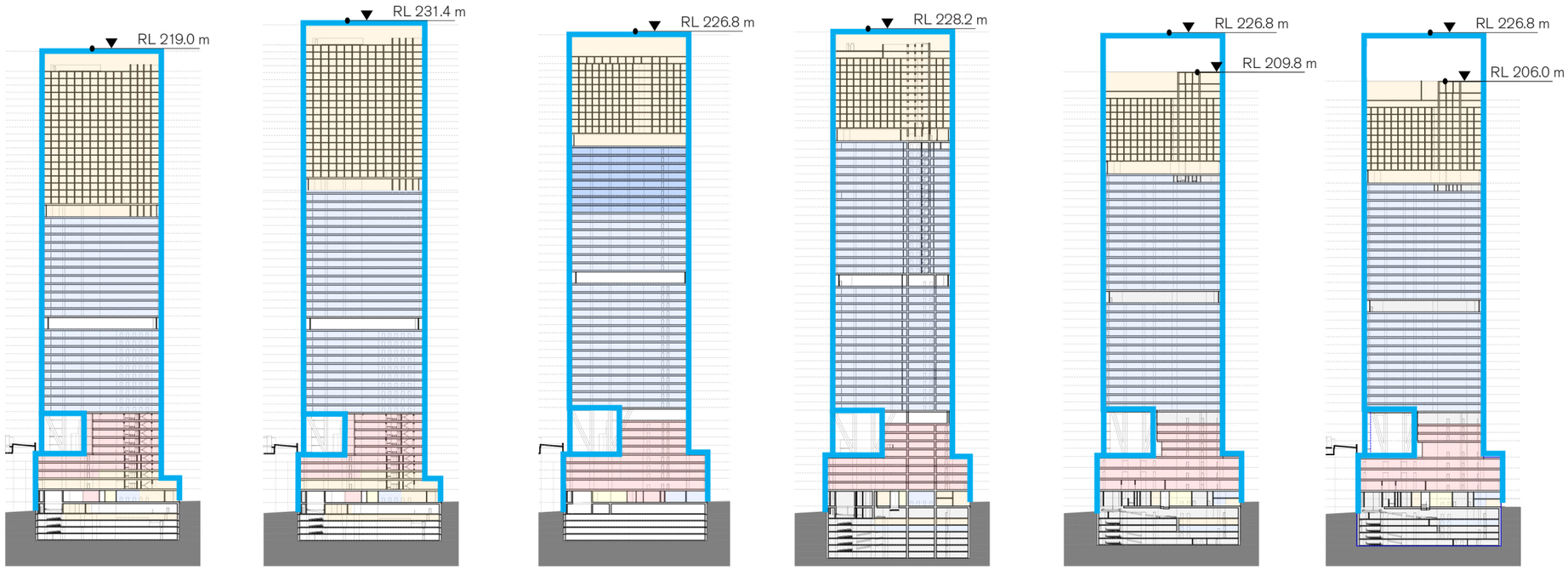
5.4 Proposed DCP Envelope & Proposed Indicative Schemes

5.5 Comparison Between Preferred Indicative Scheme FSR 22:1 & Alternate Indicative Scheme FSR 20:1

5.1 Summary of Uses and Options Considered

During the course of exploring the combination of the optimum combination and size of the various components of the hybrid tower and the capacity of the site based on the environmental performance and servicing constraints, numerous options were considered and analysed. Five of these options are presented here to summarise the factors which have contributed to the preferred Option.

The following pages compare land use mix, the impact and potential of the vertical transportation strategy, relationship with the envelope which satisfies the environmental performance criteria and a comparison of the primary differences between the Preferred and Alternate Indicative schemes.



Development Mix Options	Option 3A	Option 3B	Option 5B	Option 5D	Option 5E	Option 5E
Height	RL 219.0 m	RL 231.4 m	RL 226.8 m	RL 228.2 m	RL 209.8 m	RL 206.0 m
FSR	25.13:1	25.62:1	25:1	25.82:1	22:1	20:1
GFA	56,500 sqm	60,200 sqm	59,800 sqm	60,700 sqm	51,700 sqm	47,000 sqm
Levels	54	57	54	55	49	47
Lifting Strategy	Conventional Lifting	Conventional Lifting	Conventional Lifting	Double-Deck Lifting	Double-Deck Lifting	Double-Deck Lifting
Uses	Hotel: 23,000 sqm (18 Levels) Commercial: 26,000 sqm (23 Levels) Innovation: 7,000 sqm	Hotel: 23,000 sqm (18 Levels) Commercial: 30,000 sqm (26 Levels) Innovation: 7,000 sqm	Hotel: 16,000 sqm (10 Levels) Commercial: 37,000 sqm (31 Levels) Innovation: 6,000 sqm	Hotel: 12,000 sqm (10 Levels) Commercial: 38,000 sqm (31 Levels) Innovation: 10,000 sqm	Hotel: 11,000 sqm (9 Levels) Commercial: 33,000 sqm (27 Levels) Innovation: 7,500 sqm	Hotel: 10,000 sqm (9 Levels) Commercial: 32,000 sqm (27 Levels) Innovation: 5,100 sqm
Daylight Compliance as per Schedule 11	Average SVF: 32.883181% Complied	Average SVF: 32.882224% Complied	Average SVF: 32.915356% Complied	Average SVF: 32.882374% Complied	Average SVF: 32.949525% Complied	Average SVF: 32.949525% Complied
Wind Compliance as per Schedule 11	Complied	N/A	Complied	N/A	N/A	N/A

Hotel

Commercial / Retail

Innovation / Facilities

Proposed DCP Envelope

Preferred Indicative Scheme

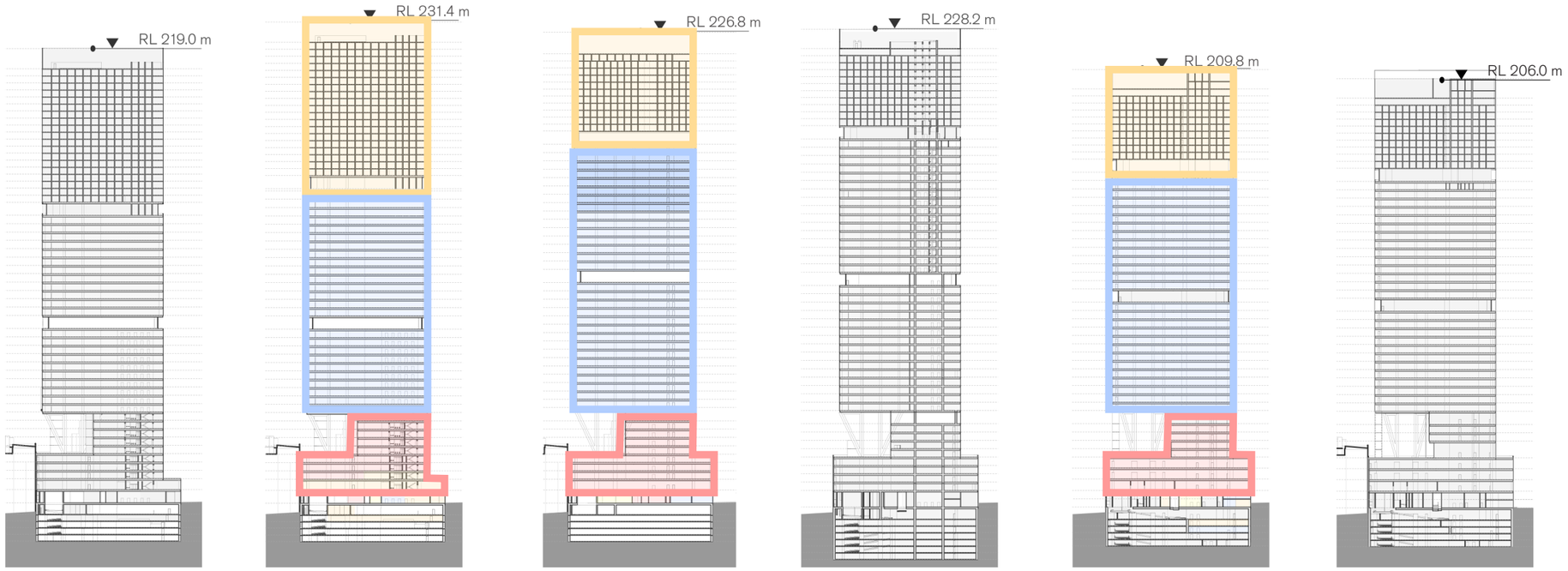
Alternate Indicative Scheme

5.2 Consideration of Uses

The hybrid tower concept with Innovation hub balances the proportions and absolute sizes of the land use components.

Market testing has indicated that a circa 200 room hotel is an appropriate size in combination with the innovation hub and commercial component. Variations of overall floor space scale the amount of commercial and innovation space provided.

As the core revenue generates for the tower circa 30,000m2 of commercial space are required to fund the project.



Development Mix Options	Option 3A	Option 3B	Option 5B	Option 5D	Option 5E	Option 5E
FSR	25.13:1	25.62:1	25:1	25.82:1	22:1	20:1
GFA	56,500 sqm	60,200 sqm	59,800 sqm	60,700 sqm	51,700 sqm	47,000 sqm
Uses	Hotel: 23,000 sqm (18 Levels) Commercial: 26,000 sqm (23 Levels) Innovation: 7,000 sqm	**Hotel**: 23,000 sqm (18 Levels) **Commercial**: 30,000 sqm (26 Levels) **Innovation**: 7,000 sqm	**Hotel**: 16,000 sqm (10 Levels) **Commercial:** 37,000 sqm (31 Levels) **Innovation**: 6,000 sqm	Hotel: 12,000 sqm (10 Levels) Commercial: 38,000 sqm (31 Levels) Innovation: 10,000 sqm	**Hotel**: 11,000 sqm (9 Levels) **Commercial**: 33,000 sqm (27 Levels) **Innovation**: 7,500 sqm	Hotel: 10,000 sqm (9 Levels) Commercial: 32,000 sqm (27 Levels) Innovation: 5,100 sqm
			Proposed DCP Envelope		Preferred Indicative Scheme	Alternate Indicative Scheme

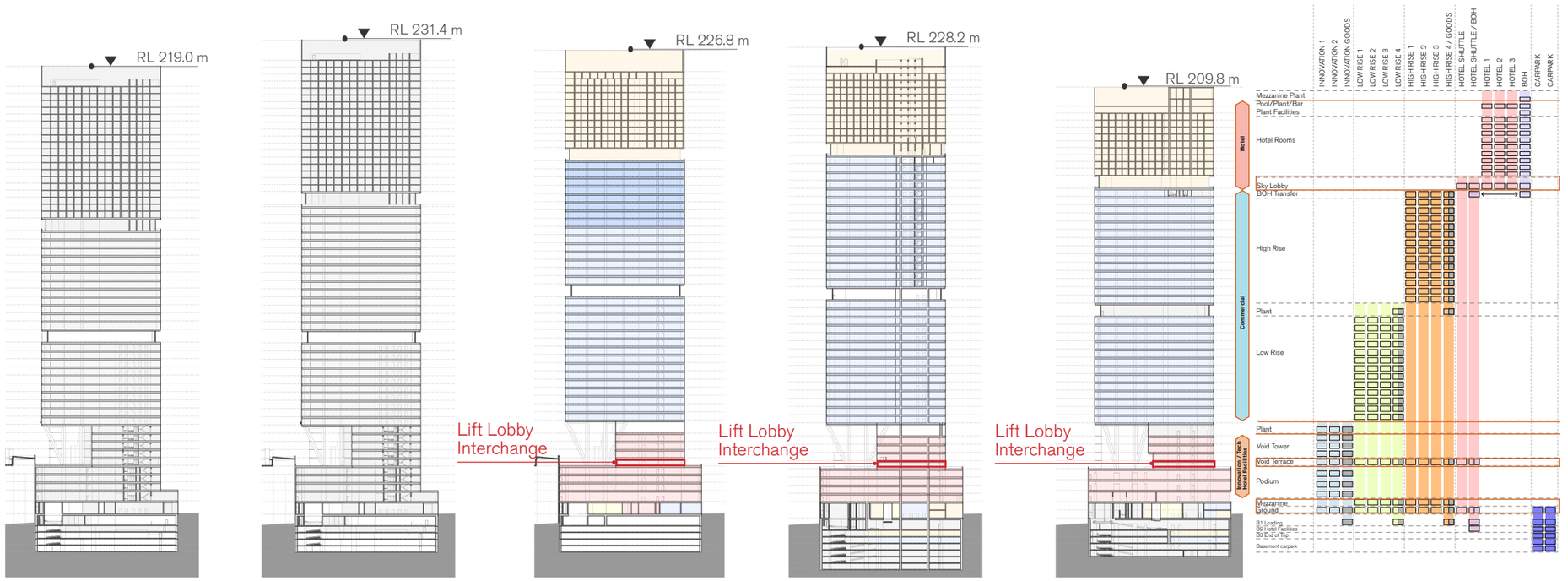
Hotel

Commercial / Retail

Innovation / Facilities

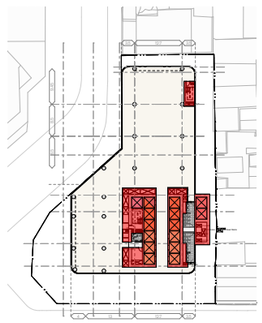
5.3 Consideration of Lifting Strategy

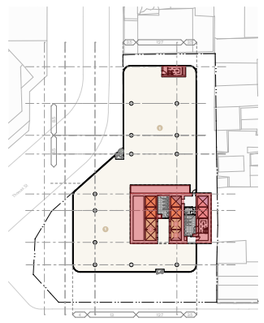
The vertical transportation strategy for the hybrid tower seeks to provide innovative lifting solutions appropriate for the innovation focus and the vertical community of the hybrid tower. A double deck lift increases area efficiency and the potential typical floor plate size within the same building envelope, noticeably improving envelope efficiency.



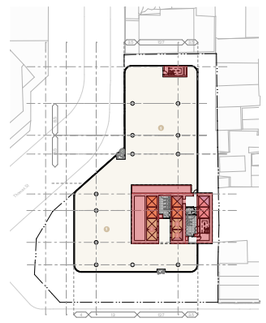
Development Mix Options	Option 3A	Option 3B	Option 5B	Option 5D	Option 5E
FSR	25.13:1	25.62:1	25:1	25.82:1	22:1
GFA	56,500 sqm	60,200 sqm	59,800 sqm	60,700 sqm	51,700 sqm
Uses	Hotel: 23,000 sqm (18 Levels) Commercial: 26,000 sqm (23 Levels) Innovation: 7,000 sqm	Hotel: 23,000 sqm (18 Levels) Commercial: 30,000 sqm (26 Levels) Innovation: 7,000 sqm	Hotel: 16,000 sqm (10 Levels) Commercial: 37,000 sqm (31 Levels) Innovation: 6,000 sqm	Hotel: 12,000 sqm (10 Levels) Commercial: 38,000 sqm (31 Levels) Innovation: 10,000 sqm	Hotel: 11,000 sqm (9 Levels) Commercial: 33,000 sqm (27 Levels) Innovation: 7,500 sqm
Lifting Strategy	Conventional Lifting	Conventional Lifting	**Conventional Lifting**	**Double-Deck Lifting**	**Double-Deck Lifting**

Proposed DCP Envelope





Preferred Indicative Scheme



Hotel

Commercial / Retail

Innovation / Facilities

Refer to 4.7 Lifting Diagram & Appendix O - 'Floor Space Efficiency' for more detail

5.4 Proposed DCP Envelope & Proposed Indicative Schemes

The above sections summarize the design exercise undertaken where various use combinations, configurations and design efficiency, including lifting strategies, were considered and tested for compliance to SVF and Wind Tunnel criteria, and compliance with other environmental criteria.

The exercise concluded with an option 5B and option 5D, where both would allow approx. 25:1 FSR with effectively the same envelope.

Option 5B was Wind Tunnel tested and option 5D utilized a double-deck lifting strategy to achieve higher internal efficiency with the same envelope.

Option 5D was the option included in the presentation to the 'Pre-Planning Proposal' meeting with council on 12 February 2020. (Figure 1: **Proposed DCP Envelope**)

However, at the 'Pre-Planning Proposal' meeting, Council expressed concern regarding an FSR at 25:1. Accordingly, various schemes have been investigated down to a scheme at FSR 20:1.

In the above sections 5.1 to 5.3. option 5E was introduced as a FSR 22:1 scheme or a 20:1 scheme, to assess a reduced FSR.

The outcome of the investigation is that the physical benefit of FSR 22:1 (21.5:1 above ground) reduced to FSR 20:1 (20:1 above ground) is not discernible.

The bulk, height, scale is not visibly or tangibly different and it is conventionally accepted that FSR is not the normal measure used to control bulk, height & scale.

Accordingly, the Planning Proposal includes two schemes, both comfortably accommodated within the Proposed DCP Envelope namely;

Preferred Indicative Scheme FSR 22:1 with FSR 21.5 :1 above ground (Figure 2)

Alternate Indicative Scheme FSR 20:1 with FSR 20:1 above ground (Figure 3)

Hotel

Commercial / Retail

Innovation / Facilities

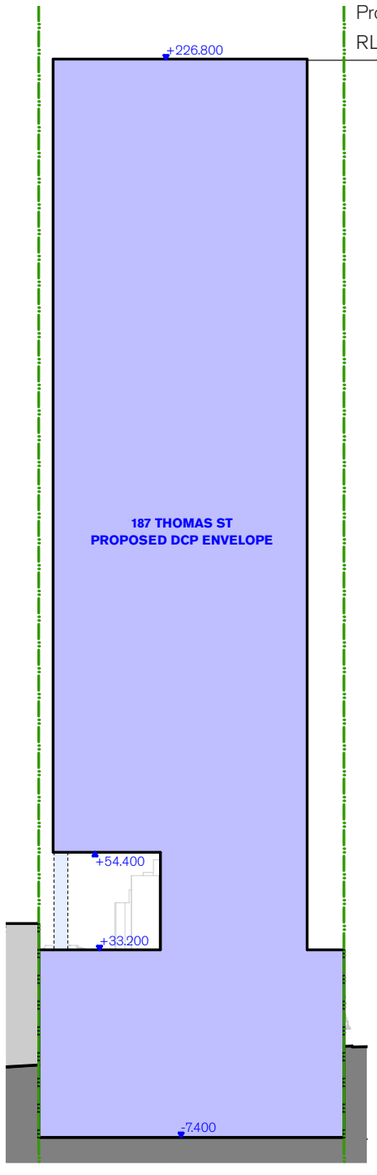


Figure 1. Proposed DCP Envelope
(also Refer to Appendix D)

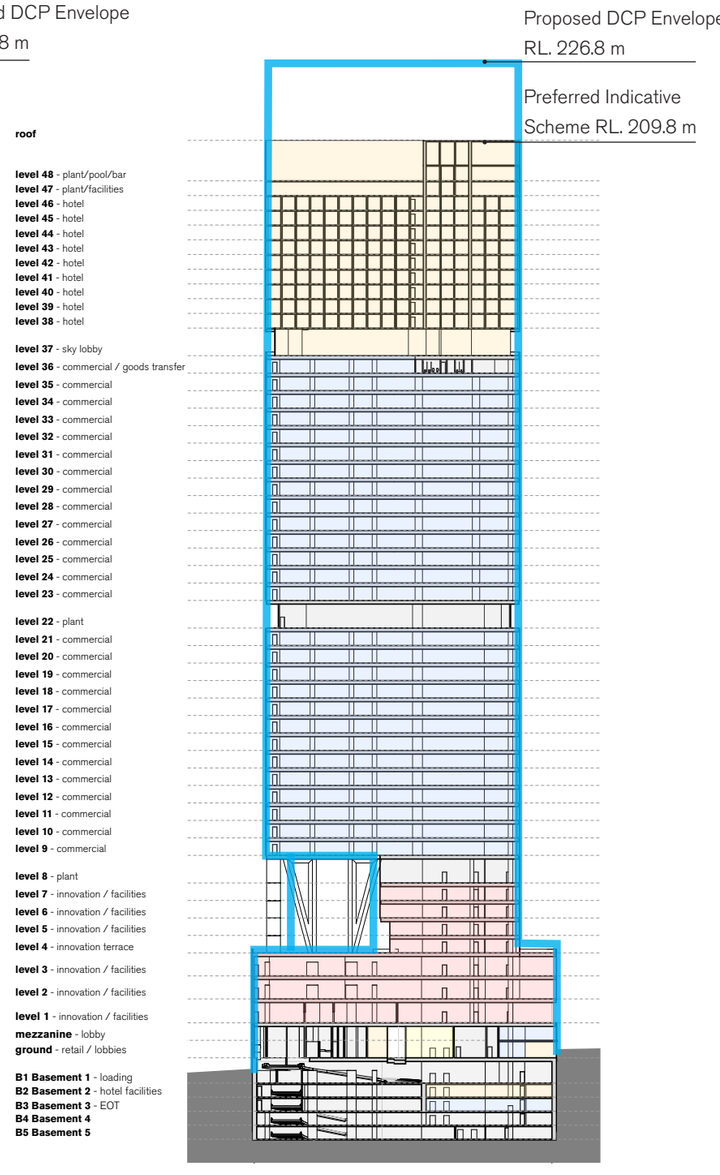


Figure 2. Preferred Indicative Scheme
(also Refer to Appendix B)

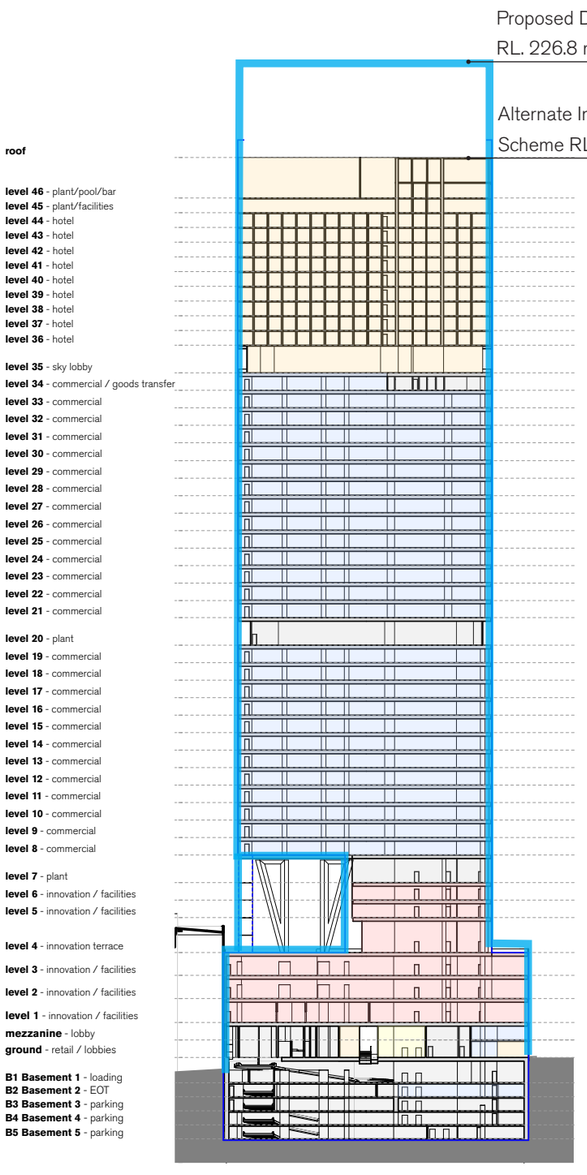
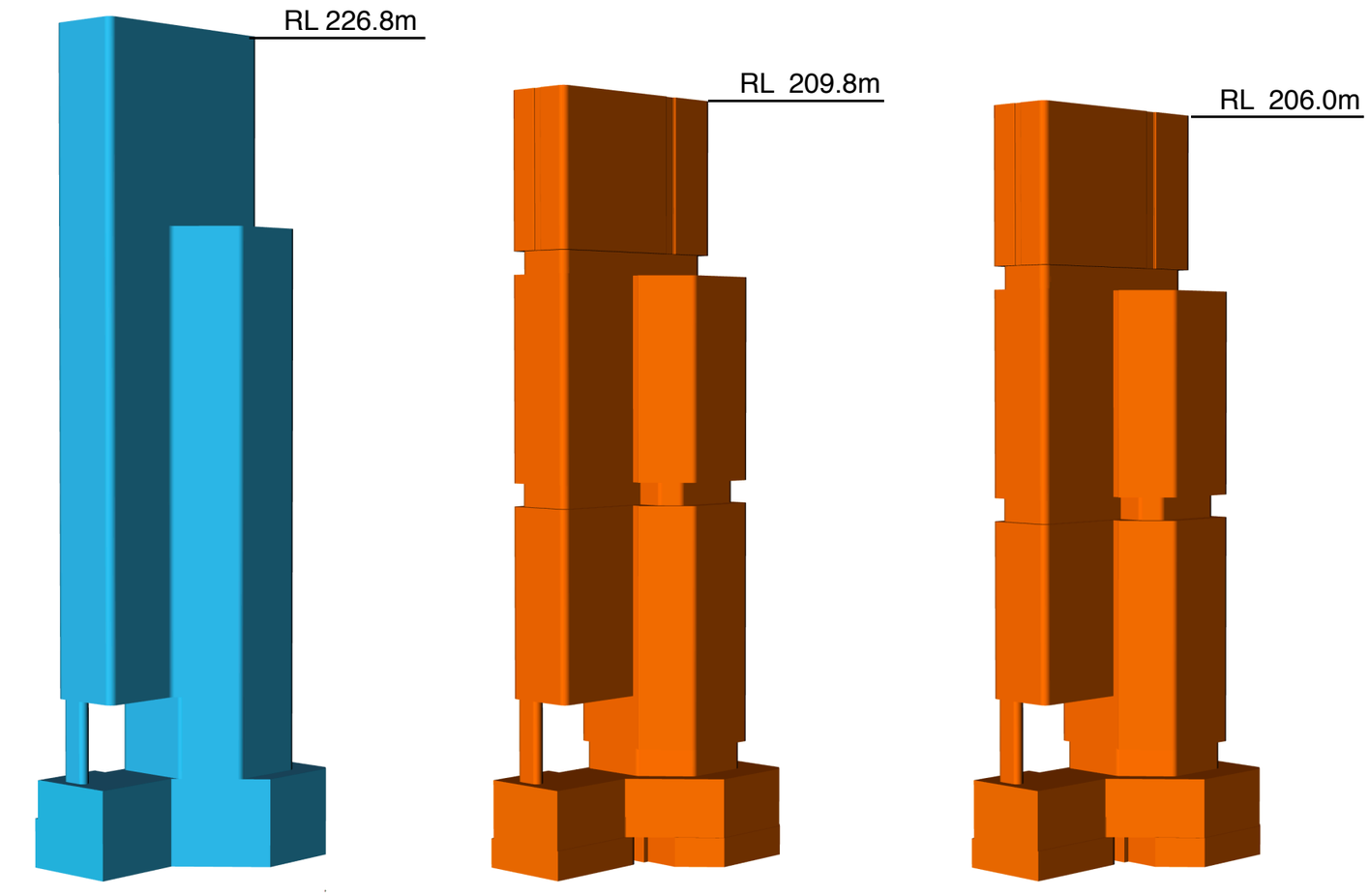


Figure 3. Alternate Indicative Scheme
(also Refer to Appendix C)

Also Figure 4: Diagrammatic 3D envelopes below, provides a simple comparison of the **Proposed DCP Envelope, Preferred Indicative Scheme & Alternate Indicative Sceheme.**

Both **Preferred indicative Scheme** and **Alternate indicative Scheme** comfortably sit within the **Proposed DCP Envelope.**

Section 5.5 following provides a comparison section of the Preferred Indicative Scheme and the Alternate Indicative Scheme, noting the key physical differences.



Proposed DCP Envelope
320,849 m^3

Preferred Indicative Scheme FSR 22:1
272,540 m^3

Occupancy Ratio
85%

Architectural Articulation
15%

Alternate Indicative Scheme FSR 20:1
266,970 m^3

Occupancy Ratio
83%

Architectural Articulation
17%

Figure 4. Diagrammatic 3D Envelopes

5.5 Comparison Between Preferred Indicative Scheme FSR 22:1 & Alternate Indicative Scheme FSR 20:1

The Alternate Indicative Scheme was introduced based on the request from the council to reduce FSR to 20:1.

The Alternate Indicative Scheme presents a 4,683m2 GFA reduction compared to the Preferred Indicative Scheme to achieve the alternate FSR 1:20. The areas were adjusted based on the below strategies, which are illustrated in the comparison diagrams on this page.

- To retain a viable Hotel the rooms component was not reduced.
- One level of the Low-Rise Commercial Floor was removed.
- The underside of the Commercial component is a fixed RL to create a VOID to benefit the adjoining neighbors.
- The bottom of the VOID is a fixed RL, being the street wall height of the Podium.
- An additional double height space is added to the terrace level of the innovation hub, in addition to the increased floor to floor height and void allowance in the preferred scheme
- The "quality" large floor plates are retained for the proposed Campus Style Tech Hub Floors.
- The hotel facilities in basement was relocated to the upper levels.

The design analysis in the report concludes that the Proposed DCP Envelope is a comfortable built form in the location which is the real test of what would be an appropriate FSR. It also meets all environmental controls of the CSPS/ Schedule 11.

While SVF and Wind Impacts would allow a FSR 25:1 scheme both Preferred and Alternate Indicative Scheme have responded to council's request for a lower FSR.. Both schemes comfortably fit within the proposed DCP envelope. The comparison diagrams illustrate with very little visual difference between the two reference schemes.

roof

level 48 - plant/pool/bar
level 47 - plant/facilities
level 46 - hotel
level 45 - hotel
level 44 - hotel
level 43 - hotel
level 42 - hotel
level 41 - hotel
level 40 - hotel
level 39 - hotel
level 38 - hotel

level 37 - sky lobby
level 36 - commercial / goods transfer
level 35 - commercial
level 34 - commercial
level 33 - commercial
level 32 - commercial
level 31 - commercial
level 30 - commercial
level 29 - commercial
level 28 - commercial
level 27 - commercial
level 26 - commercial
level 25 - commercial
level 24 - commercial
level 23 - commercial

level 22 - plant
level 21 - commercial
level 20 - commercial
level 19 - commercial
level 18 - commercial
level 17 - commercial
level 16 - commercial
level 15 - commercial
level 14 - commercial
level 13 - commercial
level 12 - commercial
level 11 - commercial
level 10 - commercial
level 9 - commercial

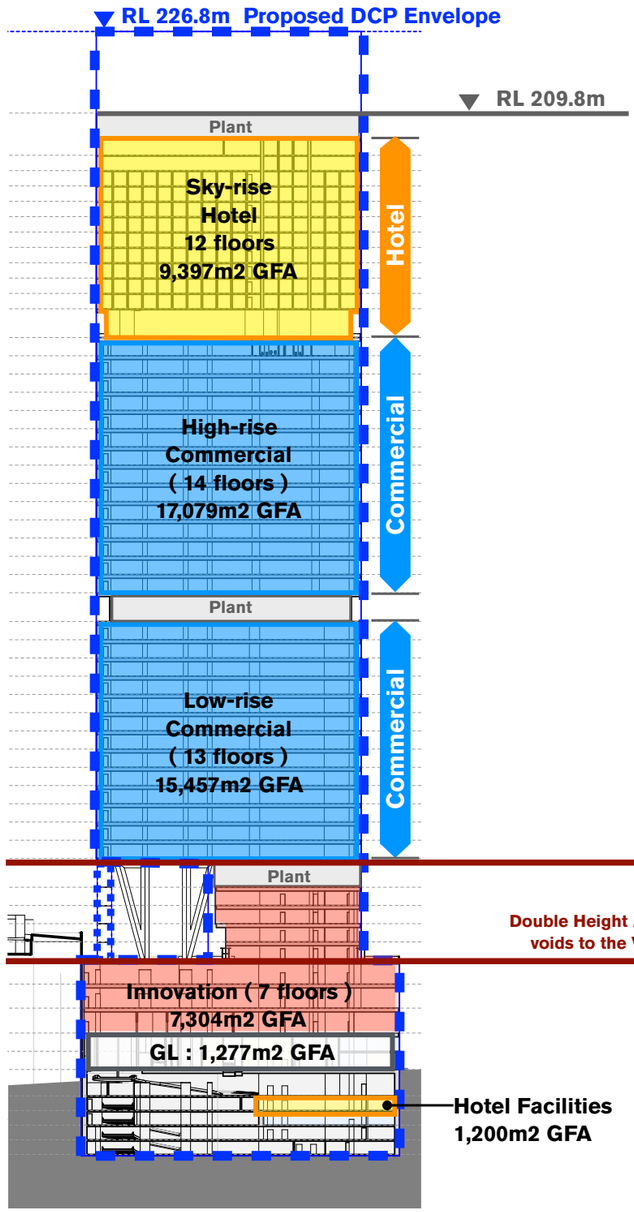
level 8 - plant
level 7 - innovation / facilities
level 6 - innovation / facilities
level 5 - innovation / facilities
level 4 - innovation terrace

level 3 - innovation / facilities

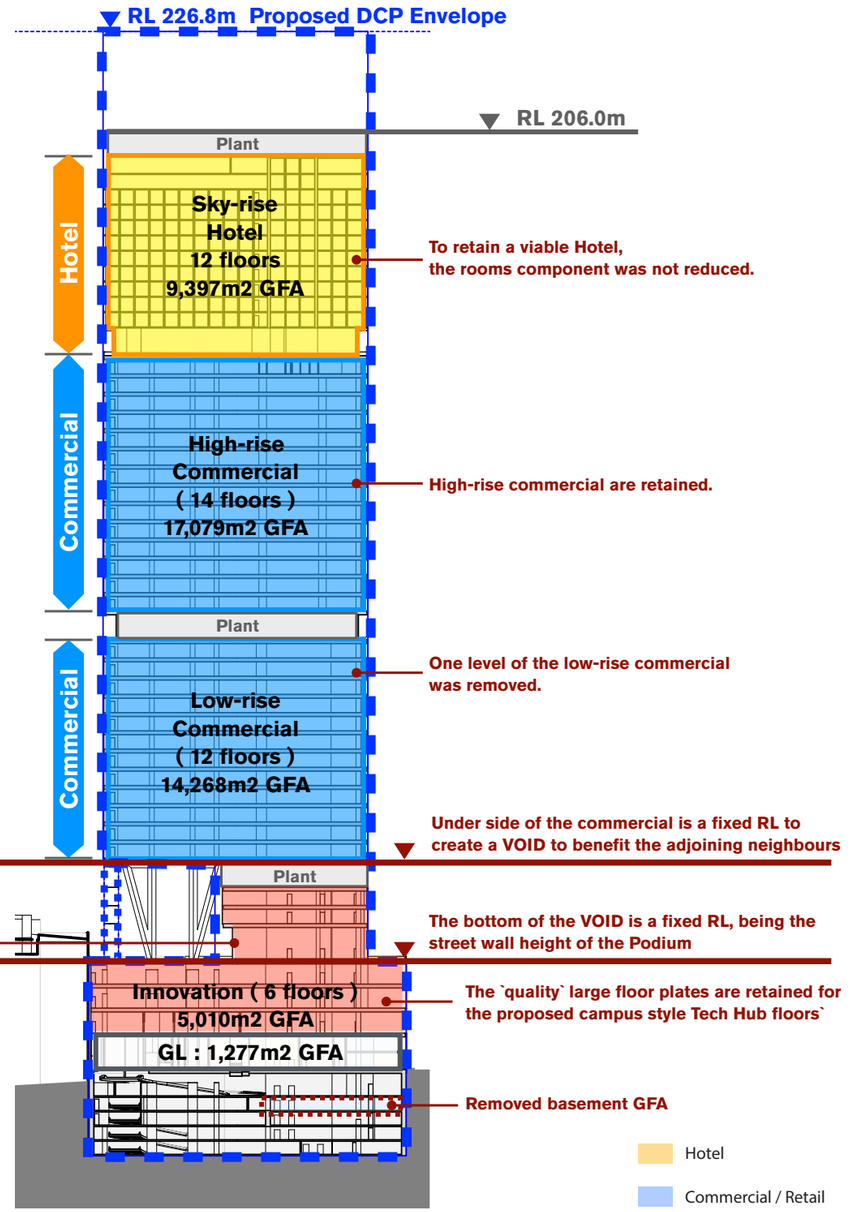
level 2 - innovation / facilities

level 1 - innovation / facilities
mezzanine - lobby
ground - retail / lobbies

B1 Basement 1 - loading
B2 Basement 2 - hotel facilities
B3 Basement 3 - EOT
B4 Basement 4
B5 Basement 5



Preferred Indicative Scheme FSR 22:1
Total GFA : 51,714m2

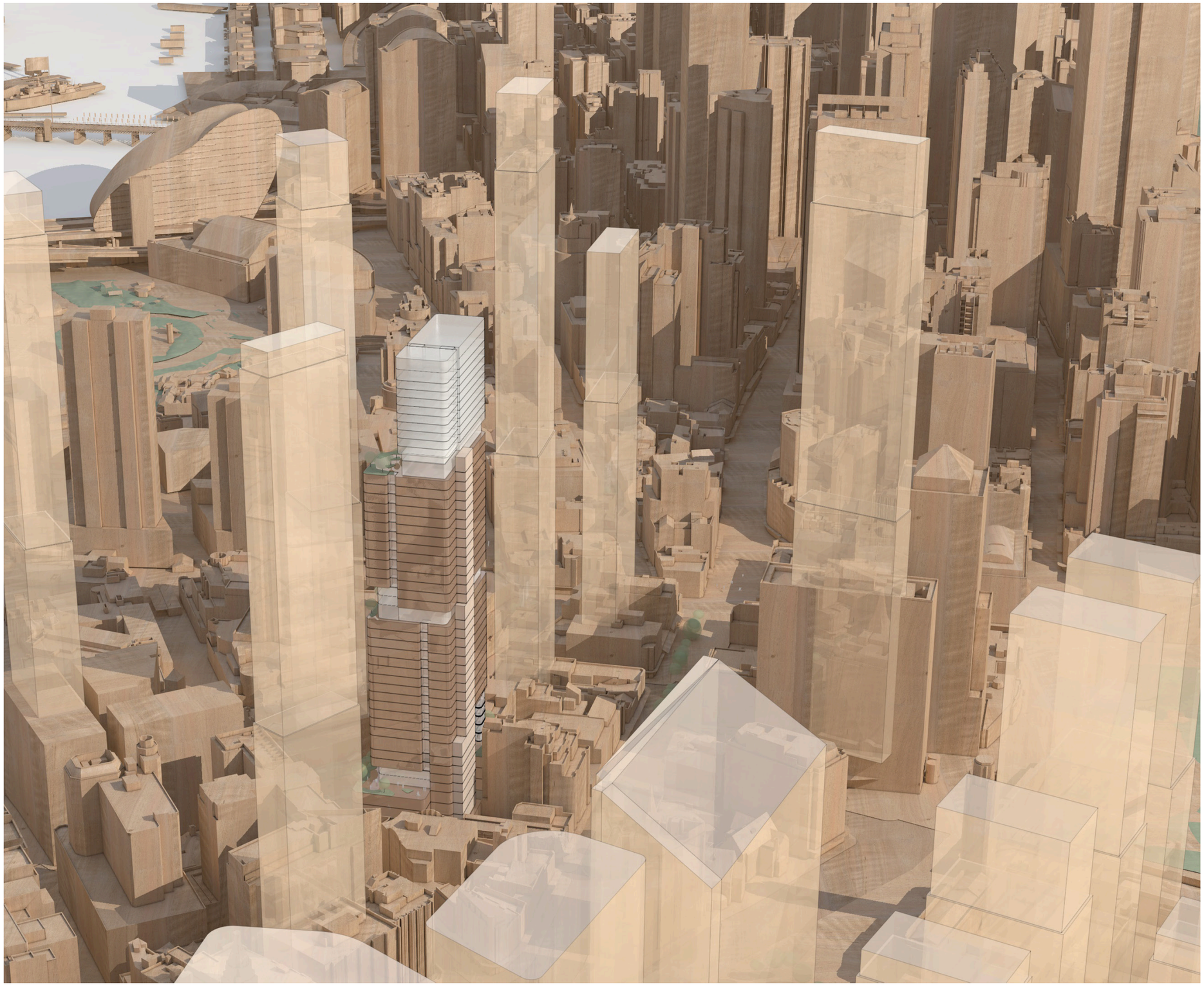


Alternate Indicative Scheme FSR 20:1
Total GFA : 47,031m2

6.0 CONCLUSION

A comprehensive series of analysis diagrams establish the opportunities and constraints for the site and the key urban principles encourage sensitivity to place, height and scale, sustainability, views and solar access and set up a framework for the indicative scheme and the subsequent final design to deliverer an appropriate design response that is sensitive to its complex setting and can provide the required connectivity, development and suitable commercial space for the Technology and Innovation precinct.

The site analysis, key urban design principles and the vision have informed the Indicative Scheme put forward in the appendix of this report.



Appendices

APPENDIX A **SURVEY**
APPENDIX B **PREFERRED INDICATIVE SCHEME FSR 22:1 INCL. DEVELOPMENT SUMMARY**
APPENDIX C **ALTERNATE INDICATIVE SCHEME FSR 20:1 INCL. DEVELOPMENT SUMMARY**
APPENDIX D **PROPOSED DCP ENVELOPE DRAWINGS**
APPENDIX E **STREETSCAPE ANALYSIS**
APPENDIX F **EXISTING PLANNING CONTROLS**
APPENDIX G **HEIGHT CONTROLS**
APPENDIX H **SKY VIEW FACTOR ANALYSIS**
APPENDIX I **WIND ANALYSIS**
APPENDIX J **PUBLIC SPACE OVERSHADOWING ANALYSIS**
APPENDIX K **RESIDENTIAL OVERSHADOWING ANALYSIS**
APPENDIX L **PUBLIC VIEW ANALYSIS**
APPENDIX M **PRIVATE VIEW ANALYSIS**
APPENDIX N **FUTURE POTENTIAL DEVELOPMENT ON ADJACENT BLOCKS**
APPENDIX O **FLOOR SPACE EFFICIENCY STUDY**
APPENDIX P **ARCHITECTURAL ARTICULATION & EFFICIENT BUILDING ENVELOPE DESIGN**
APPENDIX Q **ENVELOPE EFFICIENCY & ALIGNMENT WITH DRAFT COUNCIL DCP ASSUMPTIONS**

Appendix A SURVEY

NOTE:

THIS DETAIL SURVEY IS NOT A "LAND SURVEY" AS DEFINED BY THE SURVEYING AND SPATIAL INFORMATION ACT, 2002. IF ANY CONSTRUCTION OR DESIGN WORK, WHICH RELIES ON CRITICAL SETBACKS FROM THE STREET OR BOUNDARIES IS PLANNED, IT WOULD BE IMPERATIVE TO CARRY OUT FURTHER SURVEY WORK TO DETERMINE THE BOUNDARY DIMENSIONS.

PRIOR TO ANY CONSTRUCTION WORK, SURVEY MARKS SHOULD BE PLACED TO DEFINE THE PROPERTY BOUNDARIES.

SERVICES SHOWN ARE INDICATIVE ONLY. POSITIONS ARE BASED ON SURFACE INDICATOR(S) LOCATED DURING FIELD SURVEY. CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE PRIOR TO ANY EXCAVATION WORK. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN.

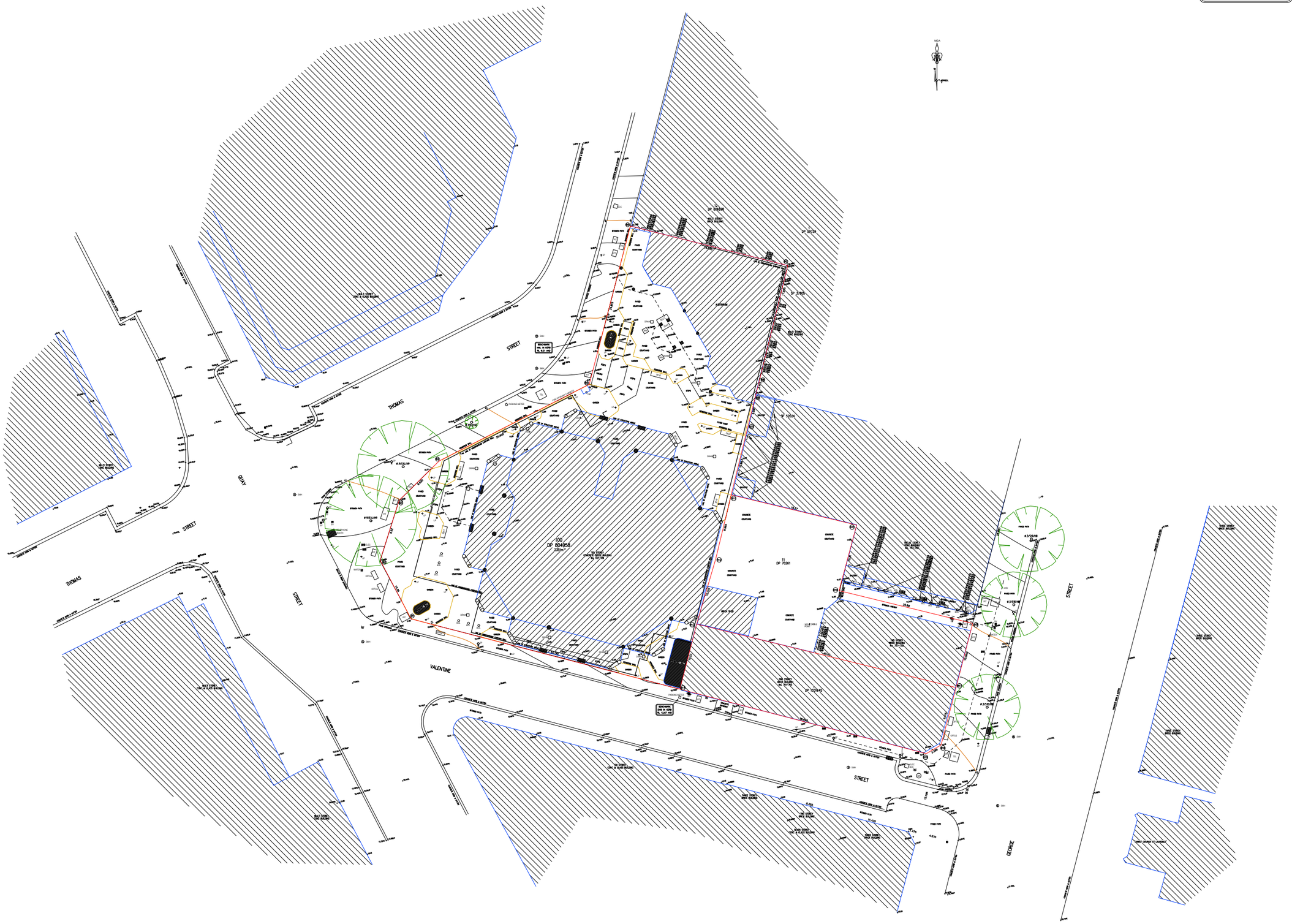
LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) USING PM 56538 WITH RL 10.63 (AHD).

RIDGE & GUTTER HEIGHTS HAVE BEEN OBTAINED BY INDIRECT METHOD AND ARE ACCURATE TO ± 0.05m.

CONTOURS SHOWN DEPICT THE TOPOGRAPHY. EXCEPT AT SPOT LEVELS SHOWN THEY DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT. THE SPOT LEVELS ARE TRUE FOR THEIR POSITION, AND ARE INTENDED TO BE USEFUL TO REPRESENT THE GENERAL TERRAIN. CARE SHOULD BE TAKEN IF EXTRAPOLATING.

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 EASEMENT(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM CREATED BY: DP804958 FOR SUPPORT 0.06 WIDE

BOUNDARIES HAVE NOT BEEN LOCATED BY SURVEY. THE BOUNDARIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM THE TITLE DEPOSITED PLAN AND ARE APPROXIMATE RELATIVE TO THE DETAIL SURVEY.



BOUNDARY MGA COORDINATES

POINT NUMBER	EASTING	NORTHING
B1	333857.366	6249511.126
B2	333852.684	6249520.030
B3	333855.562	6249529.105
B4	333861.639	6249535.091
B5	333884.439	6249546.743
B6	333890.675	6249570.762
B7	333914.589	6249564.761
B8	333910.277	6249547.331
B9	333909.693	6249544.988
B10	333908.581	6249540.529
B11	333905.996	6249529.961
B12	333903.646	6249520.256
B13	333900.757	6249510.359
B14	333898.190	6249500.457
B15	333935.627	6249490.672
B16	333937.857	6249491.980
B17	333940.126	6249500.705
B18	333942.657	6249510.441
B19	333922.364	6249515.406
B20	333925.042	6249525.364

LEGEND

BENCH MARK	▲
TELSTRA PIT	TEL
ELECTRIC LIGHT POLE	LP
POWER POLE	PP
SIGN POST	SP
SEWER INSPECTION PIT	SIP
SEWER VENT	SEWER
MANHOLE	MH
SEWER MANHOLE	SMH
STOP VALVE	SV
WATER HYDRANT	HYD
WATER METER	WM
GAS METER	[G]
STATE SURVEY MARK	SSM

TSS TOTAL SURVEYING SOLUTIONS
ARTARMON | CAMDEN | MANLY VALE

REVISION No.	REVISION DATE:	COMMENT:

LEGEND:

UC - UNDERSIDE OF CEILING
EG - EDGE OF GARDEN
TK - TOP OF KERB
TW - TOP OF WINDOW
BW - BOTTOM OF WINDOW
TG - TOP OF GUTTER
RR - ROOF RIDGE
FL - FLOOR LEVEL
PA - PARAPET
BFL - BASEMENT FLOOR LEVEL
AWN - AWNING
Ø.4/S10/H16 - DIAMETER/SPREAD/HEIGHT

BAR SCALE
0 1 2 3 4 5 10m
PLOTTED SCALE 1:100 (A0 SIZE SHEET)

PLAN SHOWING DETAIL & LEVELS OVER LOT 100 IN DP 804958

CLIENT:	GREATON	JOB No.: 180786	LGA:SYDNEY
PROJECT:	HAYMARKET	PLAN No.: 180786_A	DATUM: AHD
ADDRESS:	187-189 THOMAS STREET, HAYMARKET	DATE: 03/05/2018	SCALE: NTS
		DRAWN: SF	CONT. INTERVAL: 0.25m
		CHK: GS	COVER SHEET

Appendix B PREFERRED INDICATIVE SCHEME FSR 22:1

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift

Basement 4 / Carparking
27 cars (incl. 7 small car spaces, 2 car share spaces, 1 electric charging station) ; 3 motorbike spaces

Carparking Summary

Basement 1
3 cars (incl. 1 small car space)

Basement 2
11 cars (incl. 4 small car spaces)
4 motorbike spaces

Basement 3
11 cars (incl. 4 small car spaces)
4 motorbike spaces

Basement level 4
27 cars (incl. 7 small car spaces, 2 car share spaces, 1 electric charging station)

Basement level 5
27 cars (incl. 7 small car spaces)

TOTAL

79 cars (incl. 23 small cars, 2 car share spaces, 1 charging station)

14 motorbike spaces

Legend

1 Vehicle up ramp
2 Vehicle down ramp
3 Carpark lifts

fjmt

Basement 4-5 - Carparking

GREATON - 187 Thomas St

0 4 10 20m

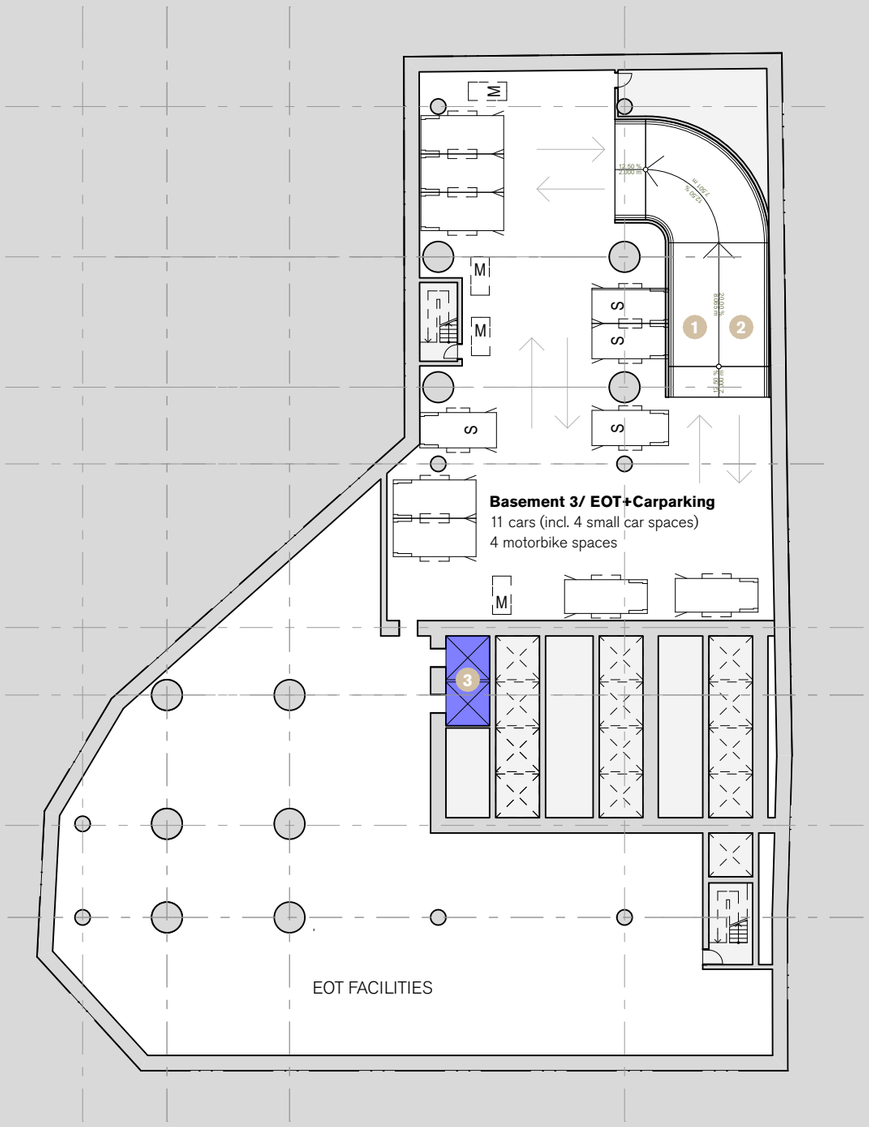
1:400 @ A3

13/3/20

For Information

fjmt-1003

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift



Legend

1 Vehicle up ramp
2 Vehicle down ramp
3 Carpark lifts

fjmt

Basement 3 - EOT

GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1004

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift

Legend

1 Vehicle up ramp
2 Vehicle down ramp
3 Carpark lifts

fjmt

Basement 2 - Hotel Facilities

GREATON - 187 Thomas St

0 4 10 20m

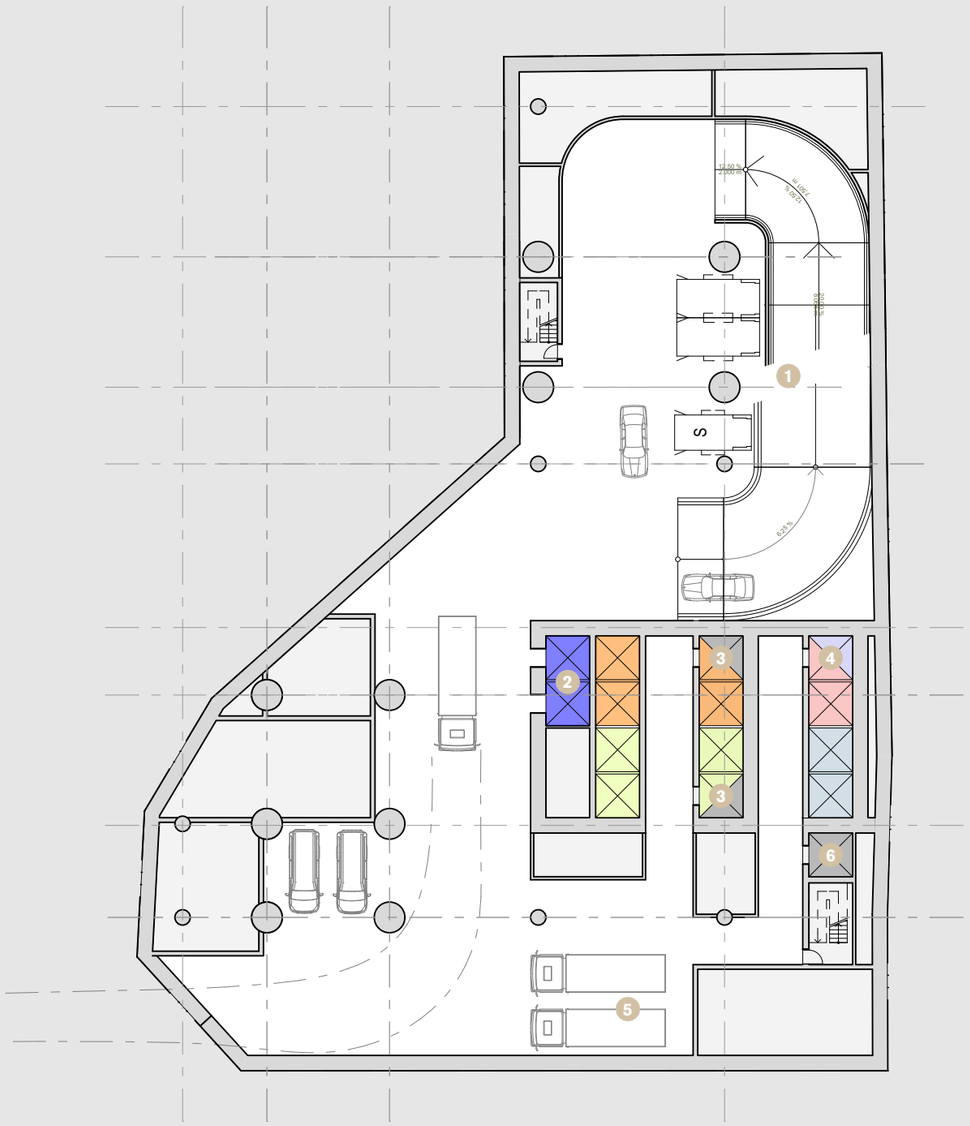
1:400 @ A3

13/3/20

For Information

fjmt-1005

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift



Legend

1 Vehicle entry from Thomas St
2 Carpark lifts
3 Commercial goods lift
4 Hotel shuttle lifts
5 Loading
6 Innovation goods lift

fjmt

Basement 1 - Loading Level

GREATON - 187 Thomas St

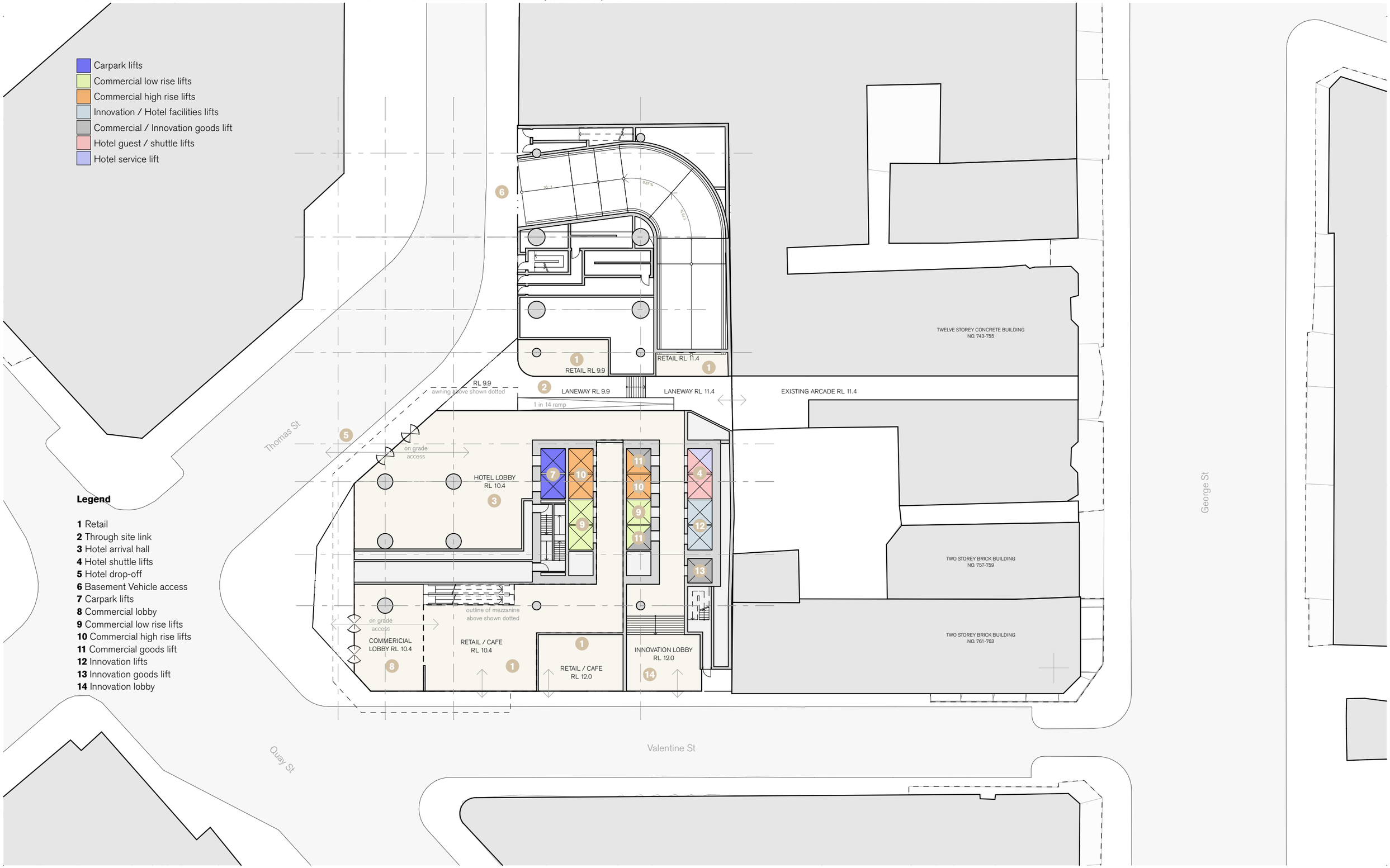
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1006



fjmt

Ground Floor

GREATON - 187 Thomas St

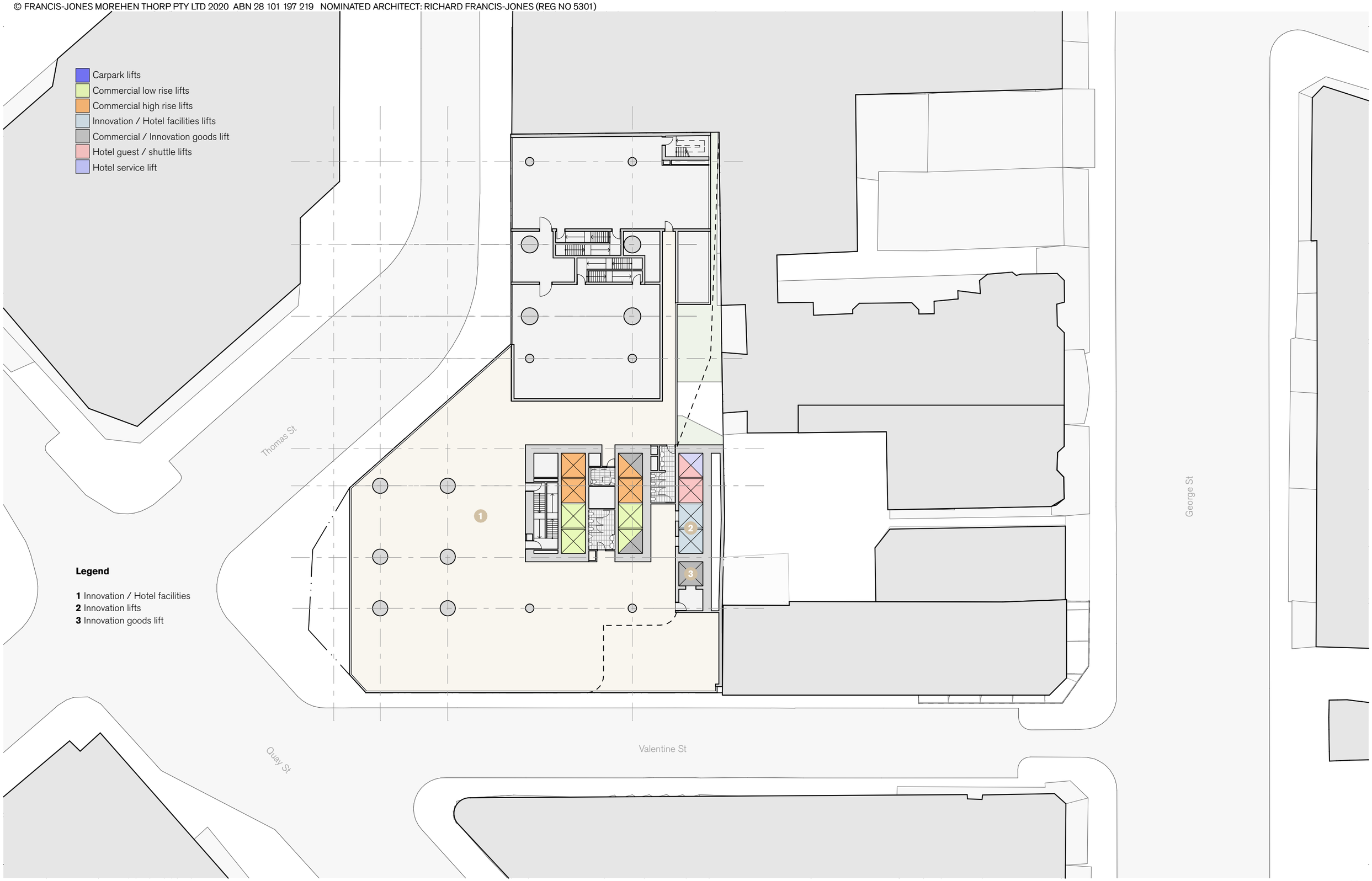
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1006



Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift

fjmt

Level 1 Podium - Innovation / Hotel

GREATON - 187 Thomas St

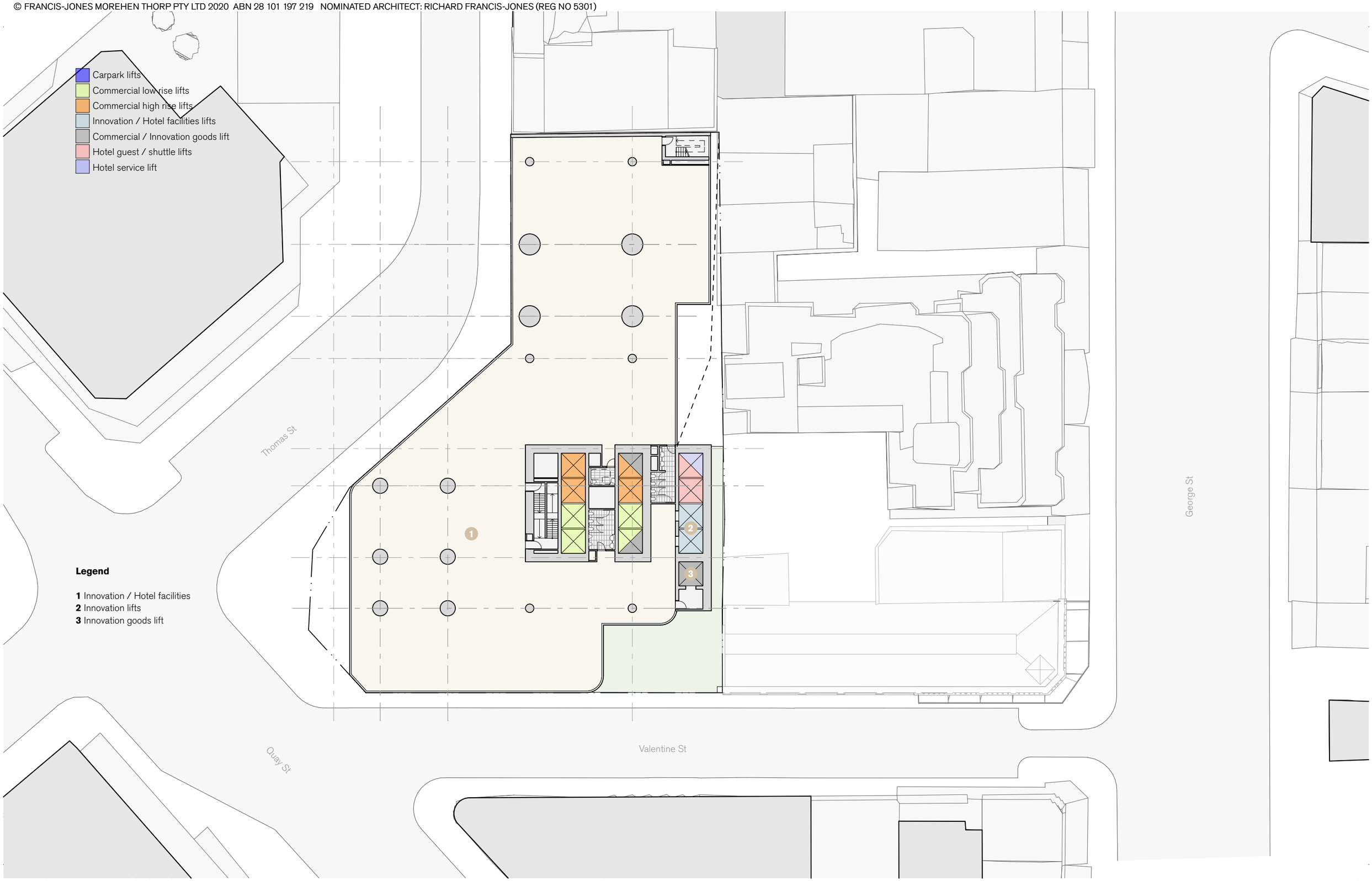
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1008



Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift

fjmt

Level 3 Podium - Innovation / Hotel

GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1009

Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift
4 Commercial low rise goods lift
5 Commercial high rise goods lift
6 Hotel guest / shuttle lifts
7 Podium terrace
8 Egress 'pod'

fjmt

Level 4 - Void Tower Terrace

GREATON - 187 Thomas St

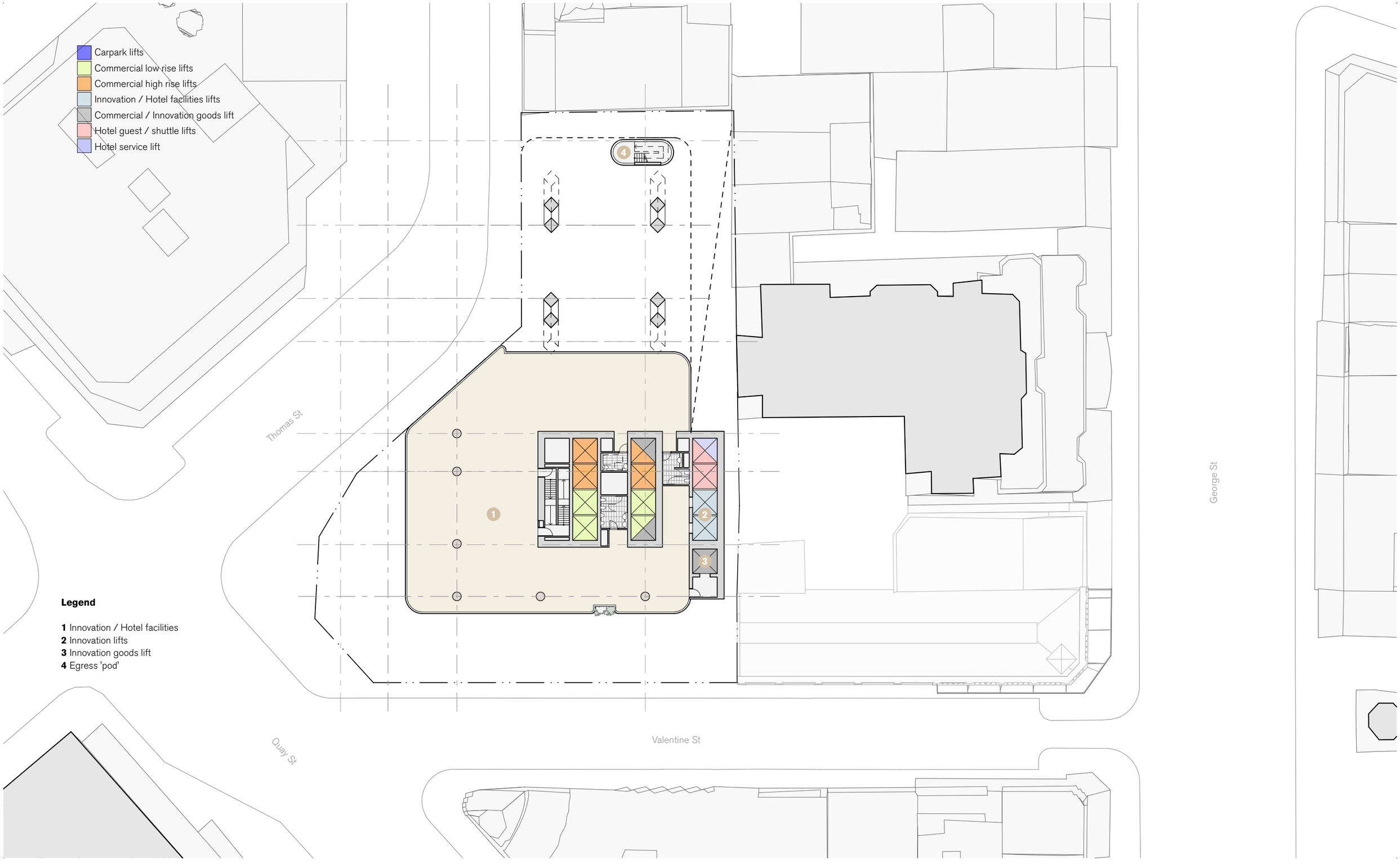
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1010



Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift
4 Egress 'pod'

fjmt

Level 6-7 - Typical Void Tower

GREATON - 187 Thomas St

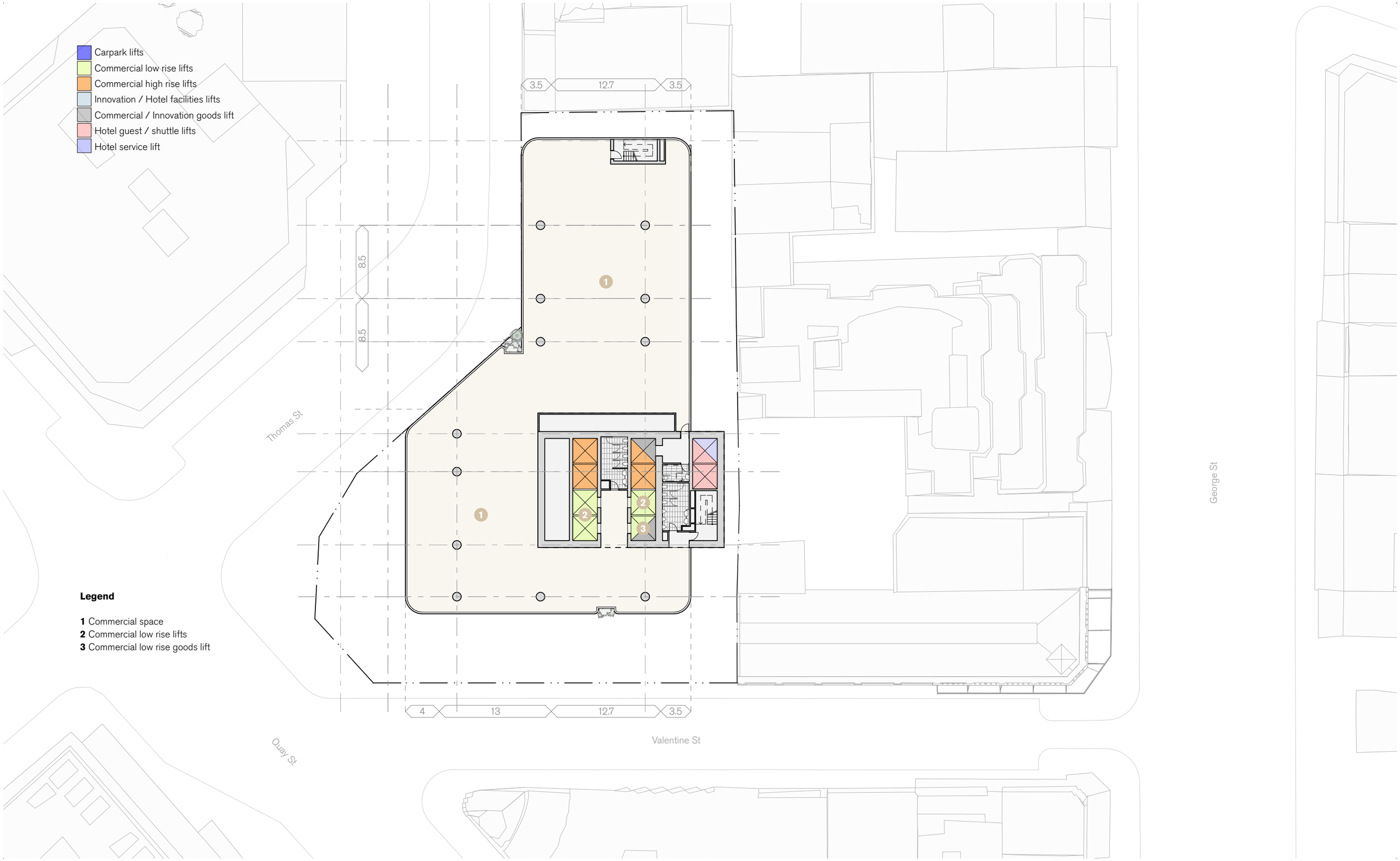
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1011



Legend

1 Commercial space
2 Commercial low rise lifts
3 Commercial low rise goods lift

fjmt

Level 9-21 - Commercial Low Rise

GREATON - 187 Thomas St

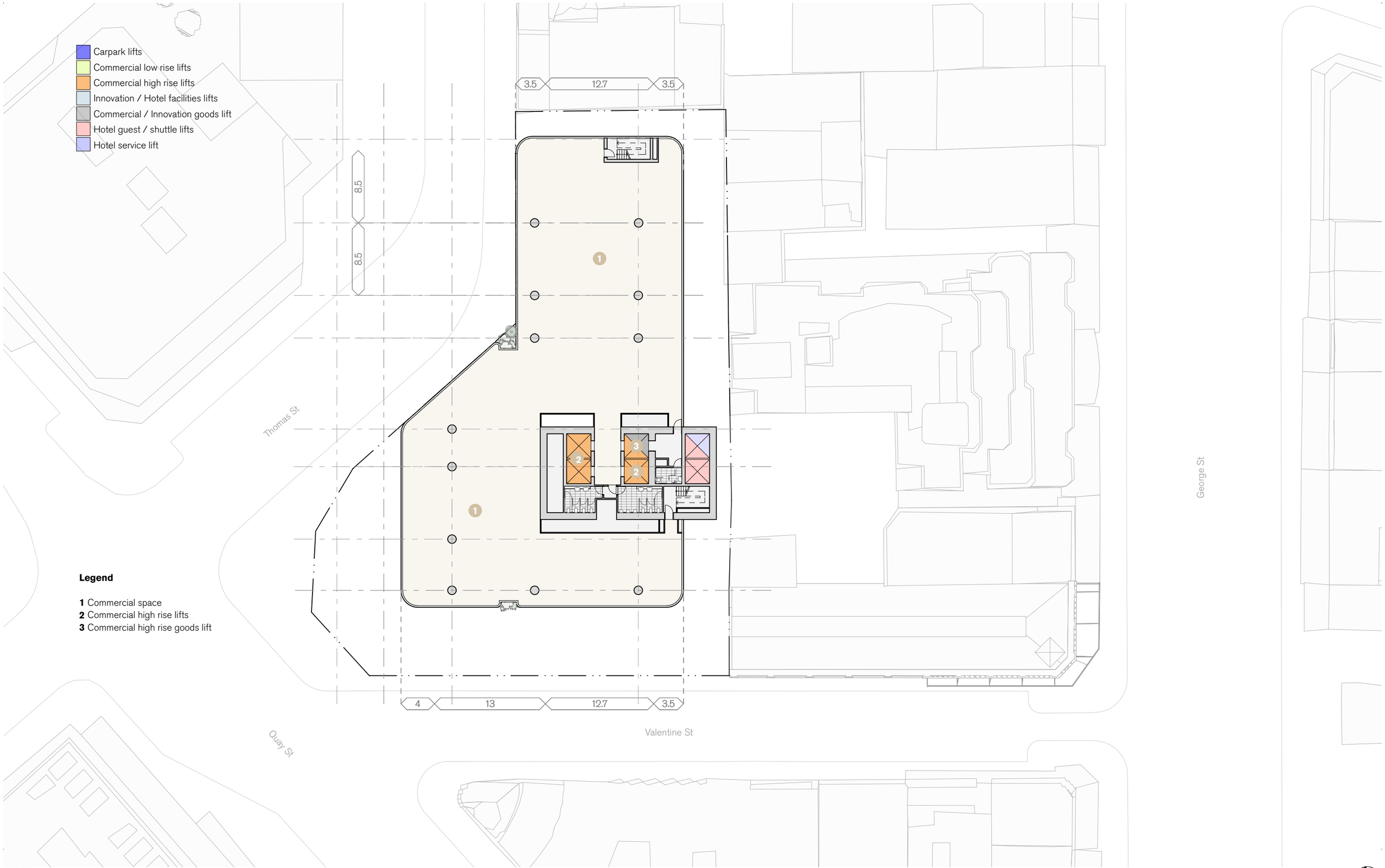
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1012



Legend

1 Commercial space
2 Commercial high rise lifts
3 Commercial high rise goods lift

fjmt

Level 23-35 - Commercial High Rise

GREATON - 187 Thomas St

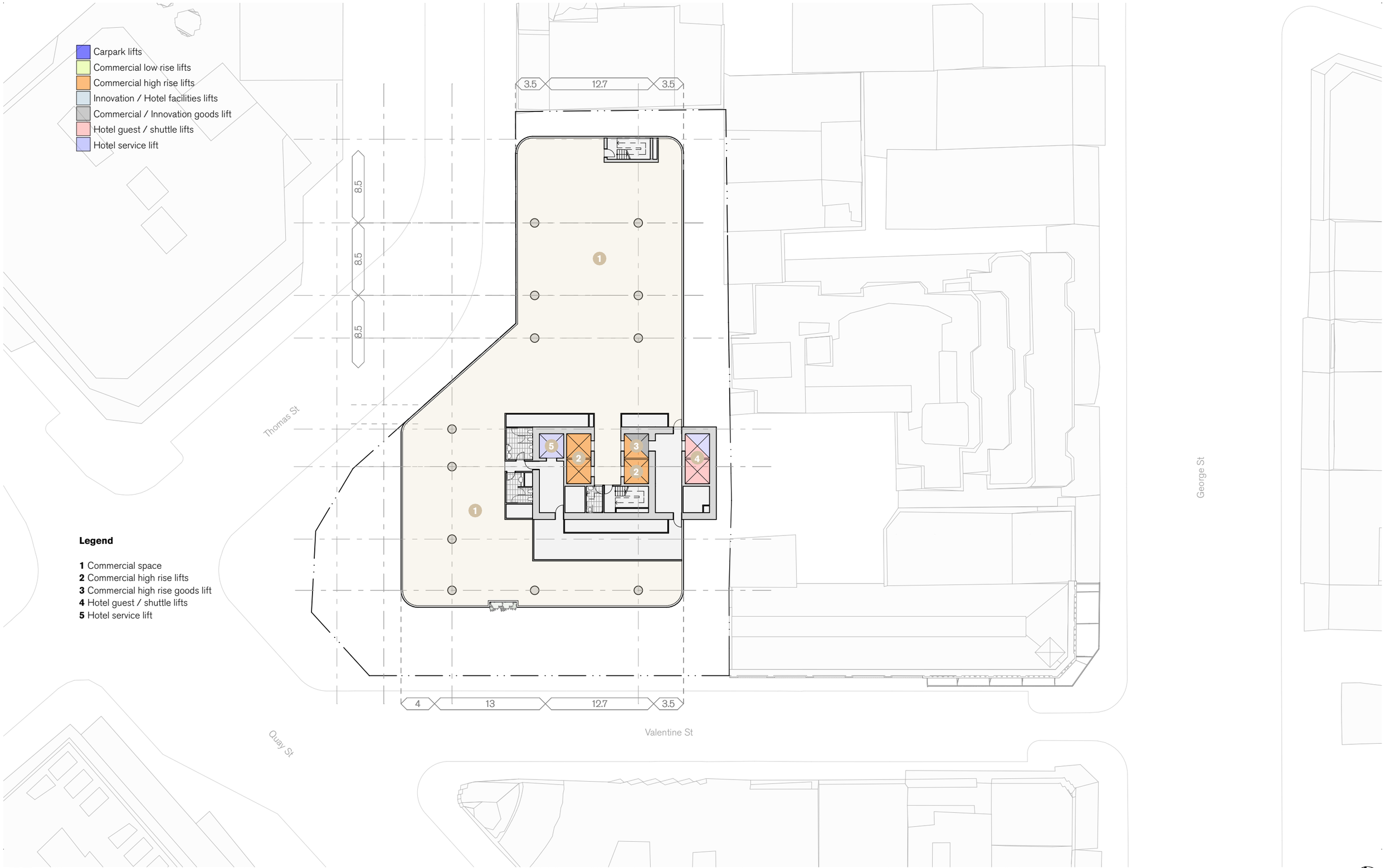
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1013



Legend

1 Commercial space
2 Commercial high rise lifts
3 Commercial high rise goods lift
4 Hotel guest / shuttle lifts
5 Hotel service lift

fjmt

Level 36 Hotel Goods Transfer

GREATON - 187 Thomas St

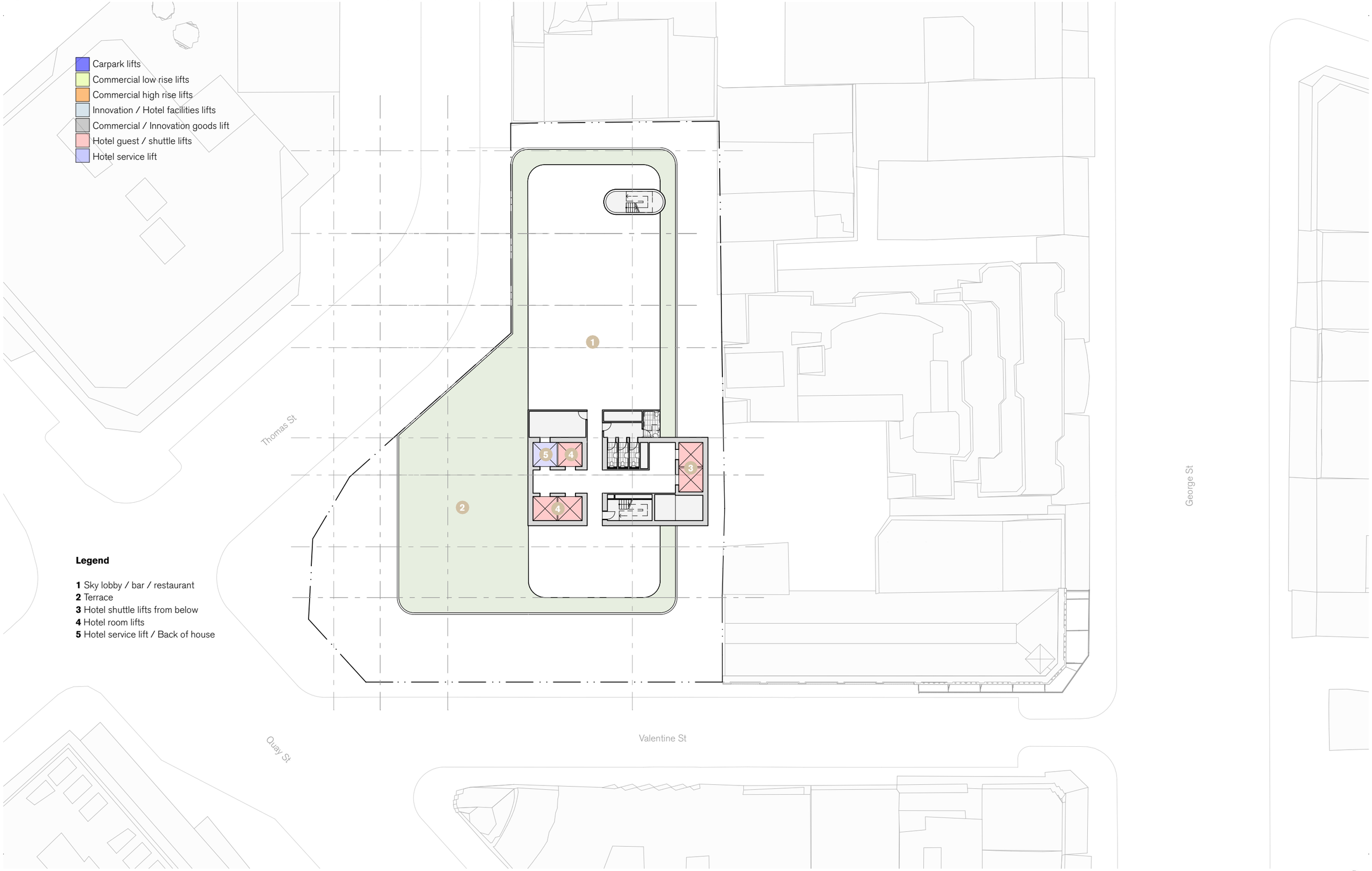
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1014



Legend

1 Sky lobby / bar / restaurant
2 Terrace
3 Hotel shuttle lifts from below
4 Hotel room lifts
5 Hotel service lift / Back of house

fjmt

Level 37 - Sky Lobby

GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1015

Legend

1 Hotel Rooms
2 Hotel room lifts
3 Hotel service lift / Back of house

fjmt

Level 38-46 - Hotel Rooms

GREATON - 187 Thomas St

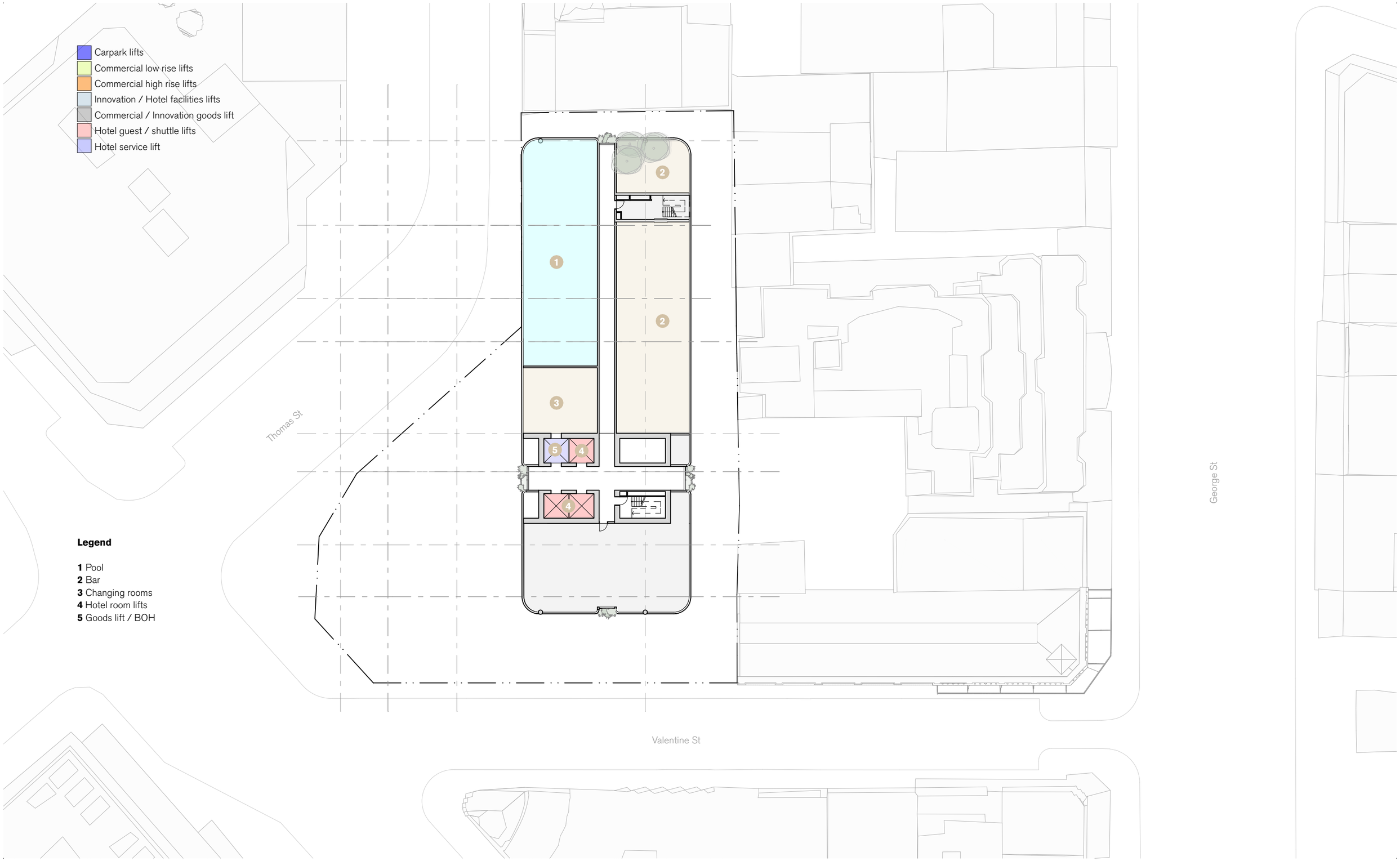
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1016



Legend

1 Pool
2 Bar
3 Changing rooms
4 Hotel room lifts
5 Goods lift / BOH

fjmt

Level 48 - Roof Pool and Plant

GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1017

NORTH-SOUTH SECTION

EAST-WEST SECTION

fjmt

Sections

GREATON - 187 Thomas St

1:1200 @ A3

For Information

27/2/20

fjmt-1019

Preferred Indicative Scheme FSR 22 : 1 Development Summary

187 Thomas Street Indicative Scheme Summary		GFA	Land Use	FSR
	hotel	10,966 m²	21%	4.66 :1
	commercial	33,100 m²	64%	14.08 :1
	innovation	7,429 m²	14%	3.16 :1
	retail	219 m²	0%	0.09 :1
Above + Below Ground	**total**	**51,714 m²**	100%	**22.00 :1**
Above Ground	total	50,514 m²		21.49 :1
Below Ground	total	1,200 m²		0.51 :1

Site Area	2,351 m²	(surveys measured)

measured efficiencies

retail	BEA/GBA	95%
	GBA/GFA	10%
	GFA/GLAR	100%
hotel	BEA/GBA	95%
	GBA/GFA	83%
	GFA/NSA	74%
commercial/innovation	BEA/GBA	95%
	GBA/GFA	58%
	GFA/NLA	93%

Typ High	GBA	GFA	NSA
Commercial	1,498	1,228	1,160
		82.0%	94%

Typ Low	GBA	GFA	NSA
Commercial	1,502	1,189	1,120
		79.2%	94%

Actual Efficiencies	BEA	GBA	Efficiency
BEA/GBA	73,667	70,106	95%

			RL	Floors	Height	BEA	GBA	Commercial GFA	Commercial NLA	Innovation GFA	Innovation NLA	Hotel GFA	Hotel NSA	Retail GFA	Retail GLAR
		Top RL	209.80												
SKY RISE TOWER	level 48	plant/pool/bar	201.00	8.80	199.40	1106	1082					455			
	level 47	plant/facilities	197.80	3.20	190.60	1106	1082					113	0		
	level 46	hotel 9	194.60	3.20	187.40	1106	1082					899	664		
	level 45	hotel 8	191.40	3.20	184.20	1106	1082					899	664		
	level 44	hotel 7	188.20	3.20	181.00	1106	1082					899	664		
	level 43	hotel 6	185.00	3.20	177.80	1106	1082					899	664		
	level 42	hotel 5	181.80	3.20	174.60	1106	1082					899	664		
	level 41	hotel 4	178.60	3.20	171.40	1106	1082					899	664		
	level 40	hotel 3	175.40	3.20	168.20	1106	1082					899	664		
	level 39	hotel 2	172.20	3.20	165.00	1106	1082					899	664		
	level 38	hotel 1	169.00	3.20	161.80	1106	1082					899	664		
	level 37	sky lobby	163.00	6.00	158.60	1106	1498					738			
HIGH RISE TOWER	level 36	Commercial 27/loading	159.20	3.80	152.60	1520	1498	1115	1053						
	level 35	commercial 26	155.40	3.80	148.80	1520	1498	1228	1160						
	level 34	commercial 25	151.60	3.80	145.00	1520	1498	1228	1160						
	level 33	commercial 24	147.80	3.80	141.20	1520	1498	1228	1160						
	level 32	commercial 23	144.00	3.80	137.40	1520	1498	1228	1160						
	level 31	commercial 22	140.20	3.80	133.60	1520	1498	1228	1160						
	level 30	commercial 21	136.40	3.80	129.80	1520	1498	1228	1160						
	level 29	commercial 20	132.60	3.80	126.00	1520	1498	1228	1160						
	level 28	commercial 19	128.80	3.80	122.20	1520	1498	1228	1160						
	level 27	commercial 18	125.00	3.80	118.40	1520	1498	1228	1160						
	level 26	commercial 17	121.20	3.80	114.60	1520	1498	1228	1160						
	level 25	commercial 16	117.40	3.80	110.80	1520	1498	1228	1160						
	level 24	commercial 15	113.60	3.80	107.00	1520	1498	1228	1160						
	level 23	commercial 14	109.80	3.80	103.20	1520	1498	1228	1160						
LOW RISE TOWER	level 22	plant	103.80	6.00	99.40	1520	1200								
	level 21	commercial 13	100.00	3.80	93.40	1520	1502	1189	1120						
	level 20	commercial 12	96.20	3.80	89.60	1520	1502	1189	1120						
	level 19	commercial 11	92.40	3.80	85.80	1520	1502	1189	1120						
	level 18	commercial 10	88.60	3.80	82.00	1520	1502	1189	1120						
	level 17	commercial 9	84.80	3.80	78.20	1520	1502	1189	1120						
	level 16	commercial 8	81.00	3.80	74.40	1520	1502	1189	1120						
	level 15	commercial 7	77.20	3.80	70.60	1520	1502	1189	1120						
	level 14	commercial 6	73.40	3.80	66.80	1520	1502	1189	1120						
	level 13	commercial 5	69.60	3.80	63.00	1520	1502	1189	1120						
	level 12	commercial 4	65.80	3.80	59.20	1520	1502	1189	1120						
	level 11	commercial 3	62.00	3.80	55.40	1520	1502	1189	1120						
	level 10	commercial 2	58.20	3.80	51.60	1520	1502	1189	1120						
	Level 9	commercial 1	54.40	3.80	47.80	1520	1502	1189	1120						
VOID TOWER	level 8	plant	48.40	6.00	44.00	1520	1031								
	level 7	Innovation / hotel	44.60	3.80	38.00	1520	1031			760	699				
	level 6	Innovation / hotel	40.80	3.80	34.20	1520	1031			760	699				
	level 5	Innovation / hotel	37.00	3.80	30.40	1520	873			612	582				
	level 4	innovation terrace	33.20	3.80	26.60	2351	2015			612	582				
PODIUM	level 3	Innovation / hotel	28.20	5.00	22.80	2351	2015			1690	1625				
	level 2	Innovation / hotel	23.20	5.00	17.80	2351	2015			1690	1625				
	level 1	Innovation / hotel	18.00	5.20	12.80	2351	2167			1180	1082				
MEZZANINE	mezzanine	lobbies / plant	14.20	3.80	7.60		560	307							
GROUND	ground 0	retail / lobbies	10.40	3.80	3.80	2351	2270	257		125		369		219	219
	subtotal					**73.667**	**70.106**	**33.100**	**30.693**	**7.429**	**6.894**	**9.766**	**5.976**	**219**	**219**
BASEMENT	basement 1	loading/plant	4.90	5.50			2278								
	basement 2	bike parking/EOT	1.85	3.05			2278								
	basement 3	hotel facilities	-1.20	3.05			2278					1200			
	basement 4	parking B4	-4.25	3.05			2278								
	basement 5	parking B5	-7.30	3.05			2278								
	subtotal					**0**	**11.390**	**0**	**0**	**0**	**0**	**1.200**	**0**	**0**	**0**
	total					**73,667**	**81,496**	**33,100**	**30,693**	**7,429**	**6,894**	**10,966**	**5,976**	**219**	**219**

CAR PARKING

	No.	
Existing	86	cars
Permissible	105	cars
Proposed	79	cars

MAXIMUM PERMISSIBLE CAR PARKING ESTIMATED TOTAL

Land Use	No.	
Hotel	52	cars
Commercial	37	cars
Retail	0	cars
Service	15	cars
Car Share	1	cars
Total	**105**	cars

COMMERCIAL CAR PARKING ESTIMATES

		LEP control (maximum)	car spaces
Office		(commercial + innovation GFA x site area) / (50 x total GFA)	37
			37

HOTEL CAR PARKING ESTIMATES

	room target	LEP control (maximum)	car spaces
Hotel	234	1 space / 4 bedrooms, up to 100 rooms 1 space / 5 bedrooms, in excess of 100 rooms	52
		SUBTOTAL	**52**

RETAIL CAR PARKING ESTIMATES

		LEP control (maximum)	car spaces
Retail		(retail GFA x site area) / (50 x total GFA)	0
		SUBTOTAL	**0**

SERVICE VEHICLES

		DCP control (minimum)	car spaces
Hotel		1 space for the first 50 hotel rooms + 0.5 spaces for every hotel room after	3
Commercial		1 space per 3300m2 up to 50,000+1 space per 6600m2 between 50,000 & 100,000+1 space per	12
Retail		1 space per 350m^2 GFA up to 2000m^2, then 1 space per 8000m^2	0
		SUBTOTAL	**15**

CAR SHARE

		DCP control (minimum)	car spaces
Office		1 space per 30 car spaces provided	1
Retail		1 space per 30 car spaces provided	0
		SUBTOTAL	**1**

BICYCLE PARKING

	No.	
Existing	0	bicycles
Permissible	382	bicycles
Proposed	382	bicycles

BICYCLE PARKING TOTAL

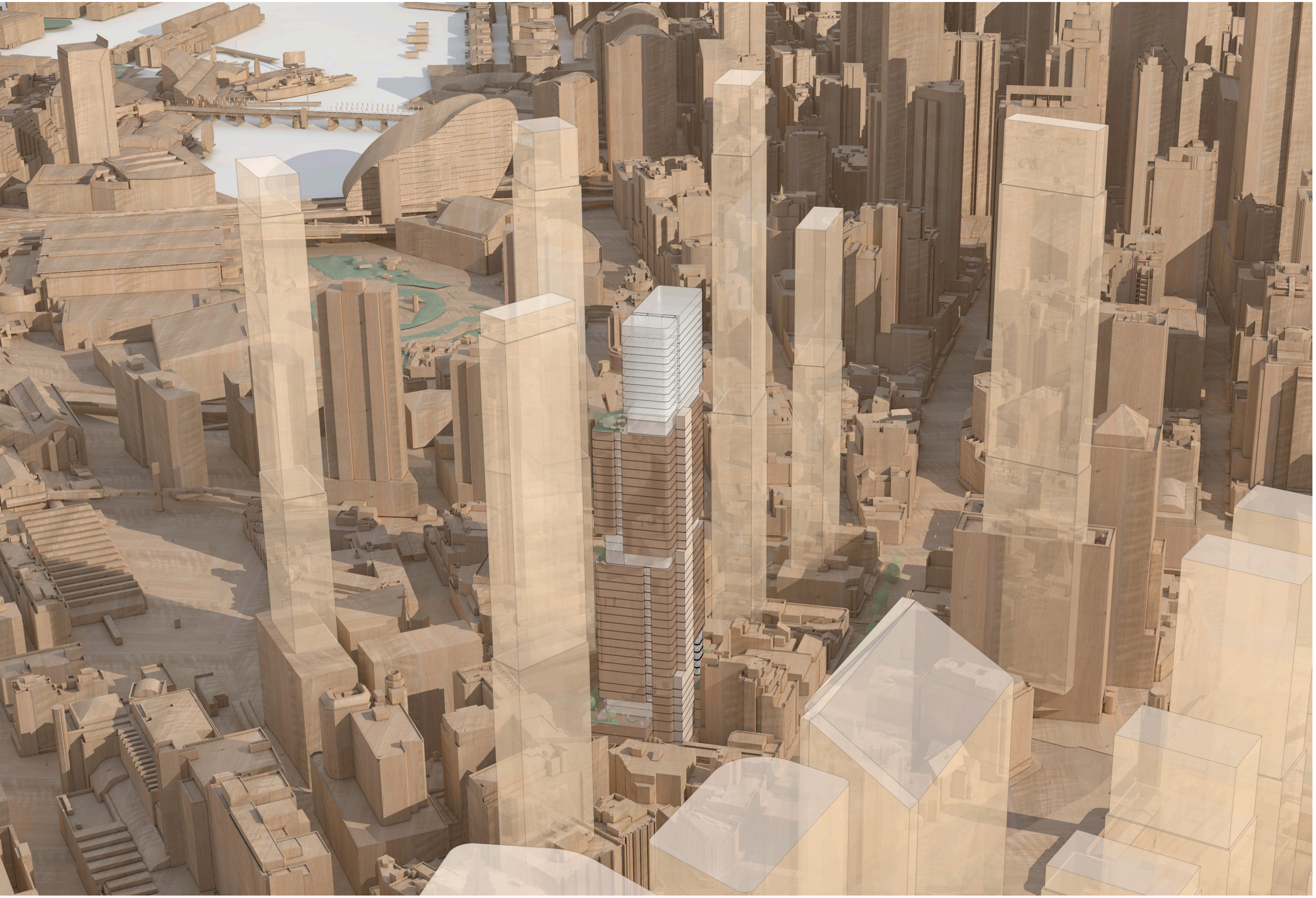
		DCP Control (minimum)	No.	
Retail	Employees	1 space / 250m^2	1	bicycles
	Visitor	1 space / 100 m2 (over 100m2) + 2 spaces	3	bicycles
Hotel	Employees	1 space / 4 staffs (assumed 300 staffs)	75	bicycles
	Visitors	1 space / 20 rooms	0	bicycles
Commercial	Employees	1 space / 150m^2	221	bicycles
	Visitors	1 space / 400m^2	83	bicycles
Total			**382**	bicycles

MOTORBIKE PARKING

	No.	
Existing	0	motorbikes
Permissible	9	motorbikes
Proposed	14	motorbikes

MOTORBIKE TOTAL

DCP control	No.	
1 per 12 cars	9	motorbikes
Total	**9**	motorbikes



Appendix C ALTERNATE INDICATIVE SCHEME FSR 20:1

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift

Legend

1 Vehicle up ramp
2 Vehicle down ramp
3 Carpark lifts

Carparking Summary

Basement 1
3 cars (incl. 1 small car space)

Basement 2
11 cars (incl. 4 small car spaces)
4 motorbike spaces

Basement 3
27 cars (incl. 7 small car spaces, 2 car share spaces,
1 electric charging station)
3 motorbike spaces

Basement 4
27 cars (incl. 7 small car spaces)
3 motorbike spaces

Basement 5 (addtional)
27 cars (incl. 7 small car spaces)
3 motorbike spaces

TOTAL
95 cars (incl. 26 small cars, 2 car share spaces, 1 charging station)
13 motorbike spaces

fjmt

Basement 3-5 - Carparking

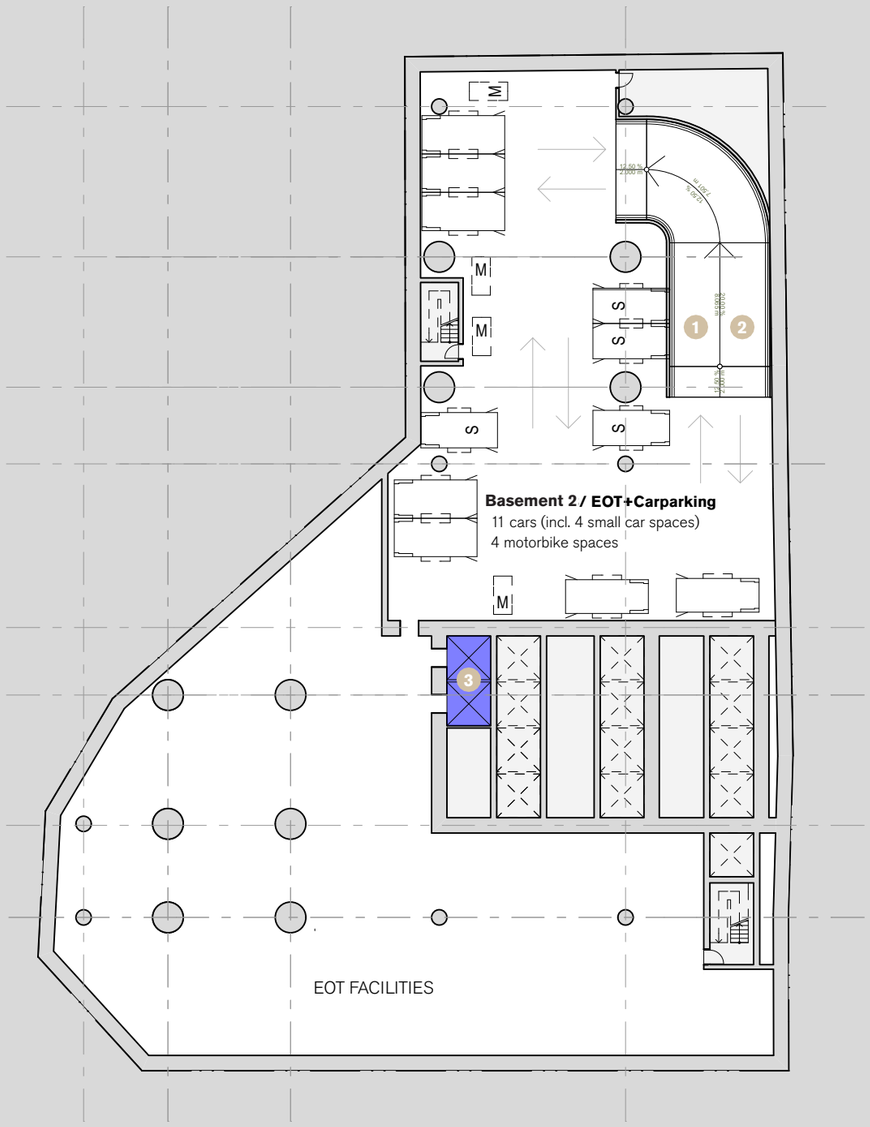
GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3 13/3/20

For Information **fjmt-1003**

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift



Basement 2 / EOT+Carparking
11 cars (incl. 4 small car spaces)
4 motorbike spaces

Legend

1 Vehicle up ramp
2 Vehicle down ramp
3 Carpark lifts

fjmt

Basement 2 - EOT

GREATON - 187 Thomas St

0 4 10 20m

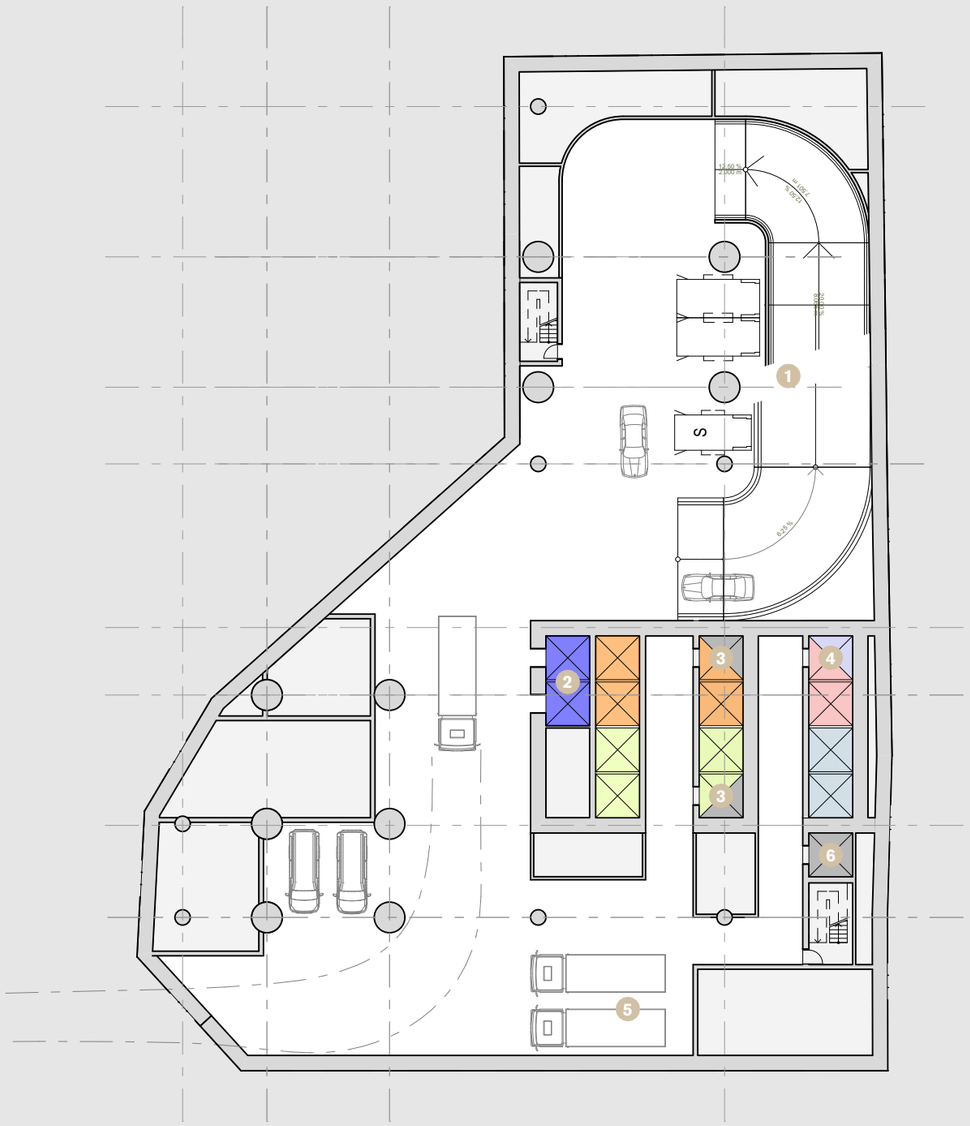
1:400 @ A3

13/3/20

For Information

fjmt-1004

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift



Legend

1 Vehicle entry from Thomas St
2 Carpark lifts
3 Commercial goods lift
4 Hotel shuttle lifts
5 Loading
6 Innovation goods lift

fjmt

Basement 1 - Loading Level

GREATON - 187 Thomas St

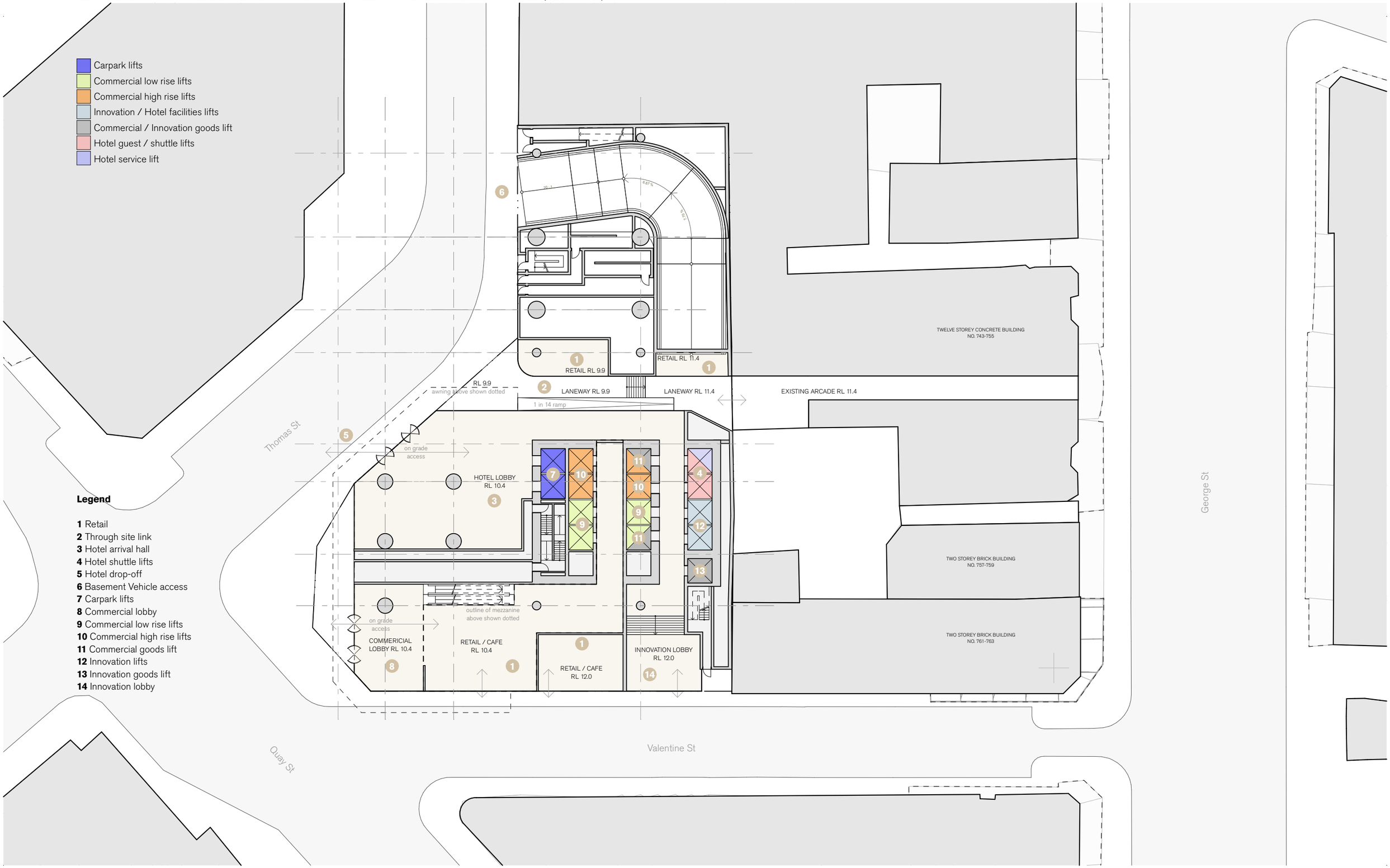
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1006



fjmt

Ground Floor

GREATON - 187 Thomas St

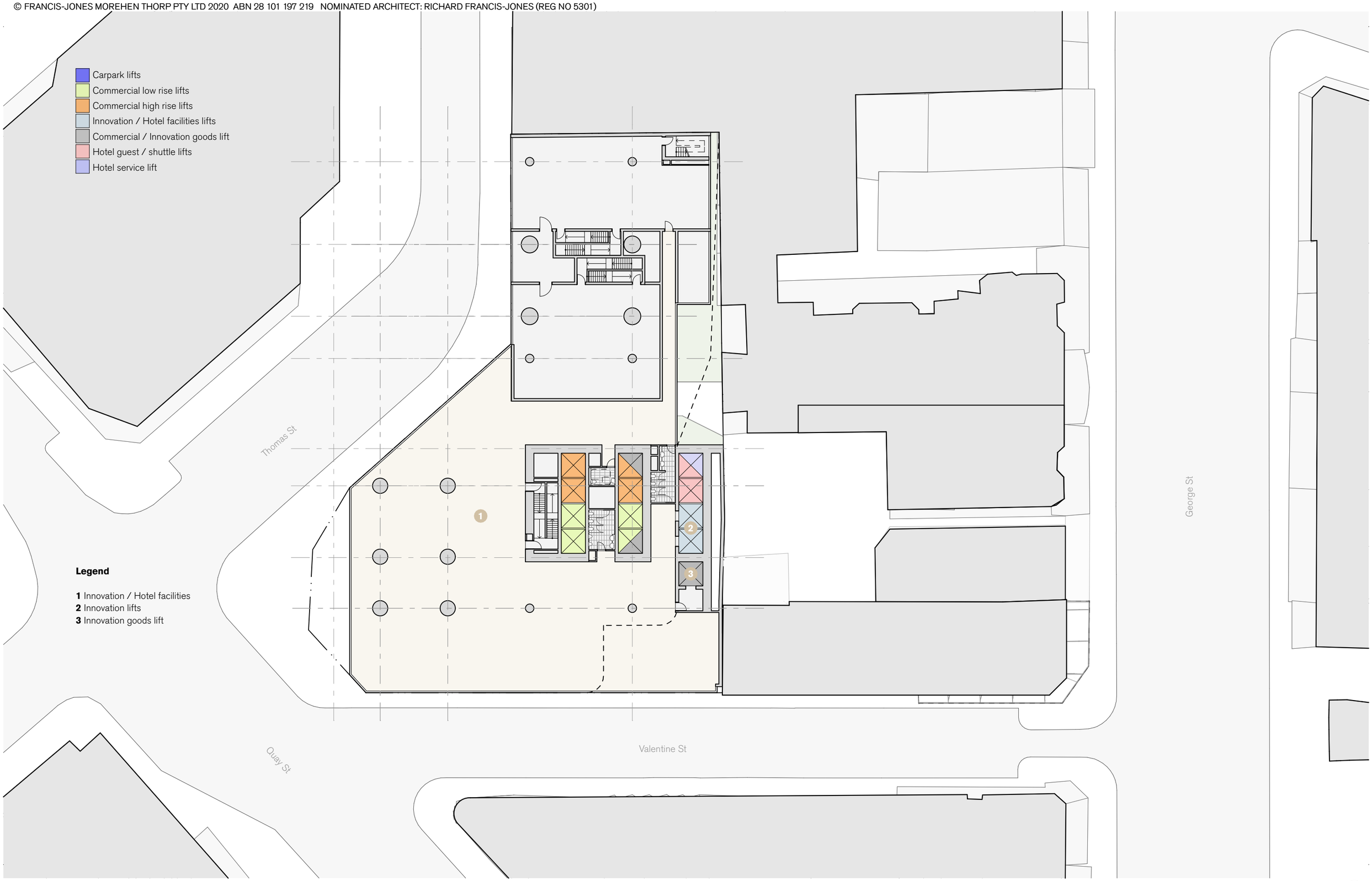
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1006



Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift

fjmt

Level 1 Podium - Innovation / Hotel

GREATON - 187 Thomas St

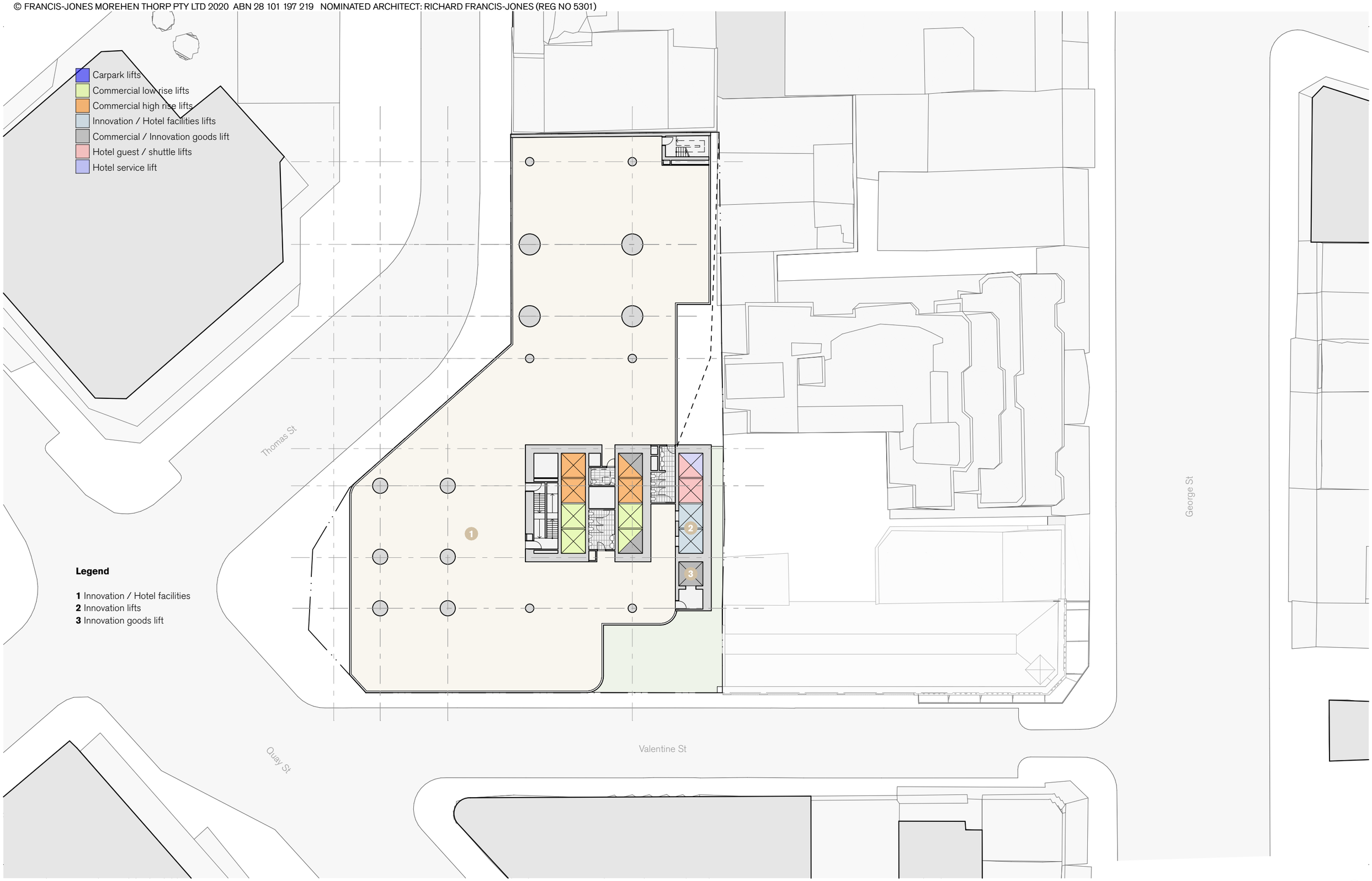
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1008



Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift

fjmt

Level 3 Podium - Innovation / Hotel

GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1009

Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift
4 Commercial low rise goods lift
5 Commercial high rise goods lift
6 Hotel guest / shuttle lifts
7 Podium terrace
8 Egress 'pod'

fjmt

Level 4 - Void Tower Terrace

GREATON - 187 Thomas St

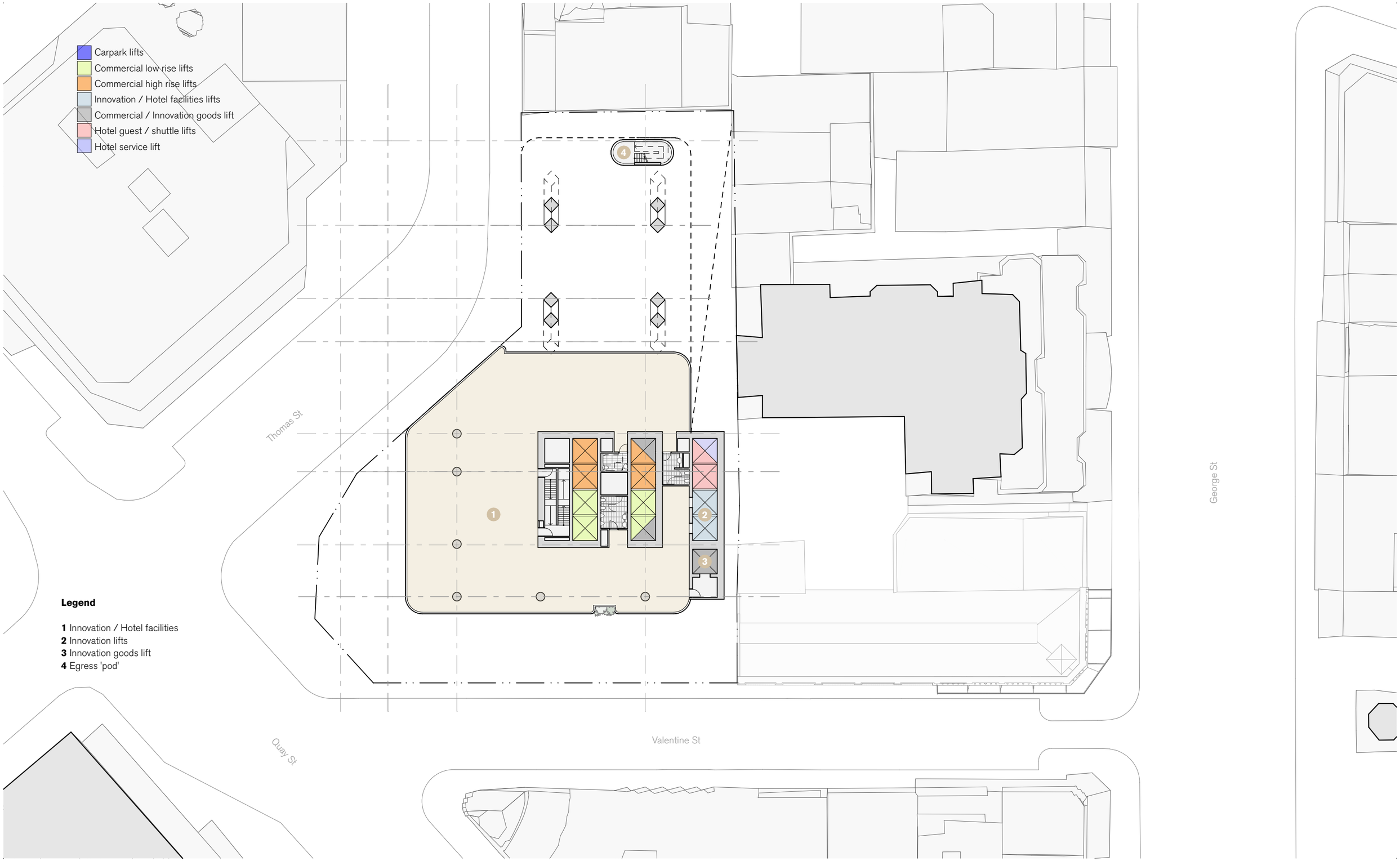
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1010



Legend

1 Innovation / Hotel facilities
2 Innovation lifts
3 Innovation goods lift
4 Egress 'pod'

fjmt

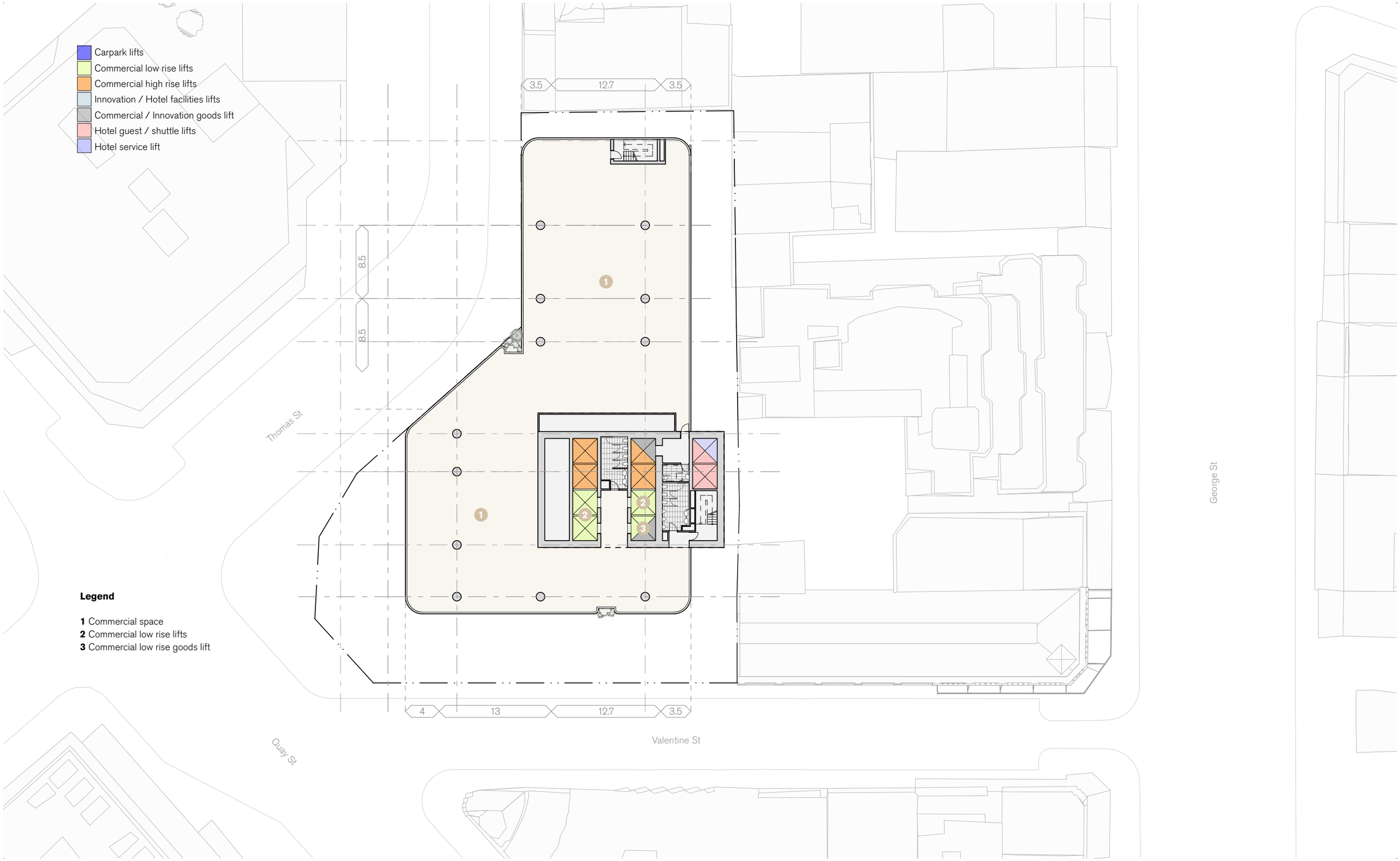
Level 5 & 6 - Typical Void Tower

GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3 13/3/20

For Information **fjmt-1011**



Legend

1 Commercial space
2 Commercial low rise lifts
3 Commercial low rise goods lift

fjmt

Level 8-19 - Commercial Low Rise

GREATON - 187 Thomas St

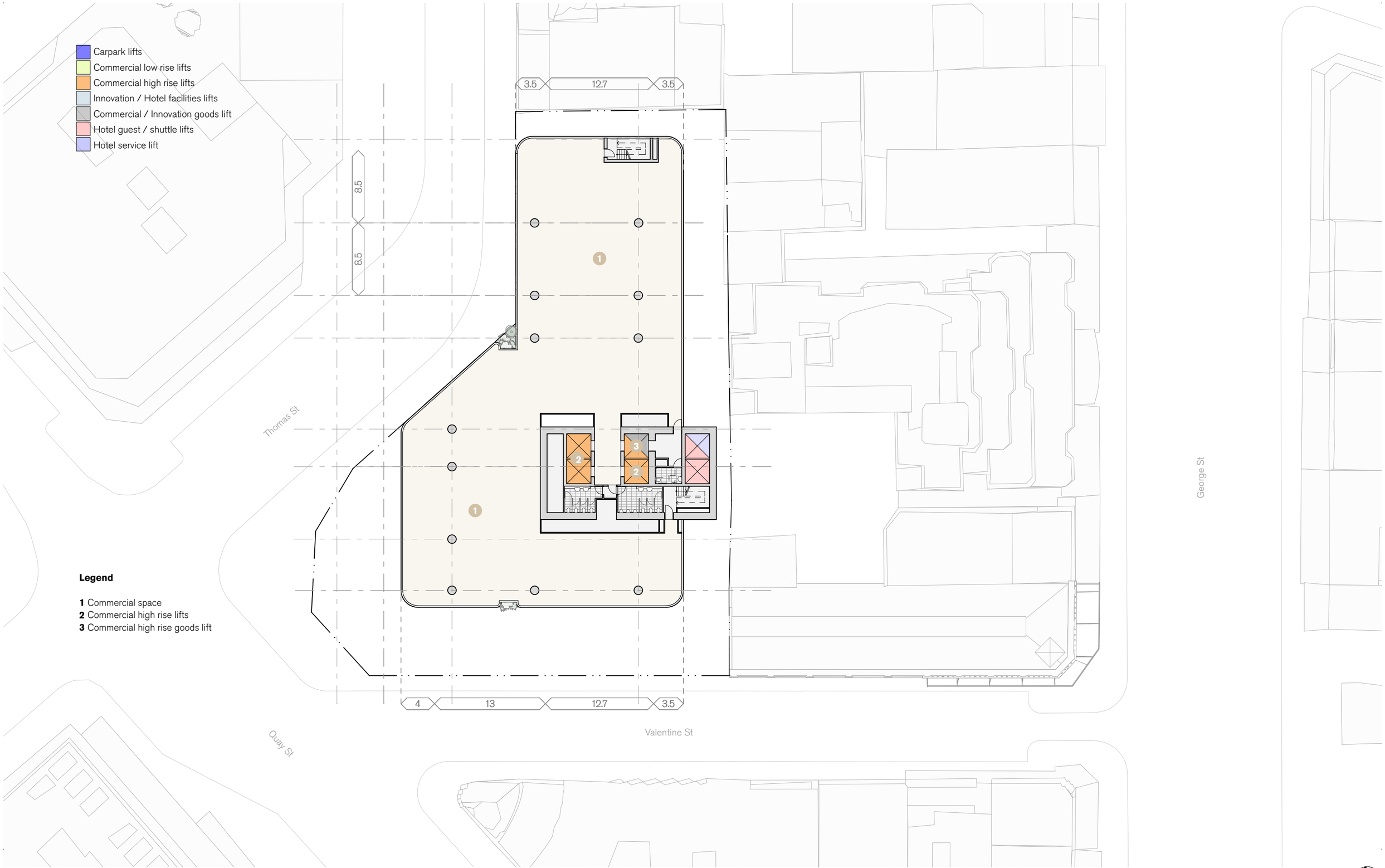
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1012



Legend

1 Commercial space
2 Commercial high rise lifts
3 Commercial high rise goods lift

fjmt

Level 21-33 - Commercial High Rise

GREATON - 187 Thomas St

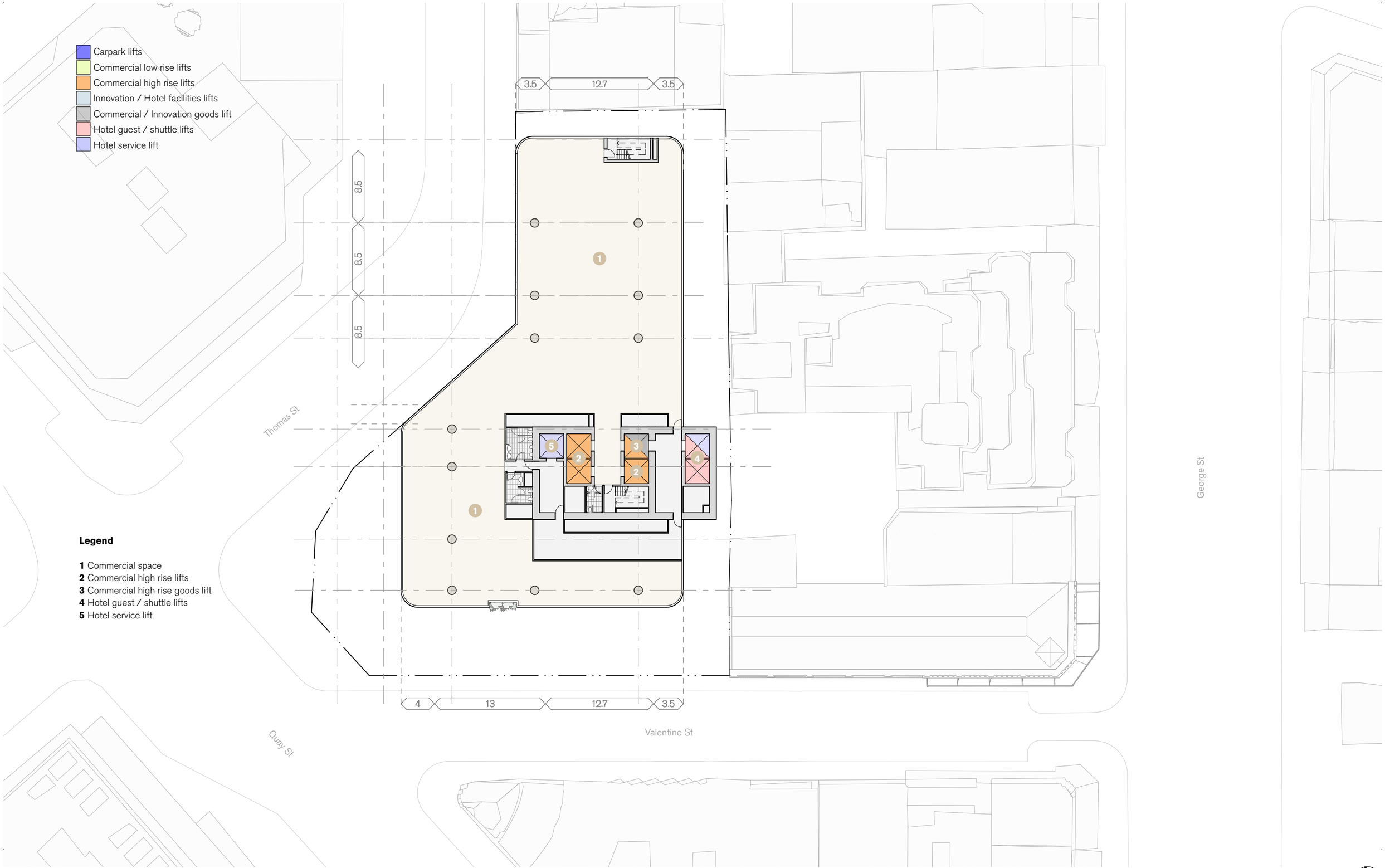
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1013



Legend

1 Commercial space
2 Commercial high rise lifts
3 Commercial high rise goods lift
4 Hotel guest / shuttle lifts
5 Hotel service lift

fjmt

Level 34 - **Hotel Goods Transfer**

GREATON - 187 Thomas St

0 4 10 20m

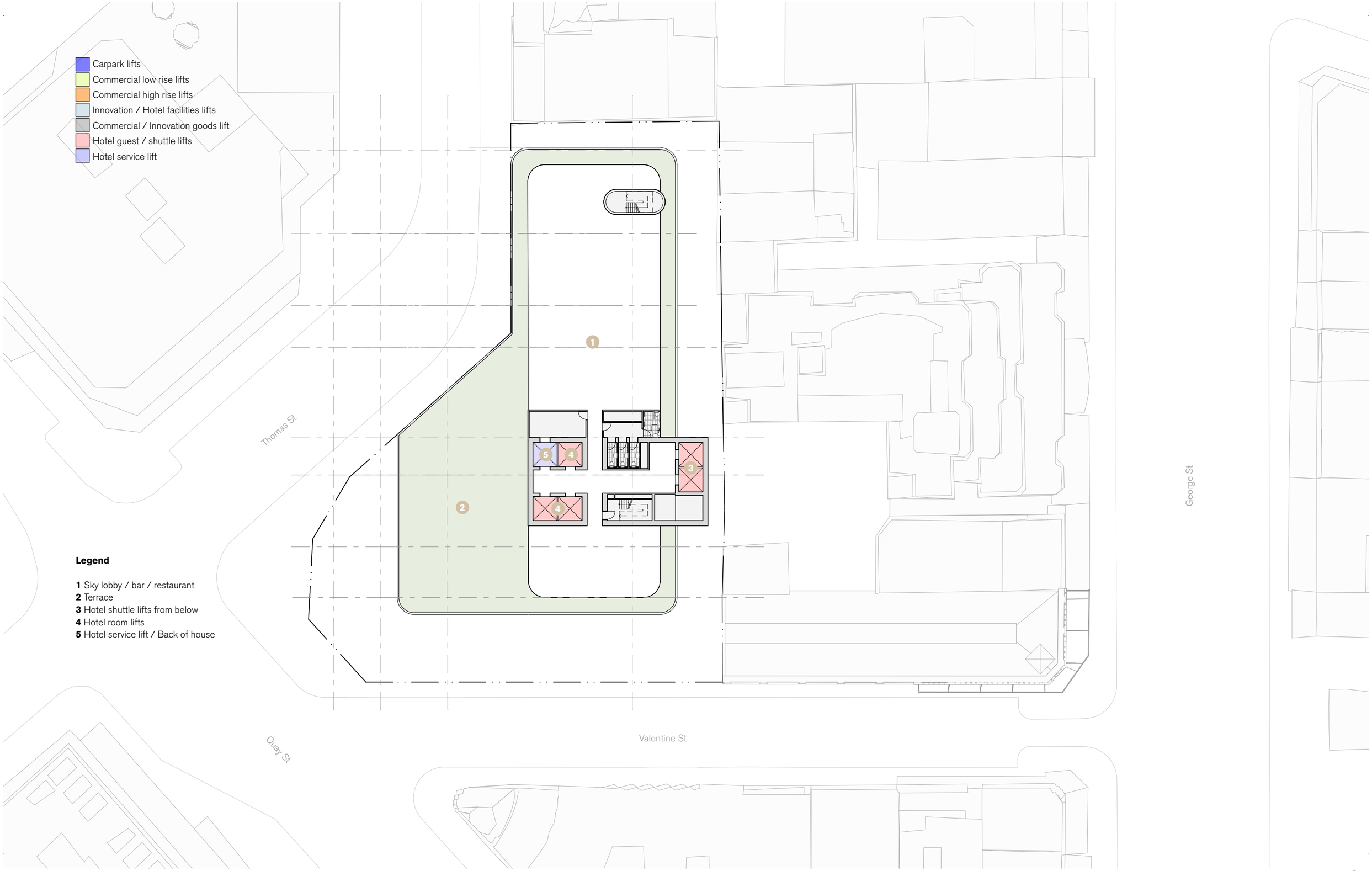
1:400 @ A3

13/3/20

For Information

fjmt-1014

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift



Legend

1 Sky lobby / bar / restaurant
2 Terrace
3 Hotel shuttle lifts from below
4 Hotel room lifts
5 Hotel service lift / Back of house

fjmt

Level 35 - Sky Lobby

GREATON - 187 Thomas St

0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1015

Legend

1 Hotel Rooms
2 Hotel room lifts
3 Hotel service lift / Back of house

fjmt

Level 36-44 - Hotel Rooms

GREATON - 187 Thomas St

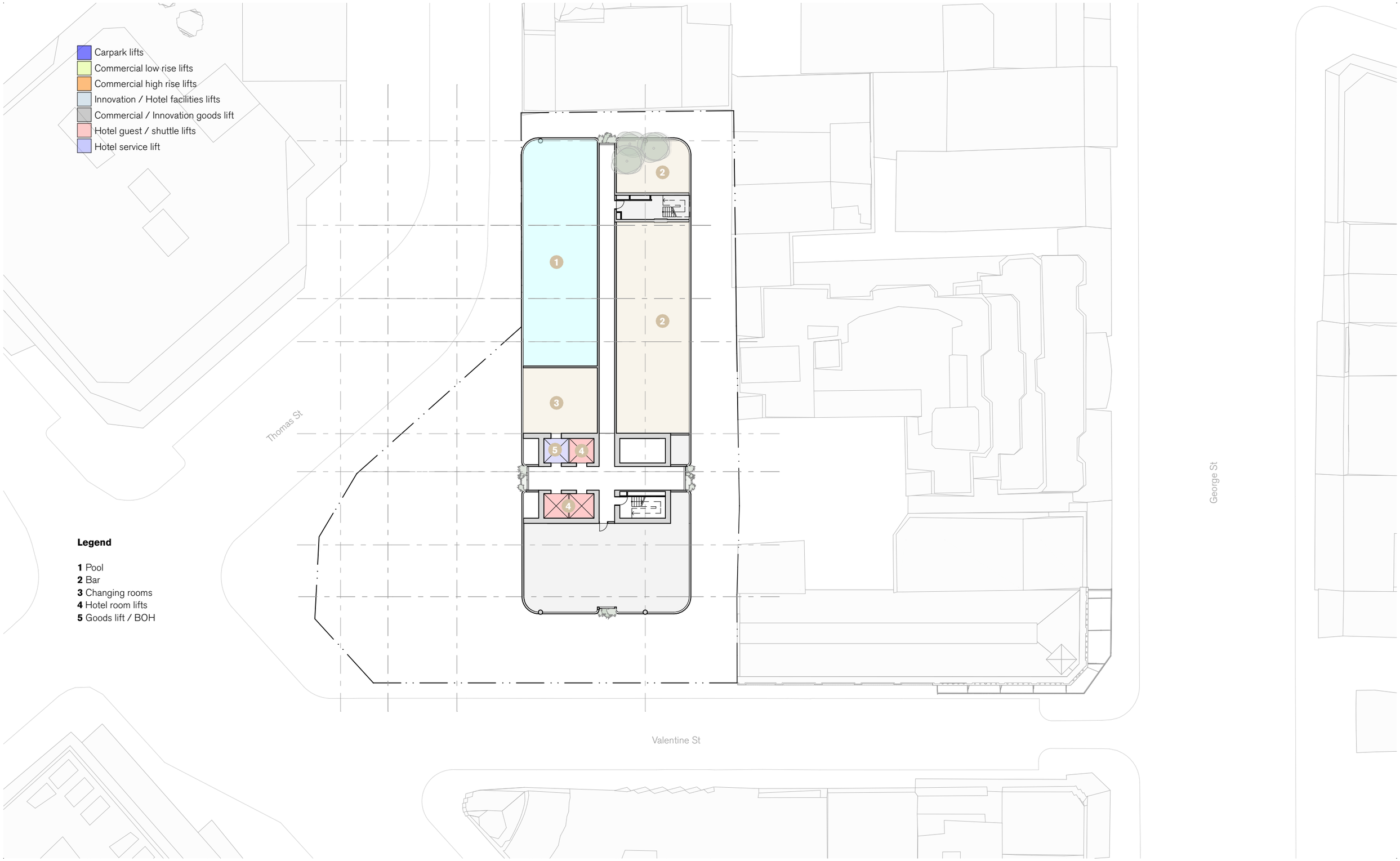
0 4 10 20m

1:400 @ A3

13/3/20

For Information

fjmt-1016



Legend

1 Pool
2 Bar
3 Changing rooms
4 Hotel room lifts
5 Goods lift / BOH

fjmt

Level 46 - Roof Pool and Plant

GREATON - 187 Thomas St

0 4 10 20m

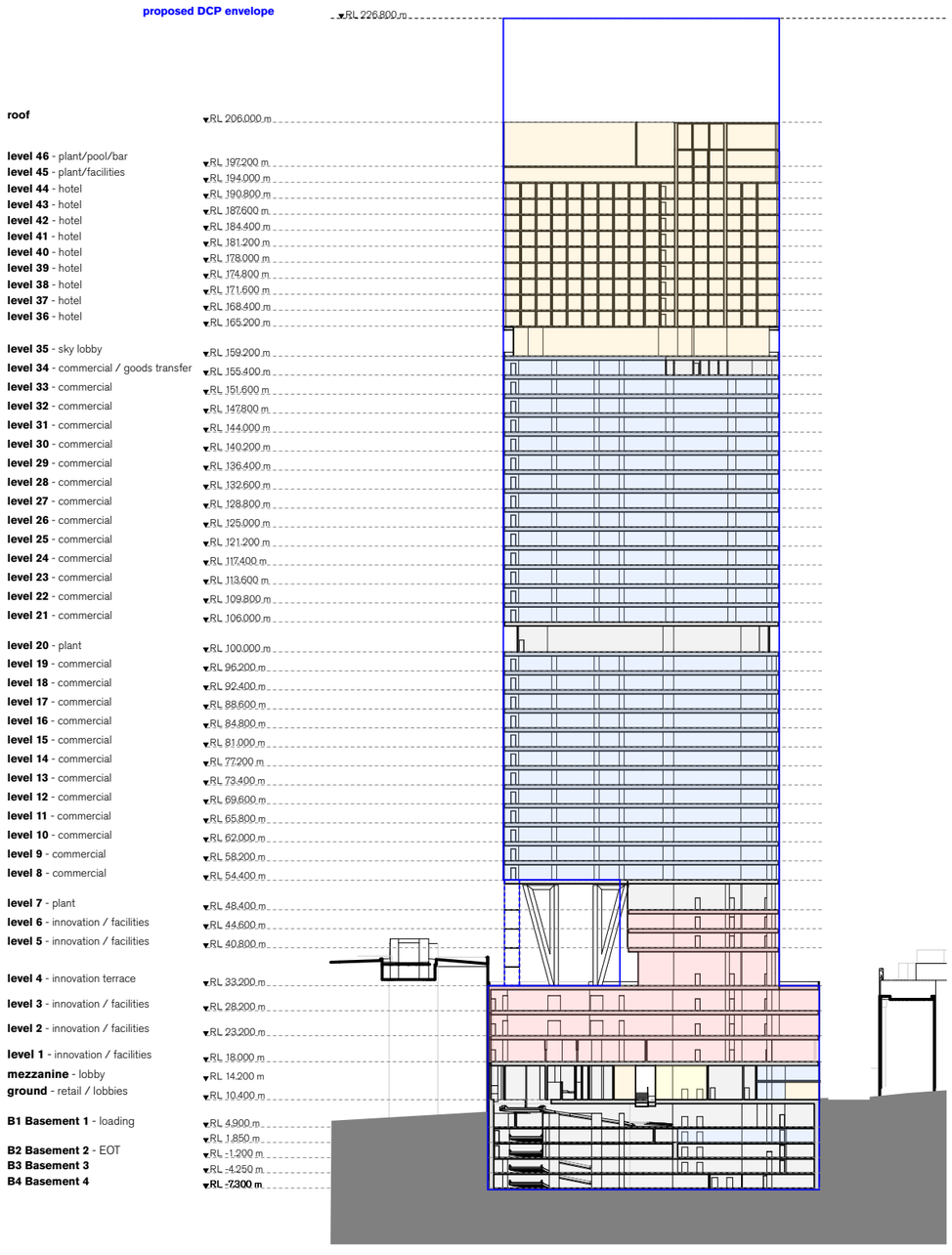
1:400 @ A3

13/3/20

For Information

fjmt-1017

NORTH-SOUTH SECTION



Proposed DCP Envelope

fjmt

Alternate Inidcative Scheme Section

GREATON - 187 Thomas St

1:1200 @ A3

For Information

14/4/20

fjmt-1019B

Alternate Indicative Scheme FSR 20 : 1 Development Summary

187 Thomas Street Indicative Scheme Summary		GFA	Land Use	FSR
	hotel	9,766 m²	21%	4.15 :1
	commercial	31,911 m²	68%	13.57 :1
	innovation	5,135 m²	11%	2.18 :1
	retail	219 m²	0%	0.09 :1
Above + below ground	**total**	**47,031 m²**	100%	**20.00 :1**
Above Ground	total	47,031 m²		20.00 :1
Below Ground	total	0 m²		0.00 :1

Site Area	2,351 m²	(surveys measured)

measured efficiencies

retail	BEA/GBA	93%
	GBA/GFA	10%
	GFA/NLA	100%
hotel	BEA/GBA	93%
	GBA/GFA	15%
	GFA/NLA	61%
commercial/innovation	BEA/GBA	93%
	GBA/GFA	56%
	GFA/NLA	92%

Typ High	GBA	GFA	NSA
Commercial	1,498	1,228	1,160
		82.0%	94%

Typ Low	GBA	GFA	NSA
Commercial	1,502	1,189	1,120
		79.2%	94%

Actual Efficiencies	BEA	GBA	Efficiency
BEA/GBA	70,627	65,982	93%

				RL	Floors	Height	BEA	GBA	Commercial GFA	Commercial NLA	Innovation GFA	Innovation NLA	Hotel GFA	Hotel NSA	Retail GFA	Retail GLAR
		Top RL		206.00												
SKY RISE TOWER	level 46	plant/pool/bar		197.20	8.80	195.60	1106	1082					455			
	level 45	plant/facilities		194.00	3.20	186.80	1106	1082					113	0		
	level 44	hotel 9		190.80	3.20	183.60	1106	1082					899	664		
	level 43	hotel 8		187.60	3.20	180.40	1106	1082					899	664		
	level 42	hotel 7		184.40	3.20	177.20	1106	1082					899	664		
	level 41	hotel 6		181.20	3.20	174.00	1106	1082					899	664		
	level 40	hotel 5		178.00	3.20	170.80	1106	1082					899	664		
	level 39	hotel 4		174.80	3.20	167.60	1106	1082					899	664		
	level 38	hotel 3		171.60	3.20	164.40	1106	1082					899	664		
	level 37	hotel 2		168.40	3.20	161.20	1106	1082					899	664		
	level 36	hotel 1		165.20	3.20	158.00	1106	1082					899	664		
	level 35	sky lobby		159.20	6.00	154.80	1106	889					738			
HIGH RISE TOWER	level 34	Commercial 26/loading		155.40	3.80	148.80	1520	1498	1115	1053						
	Level 33	commercial 25		151.60	3.80	145.00	1520	1498	1228	1160						
	level 32	commercial 24		147.80	3.80	141.20	1520	1498	1228	1160						
	level 31	commercial 23		144.00	3.80	137.40	1520	1498	1228	1160						
	level 30	commercial 22		140.20	3.80	133.60	1520	1498	1228	1160						
	level 29	commercial 21		136.40	3.80	129.80	1520	1498	1228	1160						
	level 28	commercial 20		132.60	3.80	126.00	1520	1498	1228	1160						
	level 27	commercial 19		128.80	3.80	122.20	1520	1498	1228	1160						
	level 26	commercial 18		125.00	3.80	118.40	1520	1498	1228	1160						
	level 25	commercial 17		121.20	3.80	114.60	1520	1498	1228	1160						
	level 24	commercial 16		117.40	3.80	110.80	1520	1498	1228	1160						
	level 23	commercial 15		113.60	3.80	107.00	1520	1498	1228	1160						
	level 22	commercial 14		109.80	3.80	103.20	1520	1498	1228	1160						
	level 21	commercial 13		106.00	3.80	99.40	1520	1498	1228	1160						
LOW RISE TOWER	level 20	plant		100.00	6.00	95.60	1520	1200								
	level 19	commercial 12		96.20	3.80	89.60	1520	1502	1189	1120						
	level 18	commercial 11		92.40	3.80	85.80	1520	1502	1189	1120						
	level 17	commercial 10		88.60	3.80	82.00	1520	1502	1189	1120						
	level 16	commercial 9		84.80	3.80	78.20	1520	1502	1189	1120						
	level 15	commercial 8		81.00	3.80	74.40	1520	1502	1189	1120						
	level 14	commercial 7		77.20	3.80	70.60	1520	1502	1189	1120						
	level 13	commercial 6		73.40	3.80	66.80	1520	1502	1189	1120						
	level 12	commercial 5		69.60	3.80	63.00	1520	1502	1189	1120						
	level 11	commercial 4		65.80	3.80	59.20	1520	1502	1189	1120						
	level 10	commercial 3		62.00	3.80	55.40	1520	1502	1189	1120						
	level 9	commercial 2		58.20	3.80	51.60	1520	1502	1189	1120						
	Level 8	commercial 1		54.40	3.80	47.80	1520	1502	1189	1120						
VOID TOWER	level 7	plant		48.40	6.00	44.00	1520	1031								
	level 6	Innovation / hotel		44.60	3.80	38.00	1520	1031			445	384				
	level 5	Innovation / hotel		40.80	3.80	34.20	1520	1031			445	384				
	level 4	innovation terrace		33.20	7.60	30.40	2351	875			413	352				
PODIUM	level 3	Innovation / hotel		28.20	5.00	22.80	2351	2015			837	772				
	level 2	Innovation / hotel		23.20	5.00	17.80	2351	2015			1690	1625				
	level 1	Innovation / hotel		18.00	5.20	12.80	2351	2167			1180	1082				
MEZZANINE	mezzanine	lobbies / plant		14.20	3.80	7.60		560	307							
GROUND	ground 0	retail / lobbies		10.40	3.80	3.80	2351	2270	257		125		369		219	219
	subtotal						**70,627**	**65,982**	**31,911**	**29,573**	**5,135**	**4,599**	**9,766**	**5,976**	**219**	**219**
BASEMENT	basement 1	loading/plant		4.90	5.50			2278								
	basement 2	bike parking/EOT		1.85	3.05			2278								
	basement 3	parking B3		-1.20	3.05			2278								
	basement 4	parking B4		-4.25	3.05			2278								
	basement 5	parking B5		-7.30	3.05			2278								
	subtotal						**0**	**11,390**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	total						**70,627**	**77,372**	**31,911**	**29,573**	**5,135**	**4,599**	**9,766**	**5,976**	**219**	**219**

Appendix D PROPOSED DCP ENVELOPE DRAWINGS

Envelope Basement Level

Envelope Grounnd Floor and Level 1

Envelope Podium Level

Envelope Void Tower Level

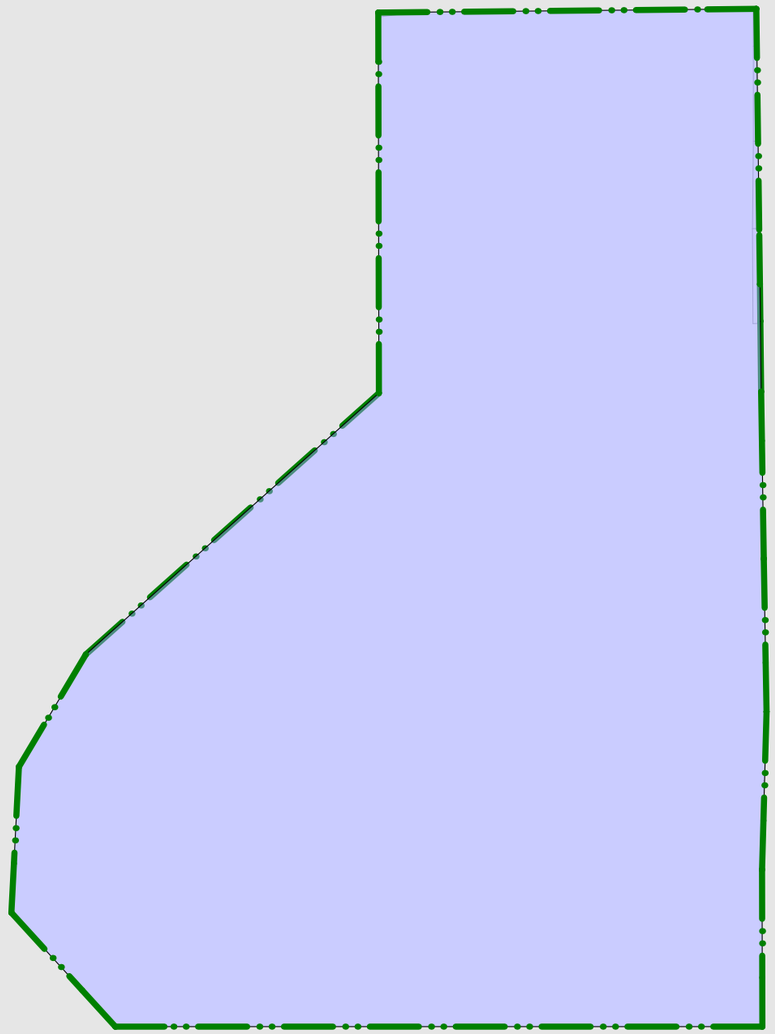
Envelope Top Tower Level

Envelope Roof Plan Summary

Envelope Sections

Envelope Elevations

Envelope Axos



Legend

Site Boundary

Building Envelope

fjmt

0 4 10 20m

Envelope Basement Level

1:400 @ A3 9/4/20

GREATON - 187 Thomas St

For Information **fjmt-2001**

fjmt

Envelope Ground Floor and Level 1

GREATON - 187 Thomas St

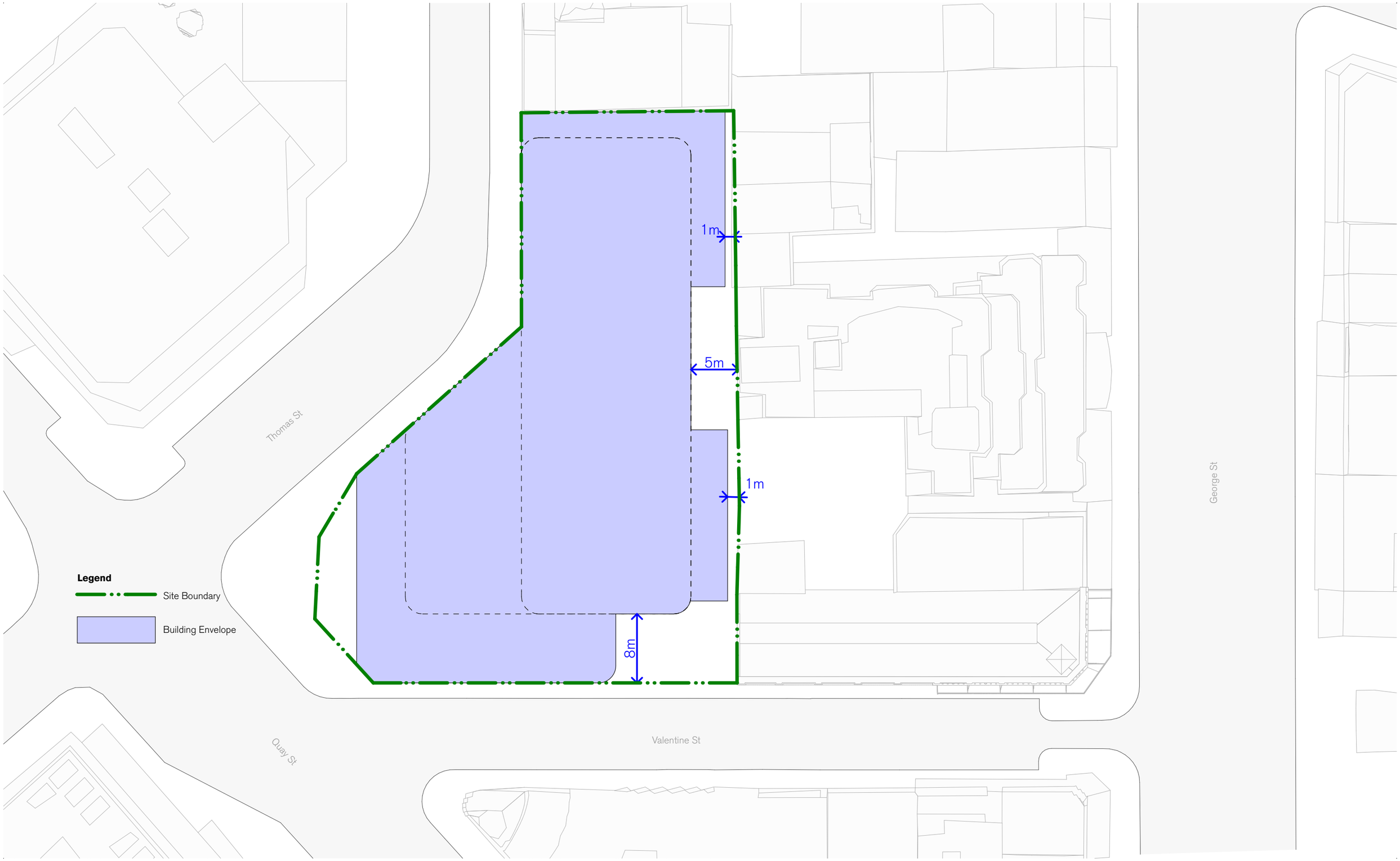
0 4 10 20m

1:400 @ A3

9/4/20

For Information

fjmt-1006



fjmt

Envelope Podium Level

GREATON - 187 Thomas St

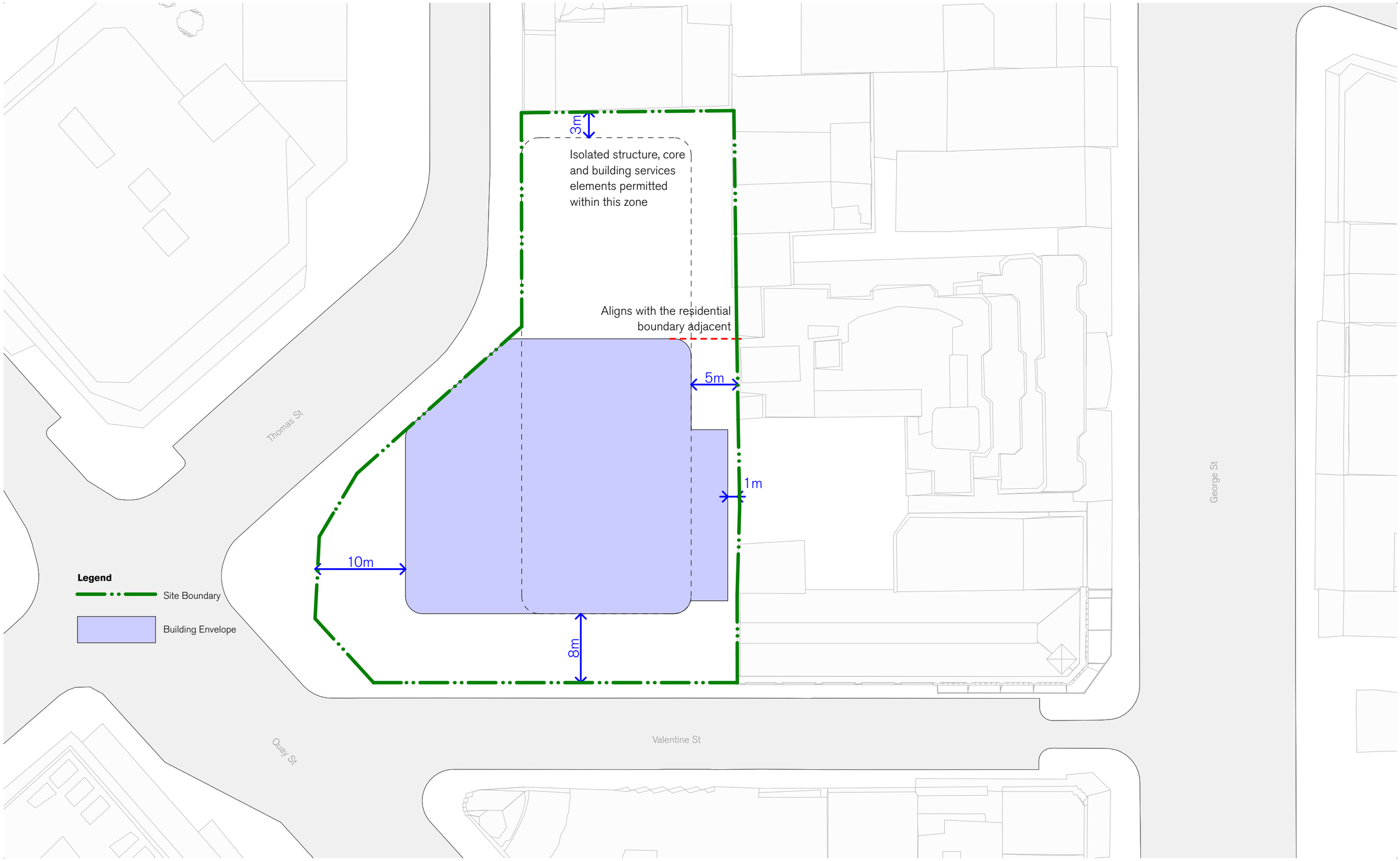
0 4 10 20m

1:400 @ A3

9/4/20

For Information

fjmt-2003



fjmt

Envelope Void Tower Level

GREATON - 187 Thomas St

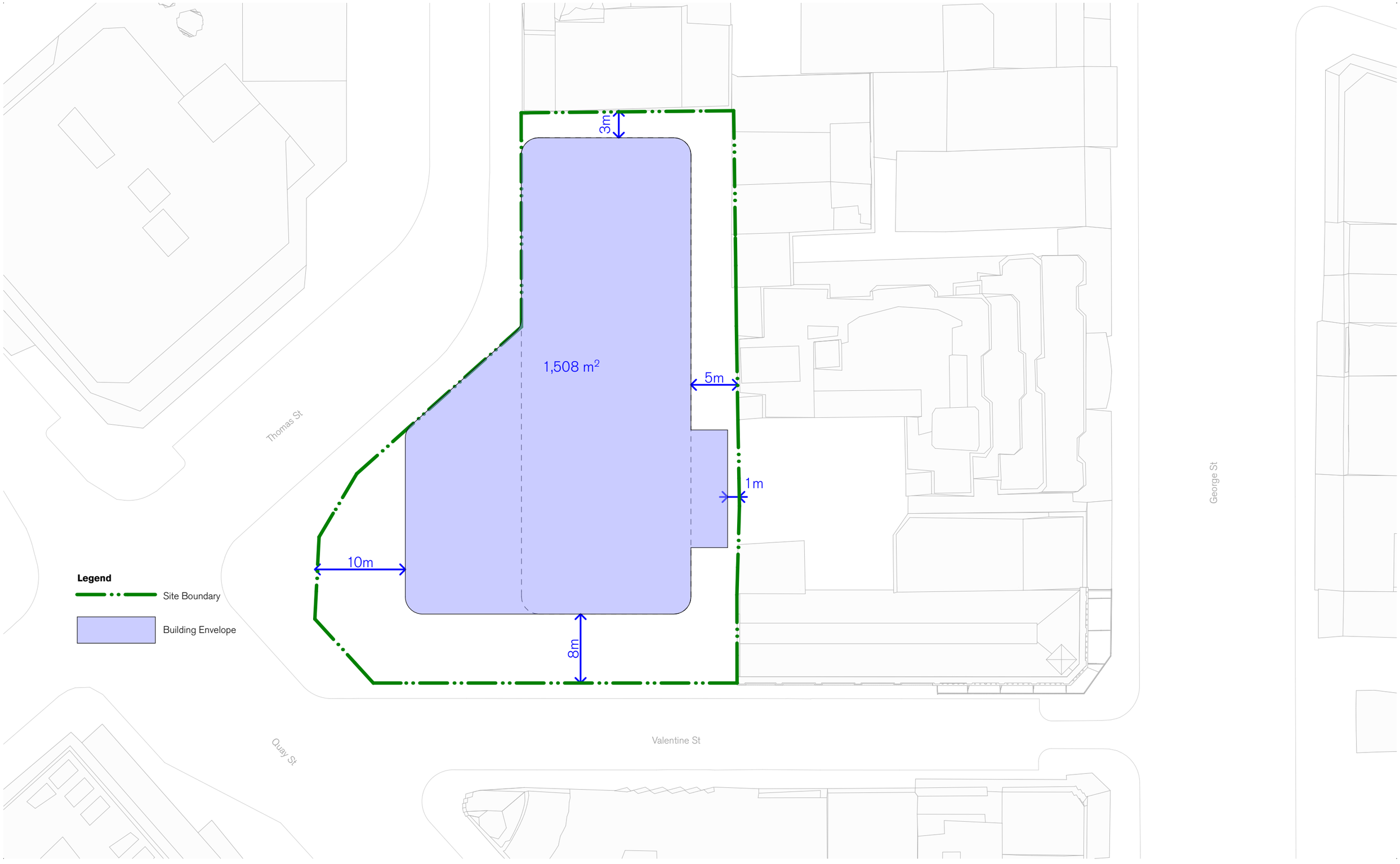
0 4 10 20m

1:400 @ A3

9/4/20

For Information

fjmt-2004



fjmt

Envelope Tower Level

GREATON - 187 Thomas St

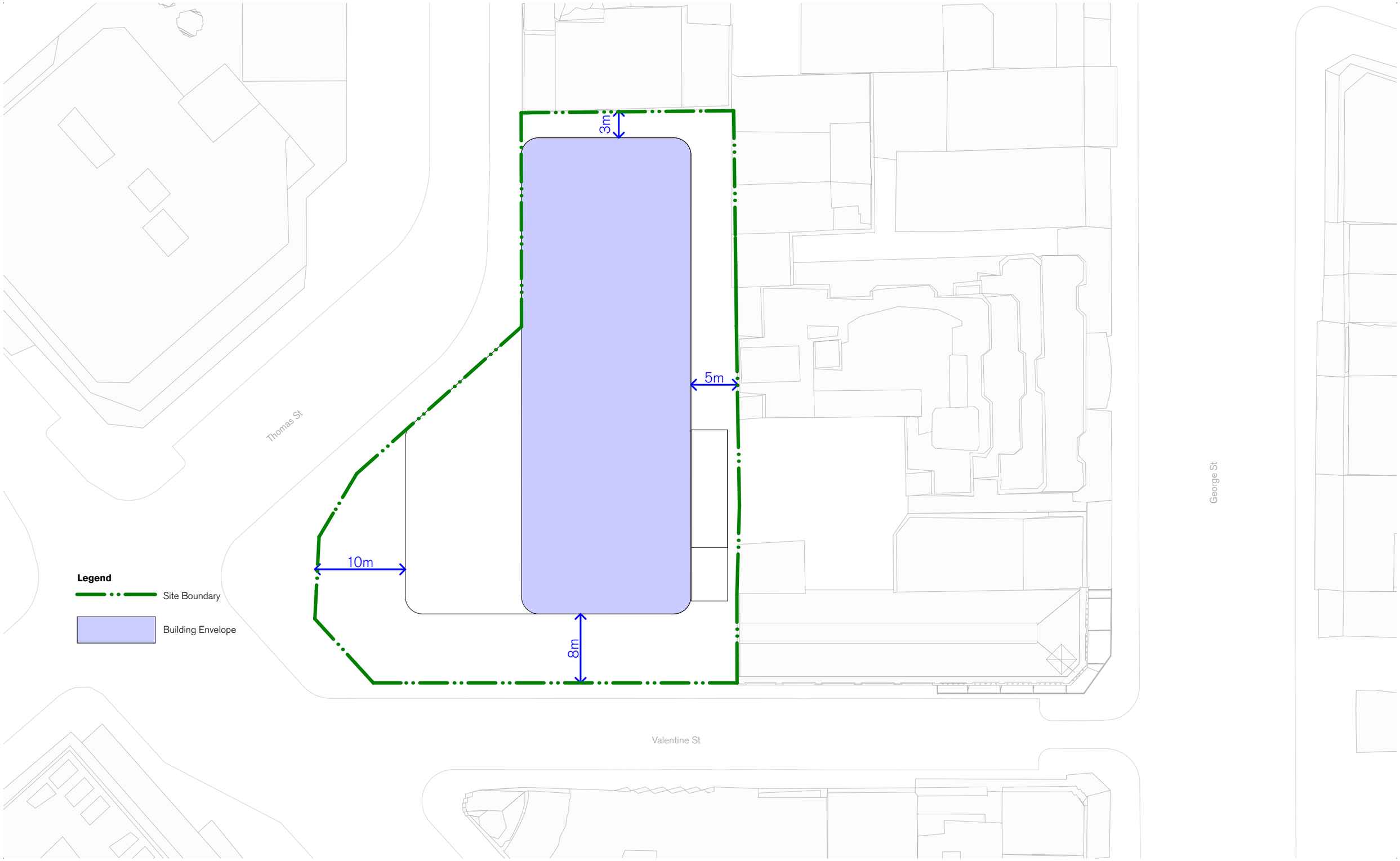
0 4 10 20m

1:400 @ A3

9/4/20

For Information

fjmt-2005



fjmt

Envelope Top Tower Level

GREATON - 187 Thomas St

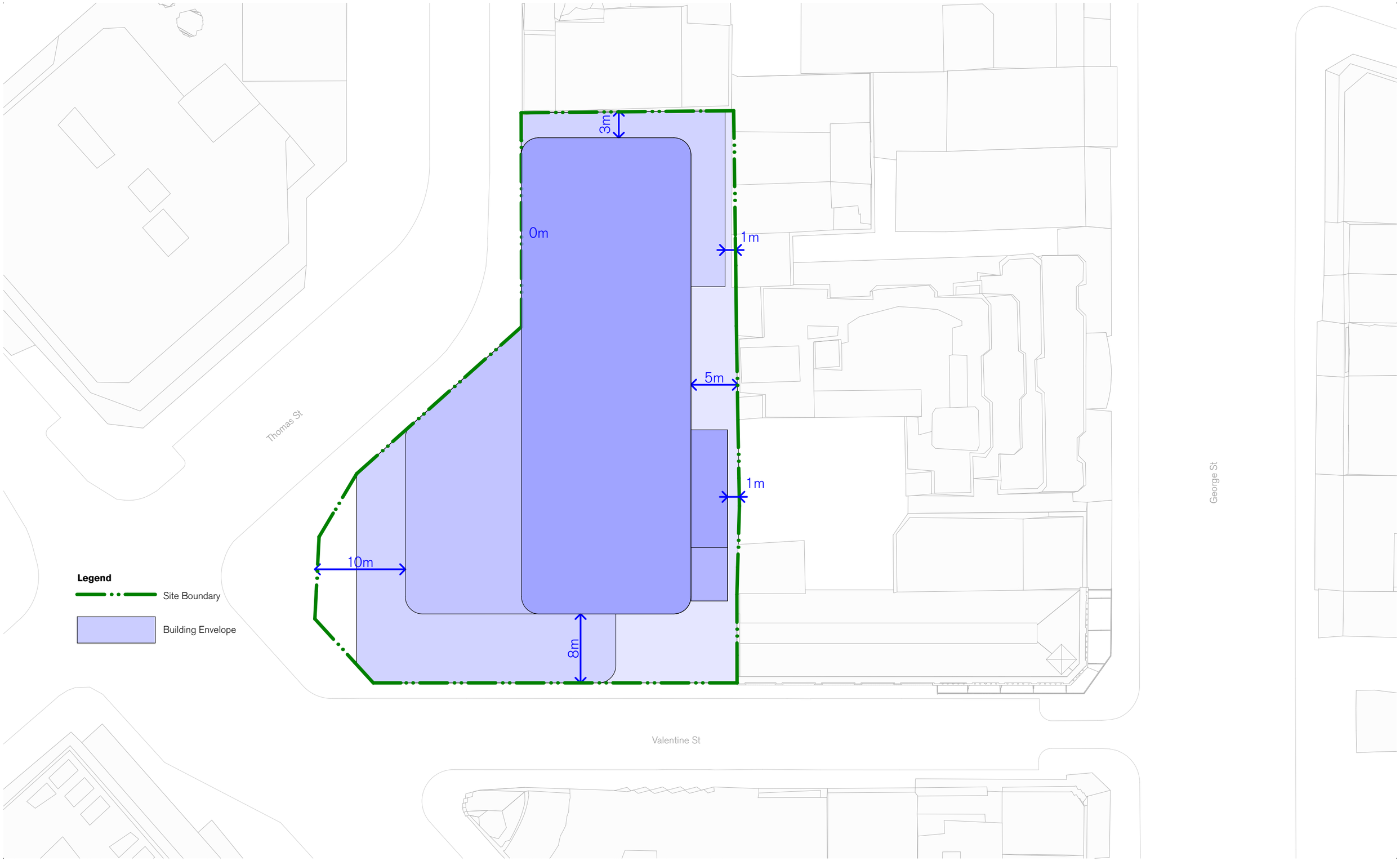
0 4 10 20m

1:400 @ A3

9/4/20

For Information

fjmt-2006



fjmt

Envelope Roof Plan Summary

GREATON - 187 Thomas St

0 4 10 20m

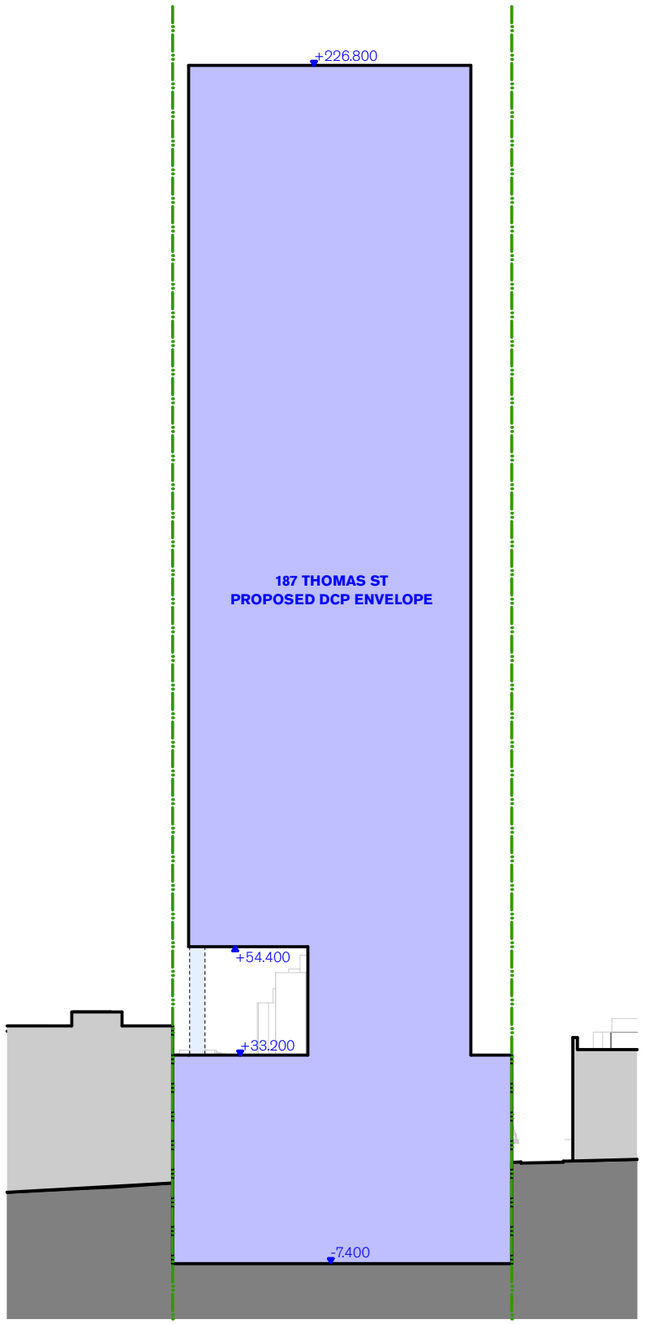
1:400 @ A3

9/4/20

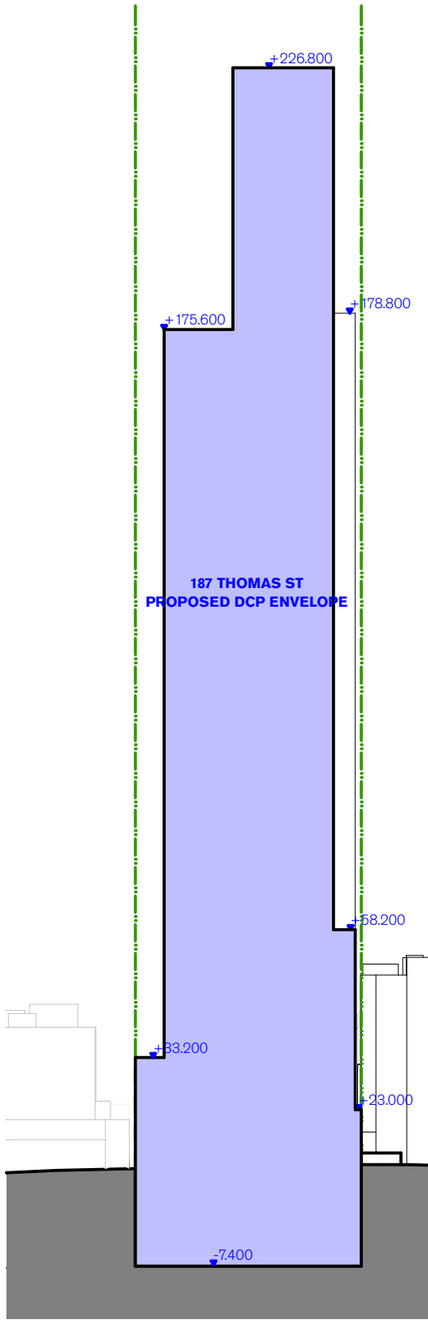
For Information

fjmt-2007

NORTH-SOUTH SECTION



EAST-WEST SECTION



fjmt

Envelope Sections

GREATON - 187 Thomas St

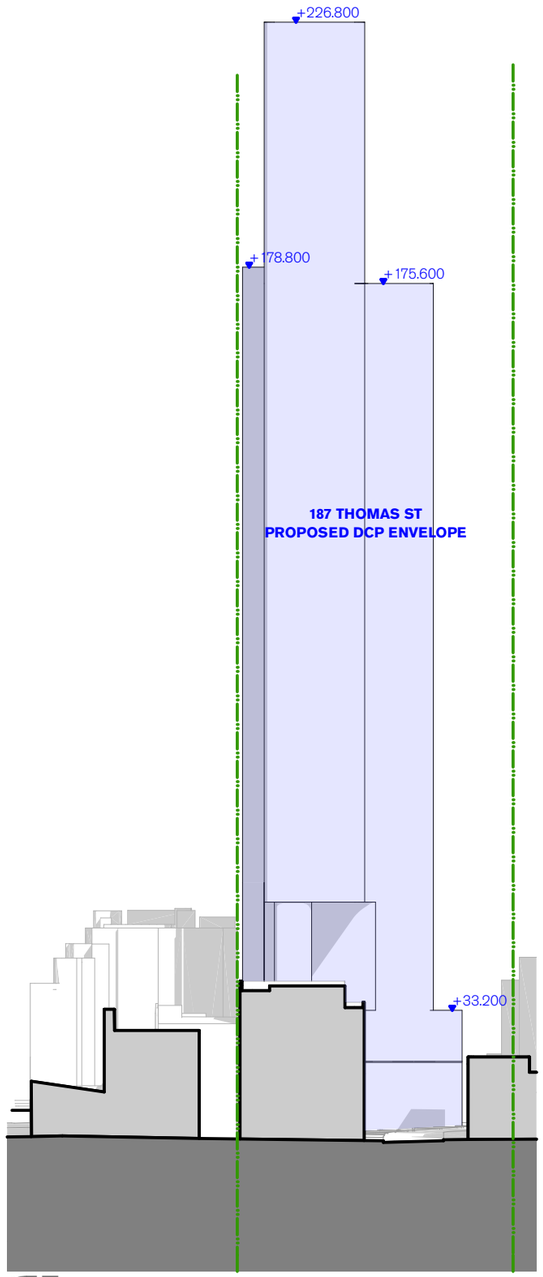
1:1200 @ A3

For Information

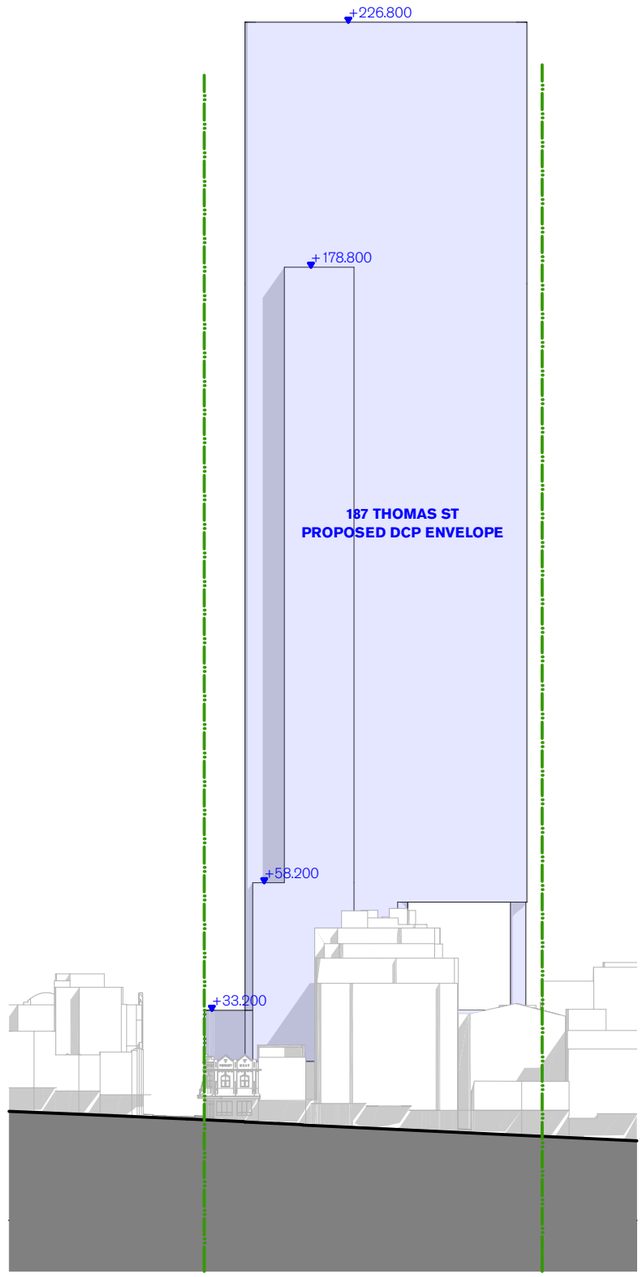
9/4/20

fjmt-2008

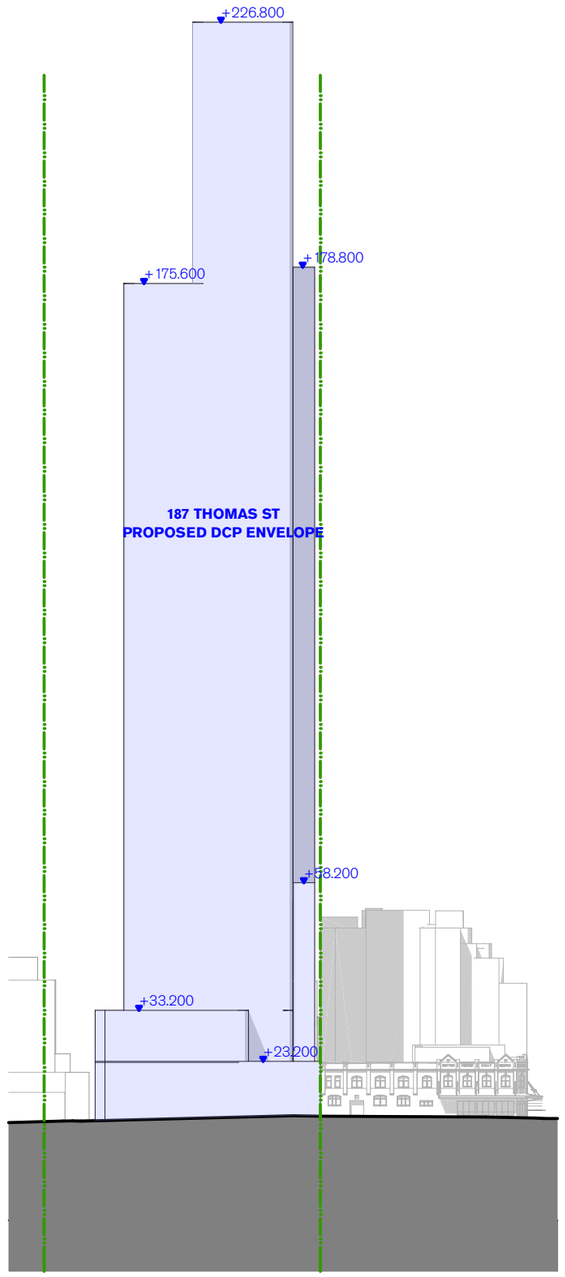
NORTH



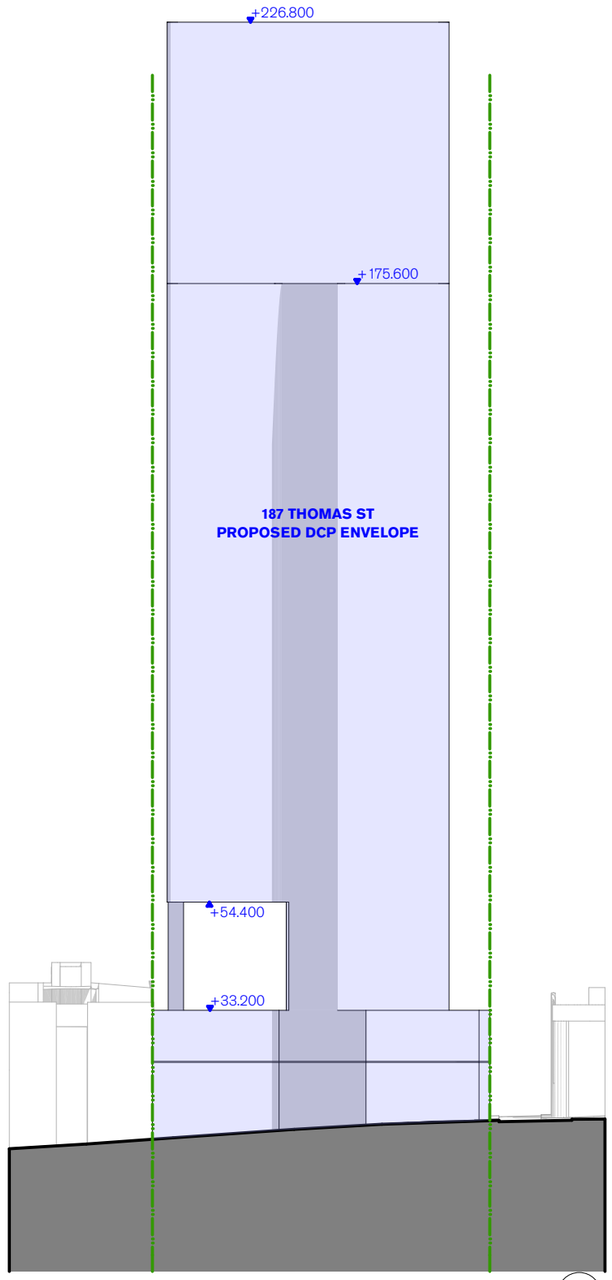
EAST



SOUTH



WEST



fjmt

Envelope Elevations

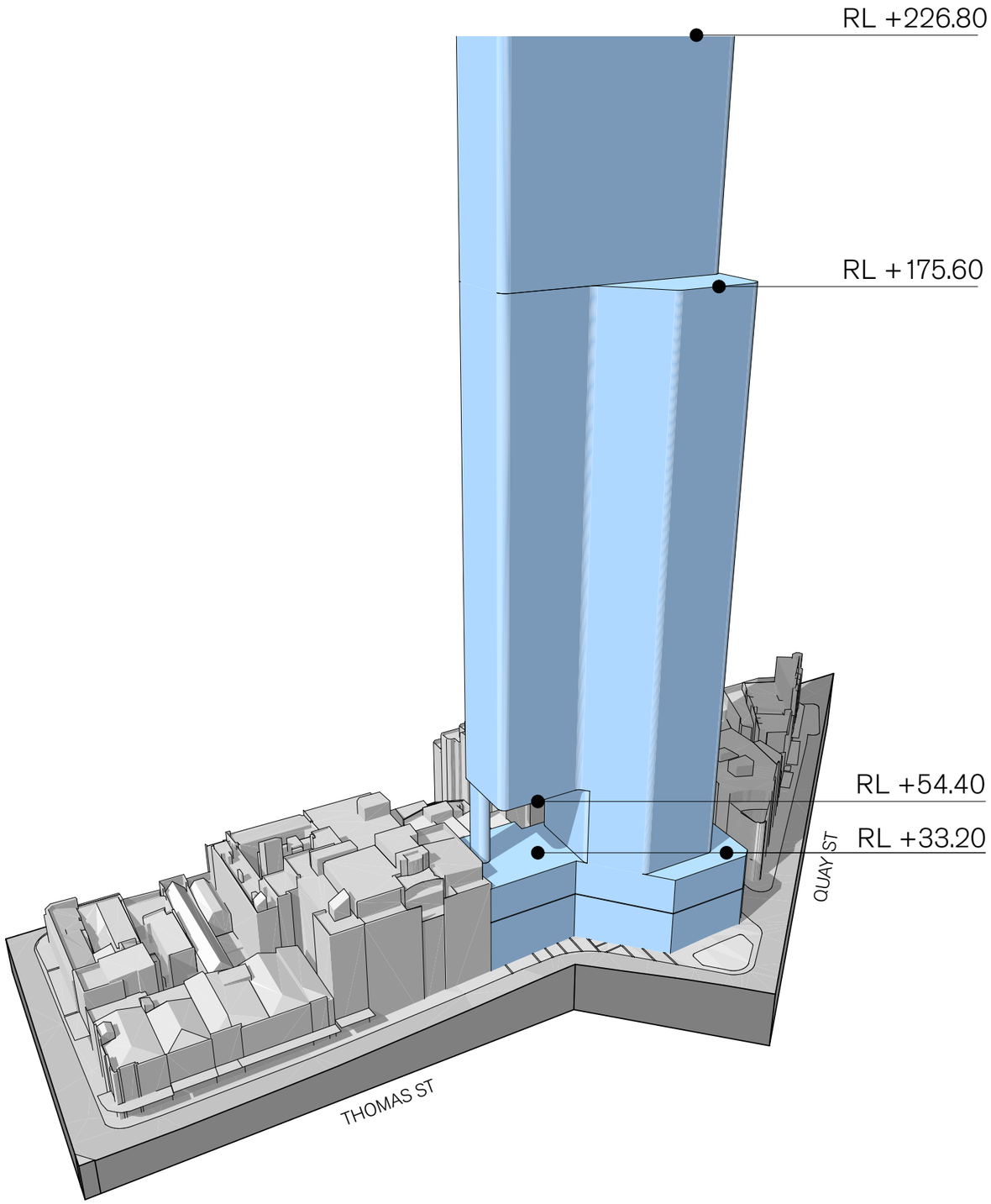
GREATON - 187 Thomas St

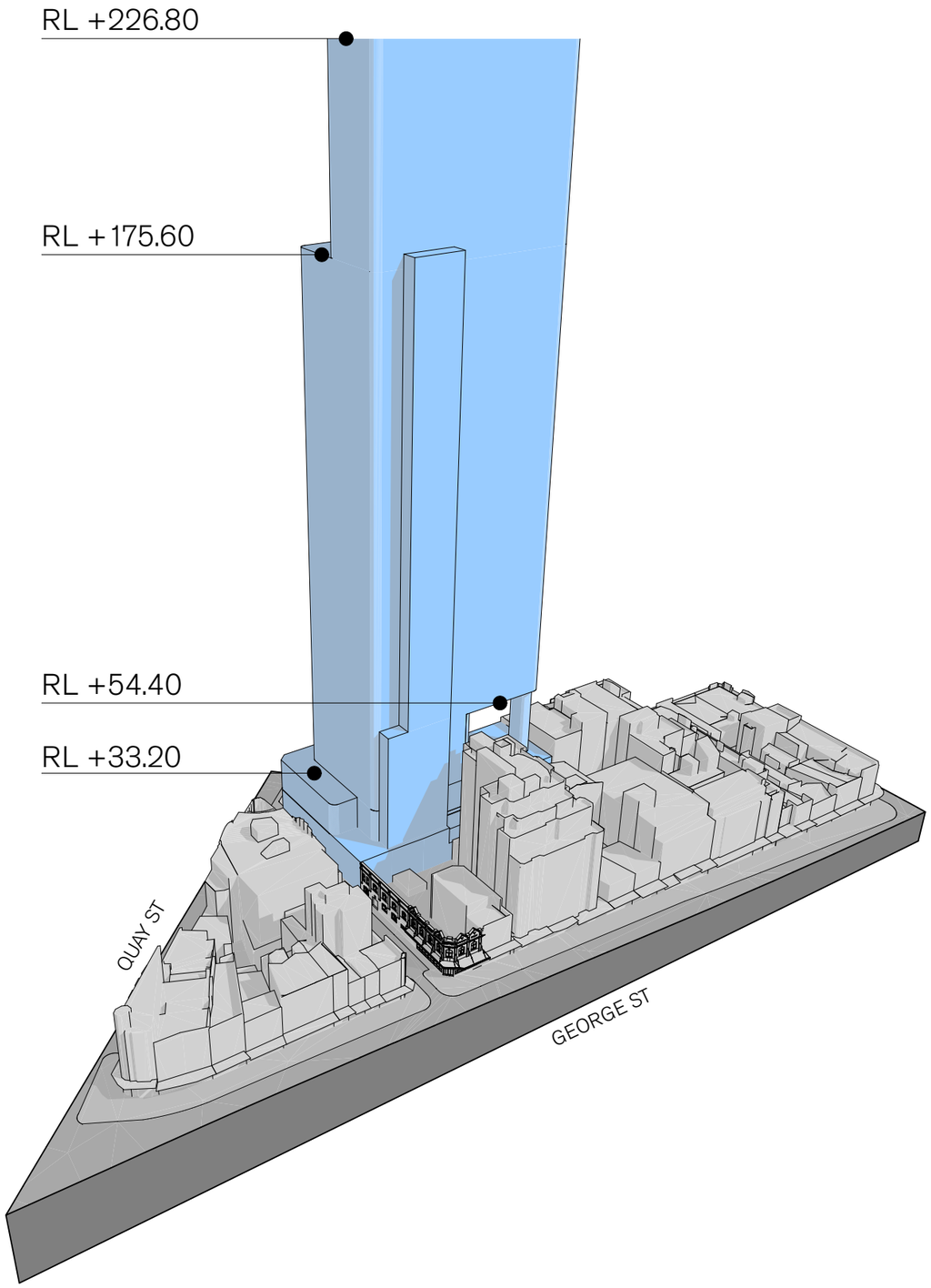
1:1200 @ A3

For Information

9/4/20

fjmt-2009





fjmt

Envelope Axos

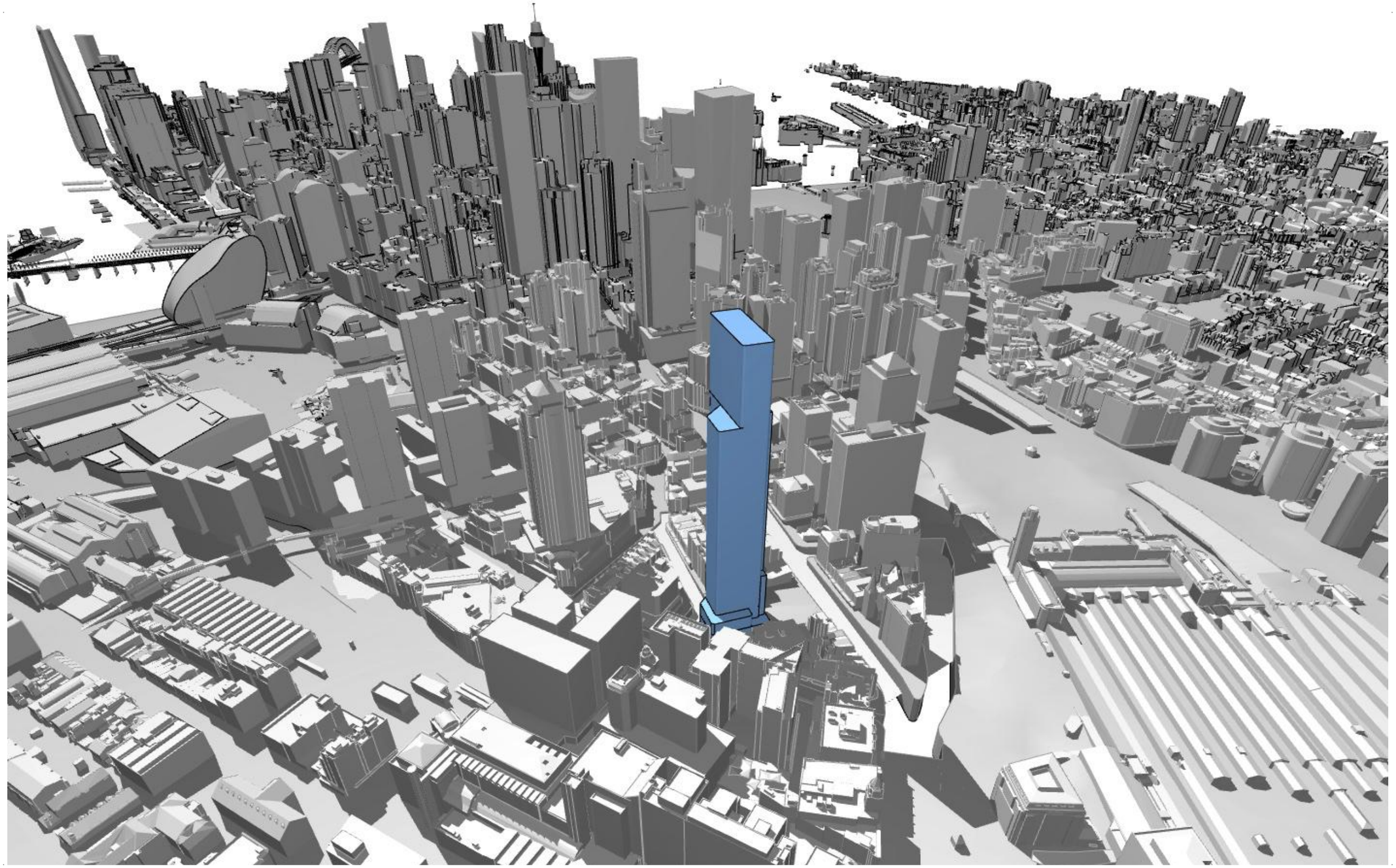
GREATON - 187 Thomas St

1:1200 @ A3

For Information

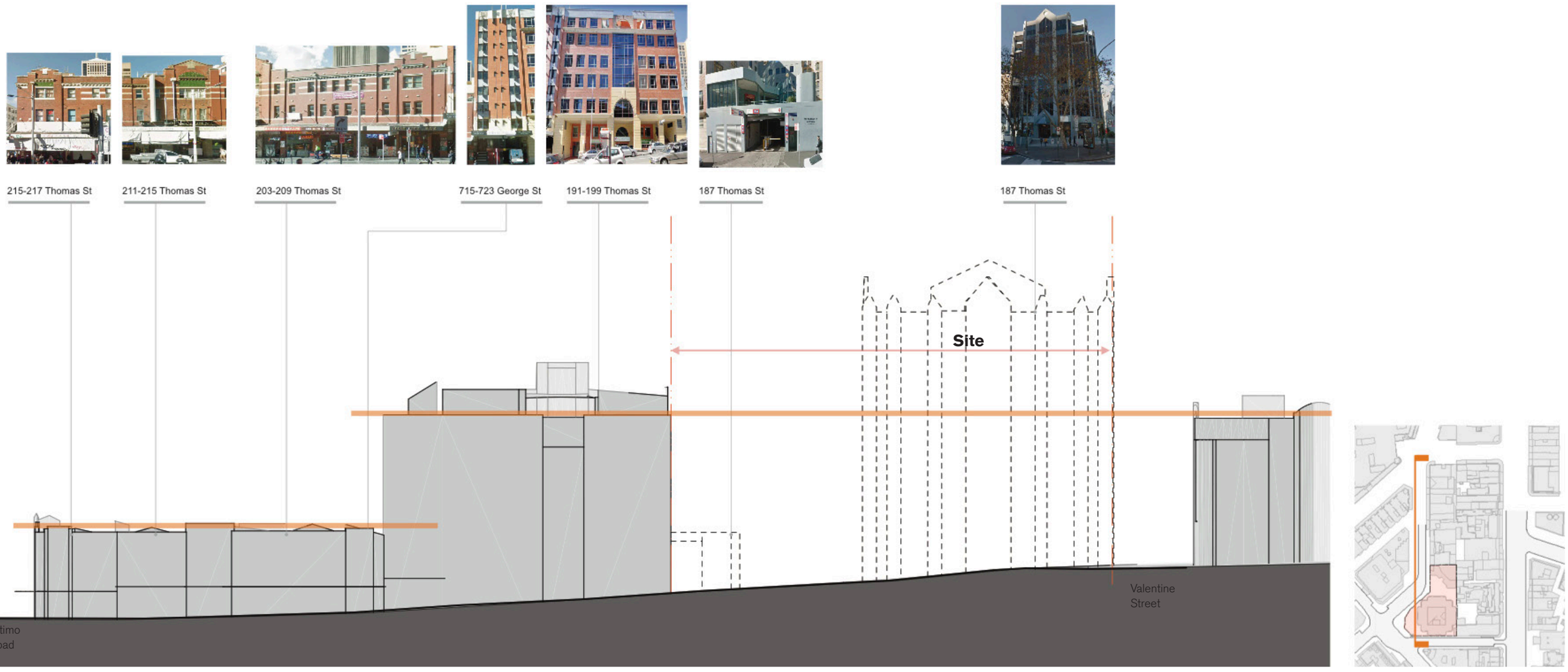
9/4/20

fjmt-2010

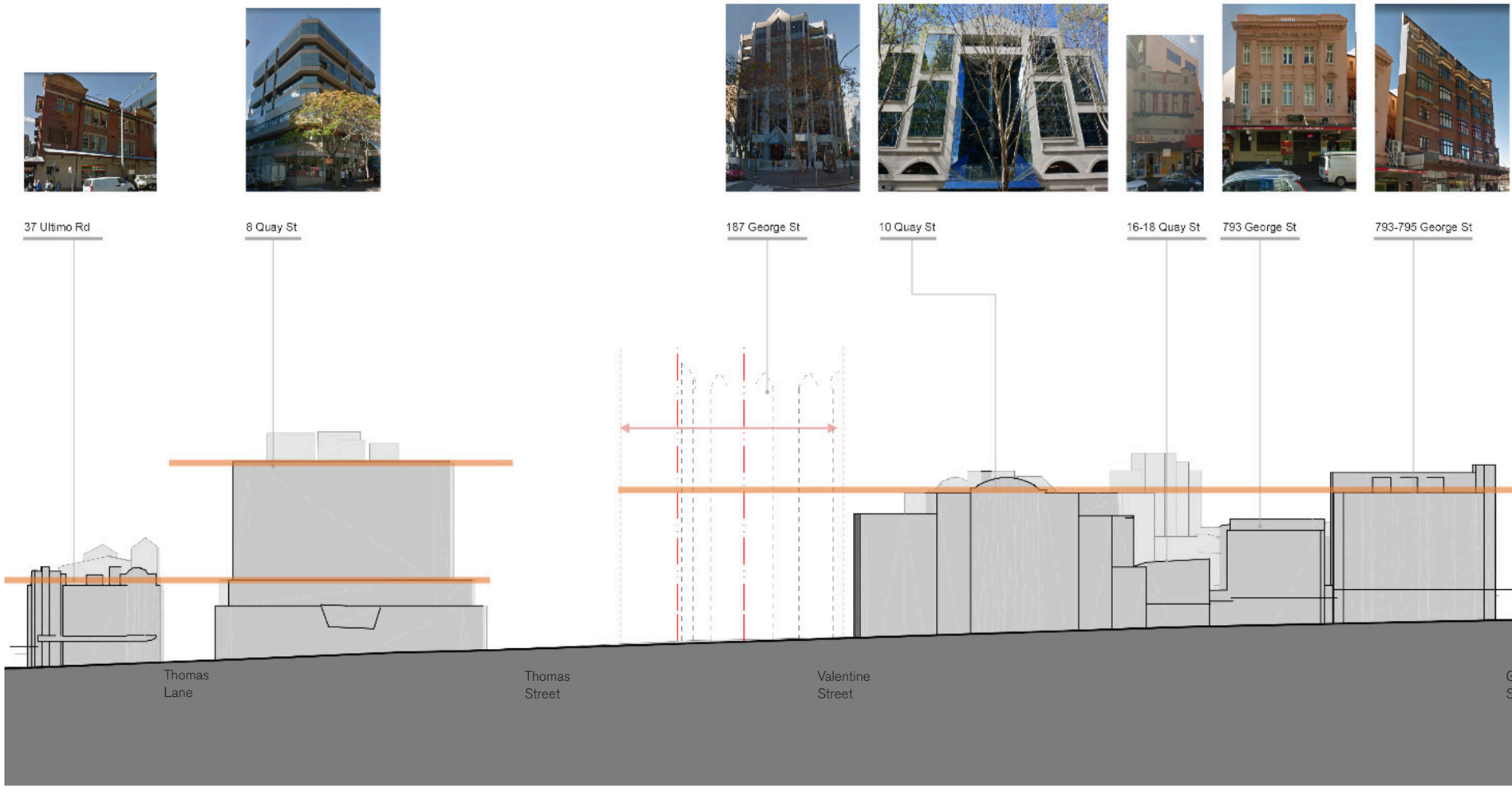


Appendix E STREETSCAPE ANALYSIS

Thomas St



Quay St


37 Ultimo Rd
8 Quay St
187 George St
10 Quay St
16-18 Quay St
793 George St
793-795 George St
Thomas Lane
Thomas Street
Valentine Street
George Street

Valentine St

187 Thomas Street

761-763 George Street

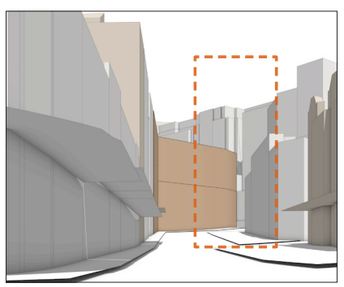
Thomas
Street

George
Street

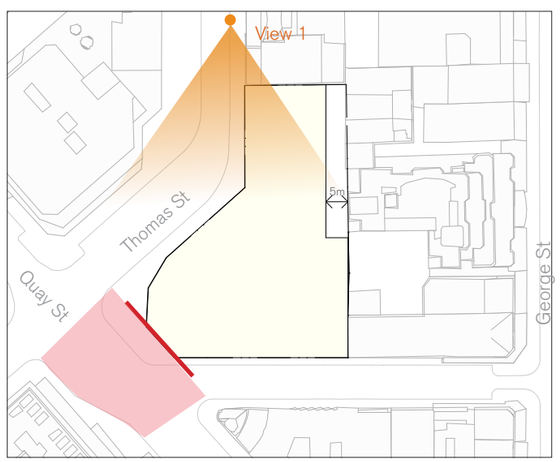
Thomas and Quay Option 1 & 2

A consistent street wall exists along Thomas and Quay Streets.

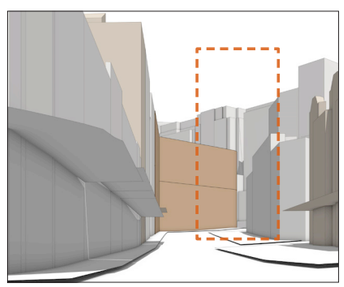
Three options have been considered on how a new building could relate to and enhance the proposed new Square on Quay Street.



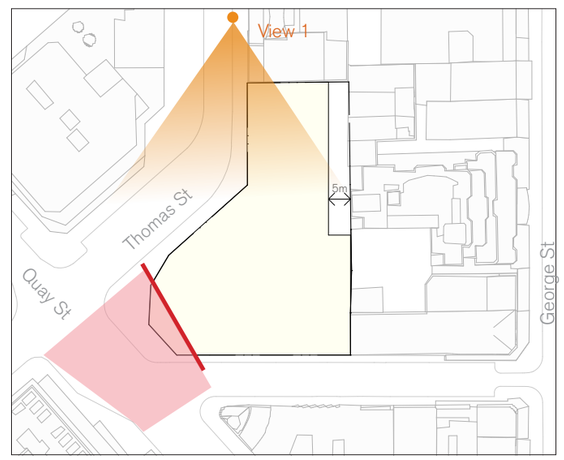
View 1 - Street Wall **Option 1**



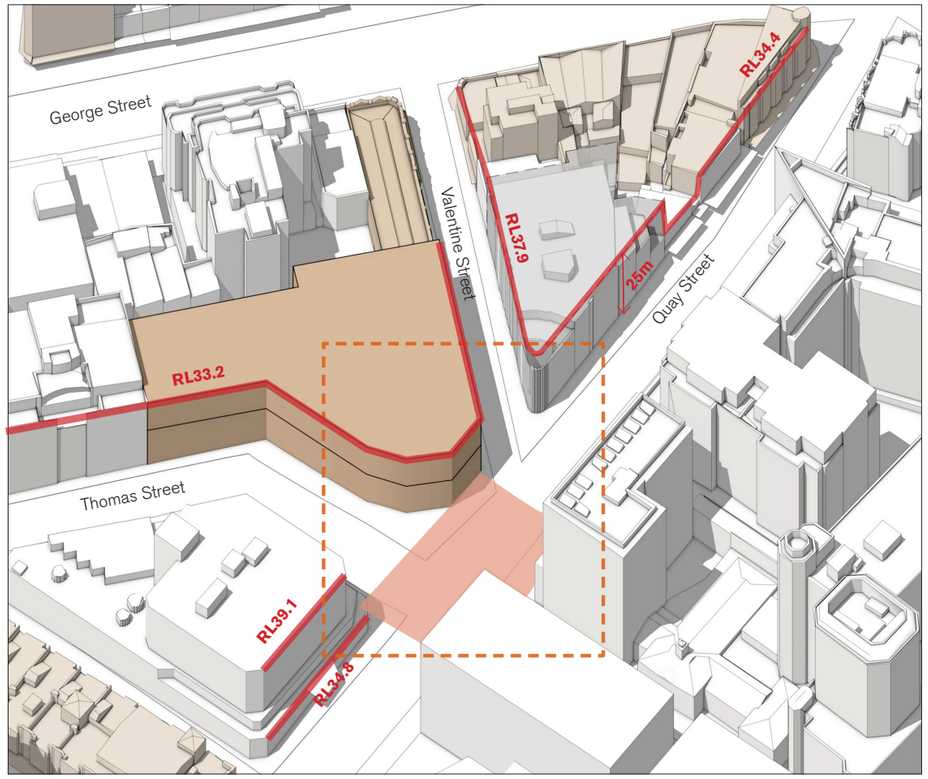
Plan - Street Wall **Option 1**

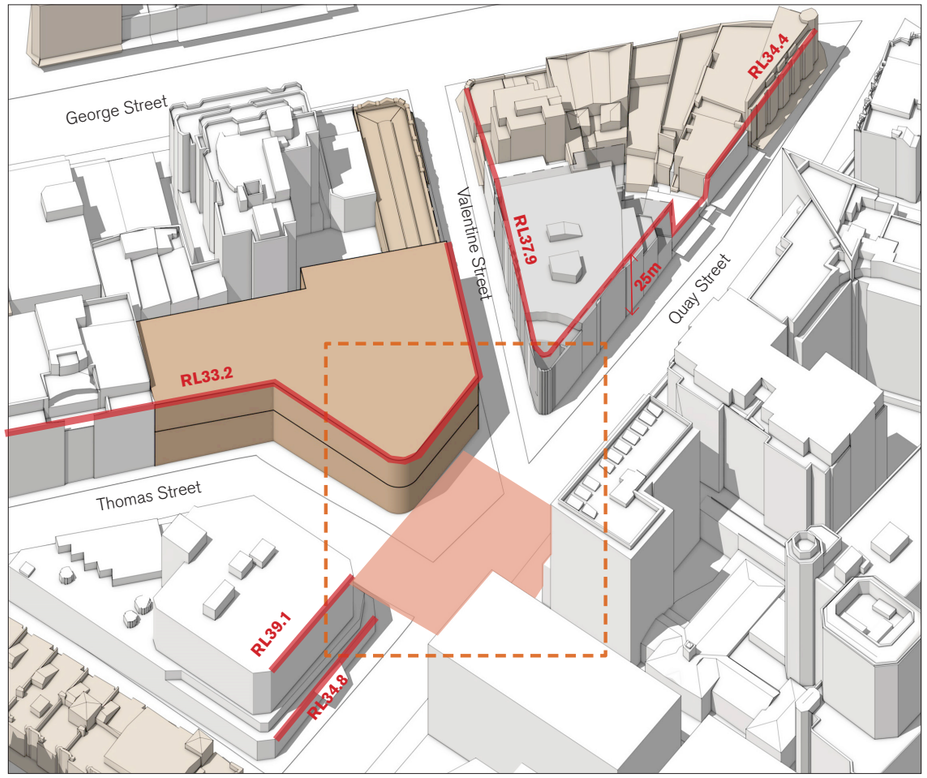


View 1 - Street Wall **Option 2**



Plan - Street Wall **Option 2**





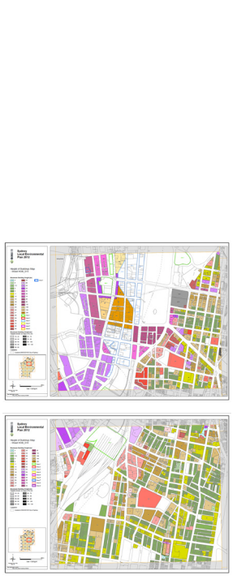
City of Sydney Proposed New Square

Appendix F EXISTING PLANNING CONTROLS

Height

Sydney LEP 2012

Maximum building height : 50m

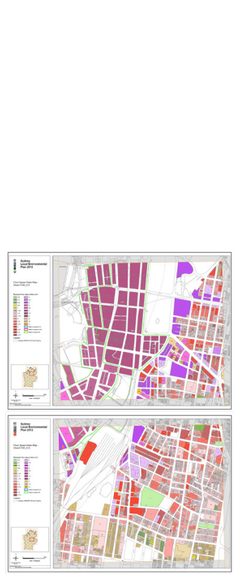


Y 50

Floor Space Ratio

Sydney LEP 2012

Maximum floor space ratio : 7.5 : 1



AB2 7.5

Street Frontage Height

Sydney DCP 2012

Table 5.1

Haymarket / Chinatown Special Character Area

15m on all other streets; or the street frontage height of the nearest heritage item on the same side of the street block in which the site is located.

Setbacks Above Street Wall

Sydney DCP 2012

5.1.2.1 Front setbacks

5.1.2.2 Side and rear setbacks

Front Setbacks : 8m

Side and Rear Setbacks

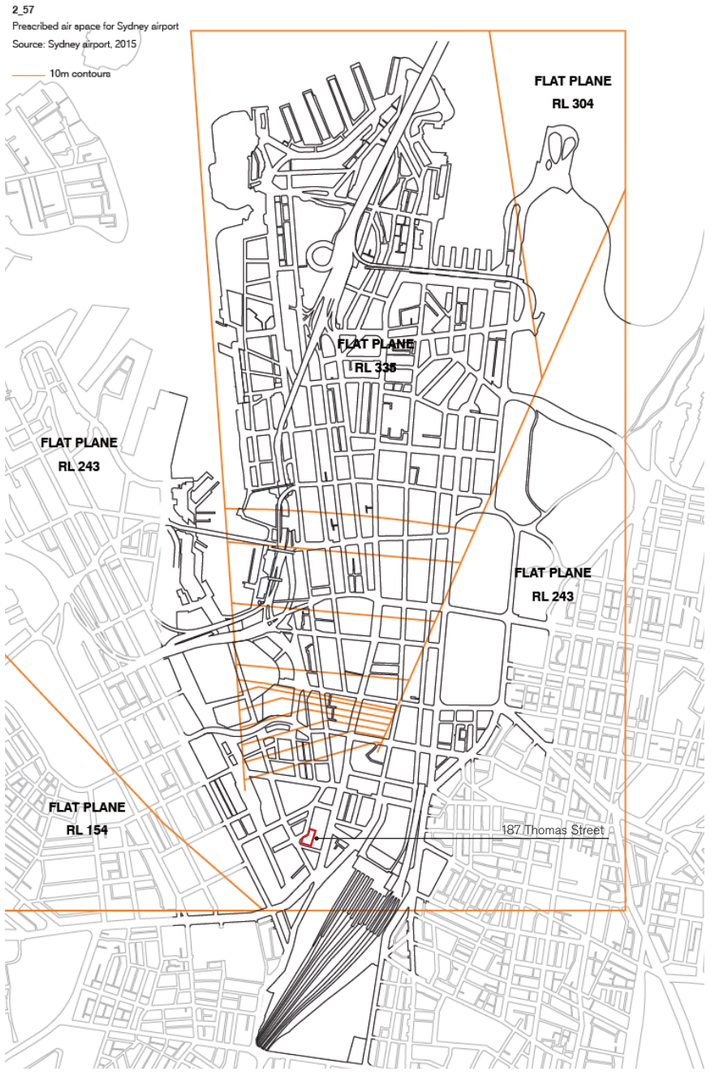
- Commercial windows : 3m

- Hotel windows : 6m

- No principal windows : 0m

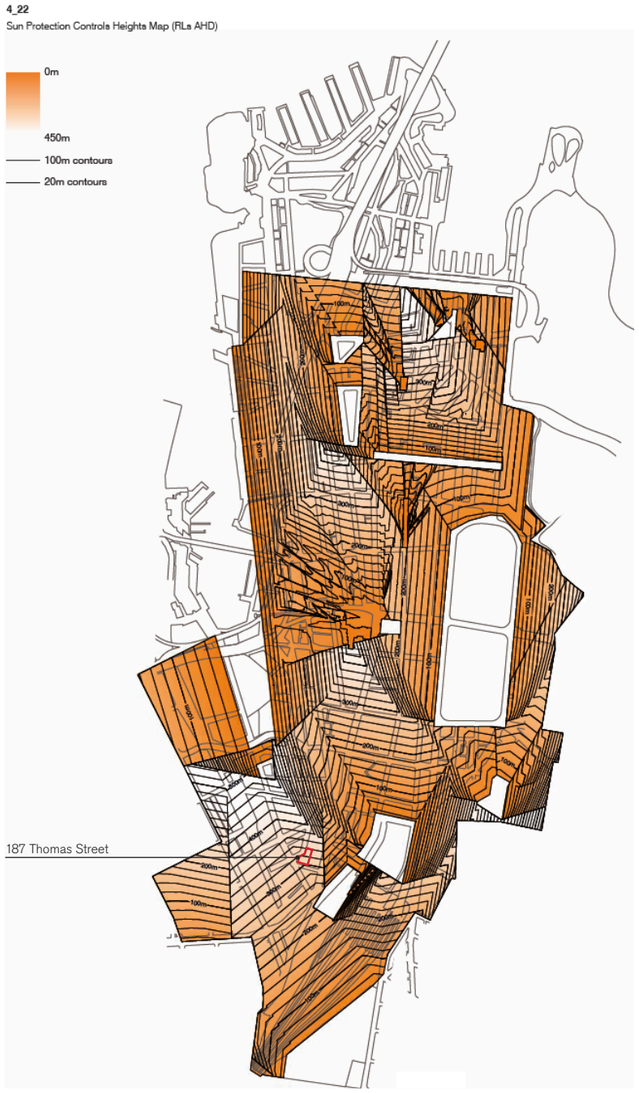
Appendix G HEIGHT CONTROLS

Draft Central Sydney Planning Strategy Height Maps



Draft CSPS Extract

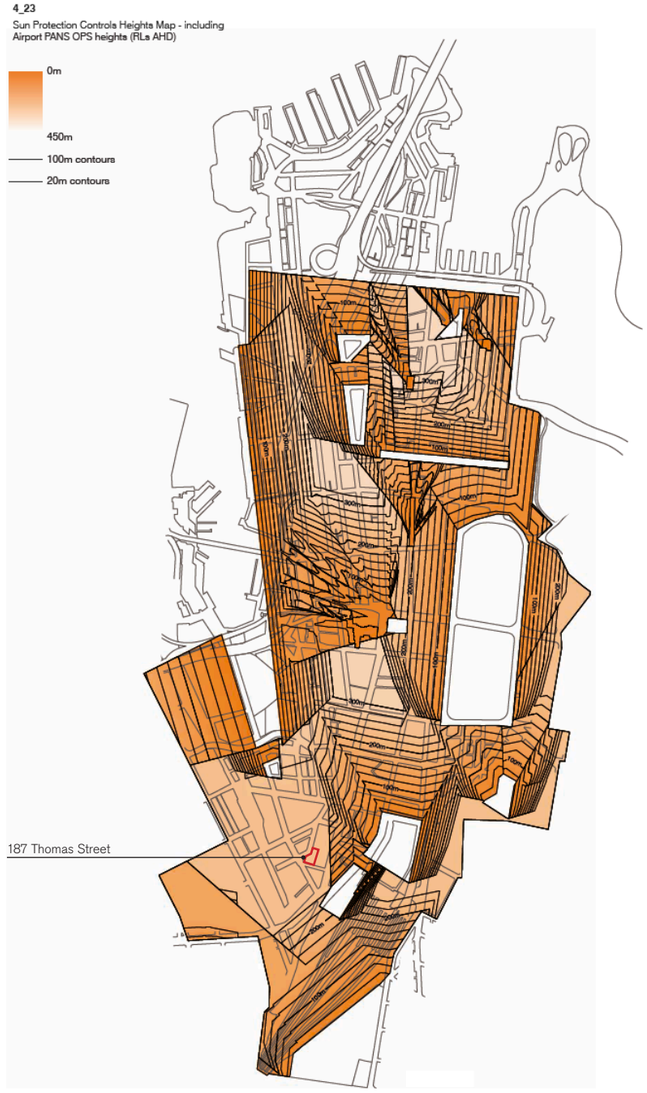
Airspace For Sydney Airport



Draft CSPS Extract

Sun Protection Controls Heights Map

187 Thomas Street: RL 335.2m - 340m

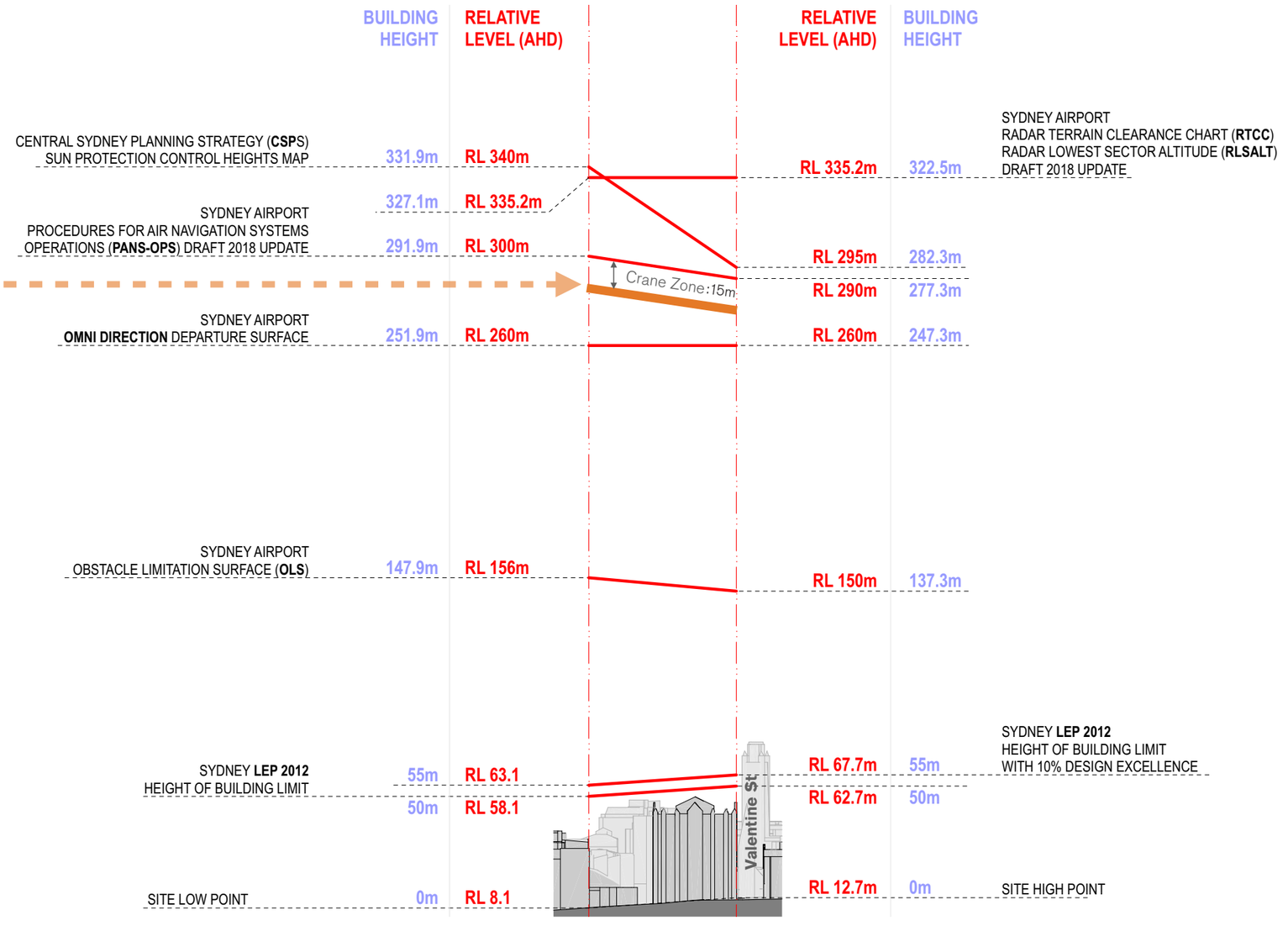


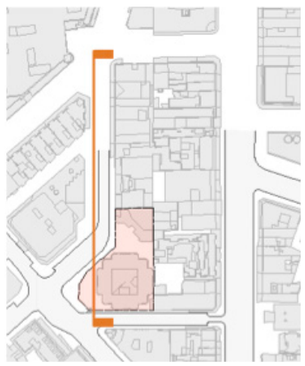
Draft CSPS Extract

Sun Protection Controls Heights Map With Pans-Ops

187 Thomas Street: RL 290m - 300m

Height Control Summary





Appendix H SKY VIEW FACTOR ANALYSIS

Draft Sydney DCP 2012 (Draft CSPS Amendment) Clauses To Vary Setbacks

Street Setback

Section 5.1.1.1

(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).*

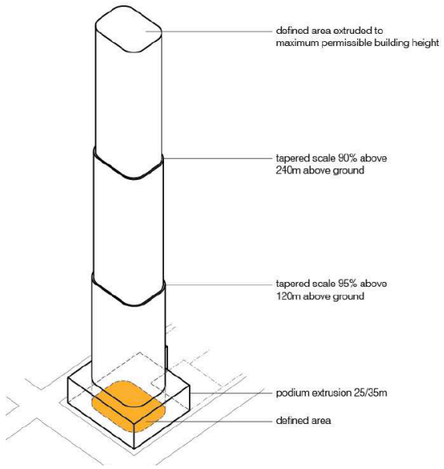
Procedures for demonstrating compliance *with 5.1.1.1(3)(a) and (b) are set out in* **Schedule 11**.

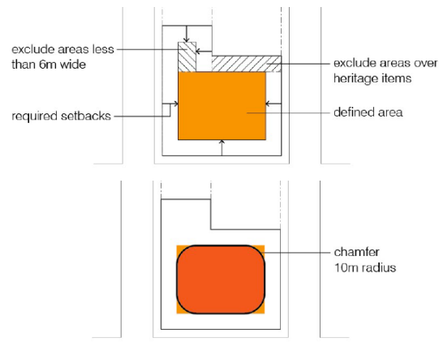
Side & Rear Setbacks

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 11**.





Schedule 11

Procedures for demonstrating compliance with variation provisions for setbacks, separations and tapering in Central Sydney.

Procedure B: Equivalent or improved wind comfort and wind safety and daylight levels in adjacent Public Places

In order to demonstrate compliance with Section 5.1.1.1(3)(b) and Section 5.1.1.3(5) in regards to varying Minimum Street Setbacks and Side and Rear Setbacks, Building Form Separations and Tapering provisions respectively, the following procedure must be followed:

(1) Procedure B can only be used to vary setbacks for sites larger than 1000m2.

(2) Where (1) is satisfied, variation to relevant setbacks 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 Height, Street Frontage Heights, Street Setbacks, Side and Rear Setbacks and Tapering.

(3) The base case building massing with complying Street Frontage Heights, setbacks and tapering is established by modelling 3 dimensional podium and tower components as follows:

(a) The podium is modelled by extruding the subject site boundary vertically 35m above existing ground level (as it varies around the site perimeter) for buildings up to 120m high and 25m above ground level for taller buildings.

(b) The Tower Component is modelled by defining an area set out by the required street, side and rear setbacks, excluding areas over heritage items and Tower Component areas narrower than 6m wide. For Tower Components where at least one face is longer than 30m the resultant area is chamfered with a 10m radius at all external corners. The resultant shape is extruded to the maximum permissible building height as it varies around the site. The resulting tower form must be tapered by scaling it horizontally in both horizontal directions (X and Y) by 95% between 120-240m and by 90% above 240m above ground level. Note: the maximum permissible building height excludes architectural roof features but includes all other relevant controls including LEP height controls, Sun Access Planes, No Additional Overshadowing Controls, Special Character Area height and setback controls, View Controls Airport restrictions etc.

(4) To demonstrate equivalent (improved) wind comfort, wind safety and daylight levels in adjacent Public Places relative to the base case building massing (established in (3) above), the following must be modelled and reported for the base case building massing and the proposed scheme wind speeds as defined by Section 5.1.9 Managing Wind Impacts, Sydney DCP 2012 for comfort and safety.

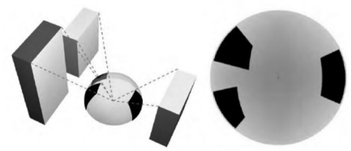
(5) the average annual daylight level (which may be approximated by the average Sky View Factor)

Note: Sky View Factor (SVF) means the extent of sky observed above a point as a proportion of the total possible sky hemisphere above the point. SVF is calculated as the proportion of sky visible when viewed from the ground (as an abstract horizontal surface) up. SVF is a dimensionless value that ranges from 0 to 1. A SVF of 1 denotes that the sky is completely visible to the horizon in all directions; for example, in a flat terrain. When a locations has topography or buildings blocking view to any part of the sky, it will cause the SVF to decrease proportionally.

(6) Wind speeds must be measured within the existing city form in areas where wind speeds are likely to change as determined by a wind report.

(7) Daylight levels or SVF must be measured within the existing city form (including developments under construction as if they were completed) and should exclude any elements within a Public Place e.g. trees and awnings to a distance of at least 50m from site boundaries. In this document “equivalent” wind speed and daylight/SVF is to be understood as very slightly “better than” at a high level of accuracy. For example a SVF of 0.10001 is equivalent to a SVF of 0.10000 by being very slightly better than it. For wind speed the comfort values should be averaged and compared. The categories are not relevant in demonstrating equivalence.

Defining The Base Case Tower Component Area And Building Massing



Sky View Factor Means -

The extent of sky observed above a point as a proportion of the total possible sky hemisphere above the point

Methodology

This study identifies the potential impact of the Proposed DCP Envelope on daylight levels over a 1m grid along surrounding Public Places to a distance of 200m radius from the development site.

Study on Impact of Base Case Massing and Proposed DCP Envelope.

Results

This study indicates that the Proposed DCP Envelope improves an average SVF in the surrounding public domain with in the study area when compared with the Base case as per CSPS.

The improvement of the Envelope is summarised in the below table.

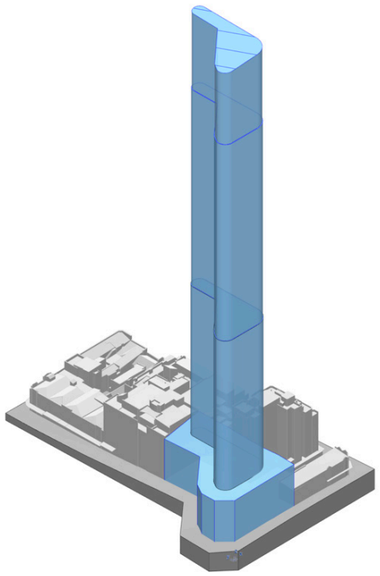
In conclusion, the Proposed DCP Envelope complies with the requirement of daylight levels in adjacent Public Places, which is defined in Draft Sydney DCP 2012 - Central Sydney Planning Review Amendment Schedule 11.

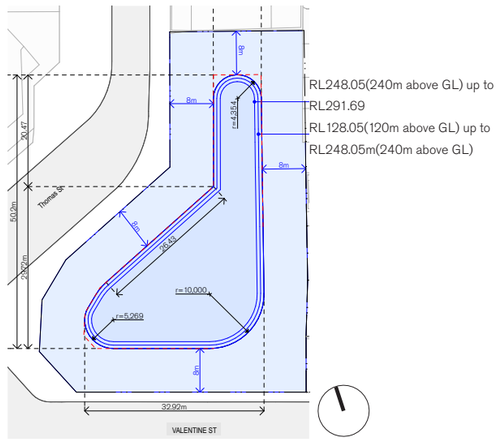
Test Case	Average SVF	Equivalent to Base Case Massing	Improvement upon Base Case Massing
Base Case Massing	32.882064 %		
Proposed DCP Envelope	32.915356 %	-	+0.033292%

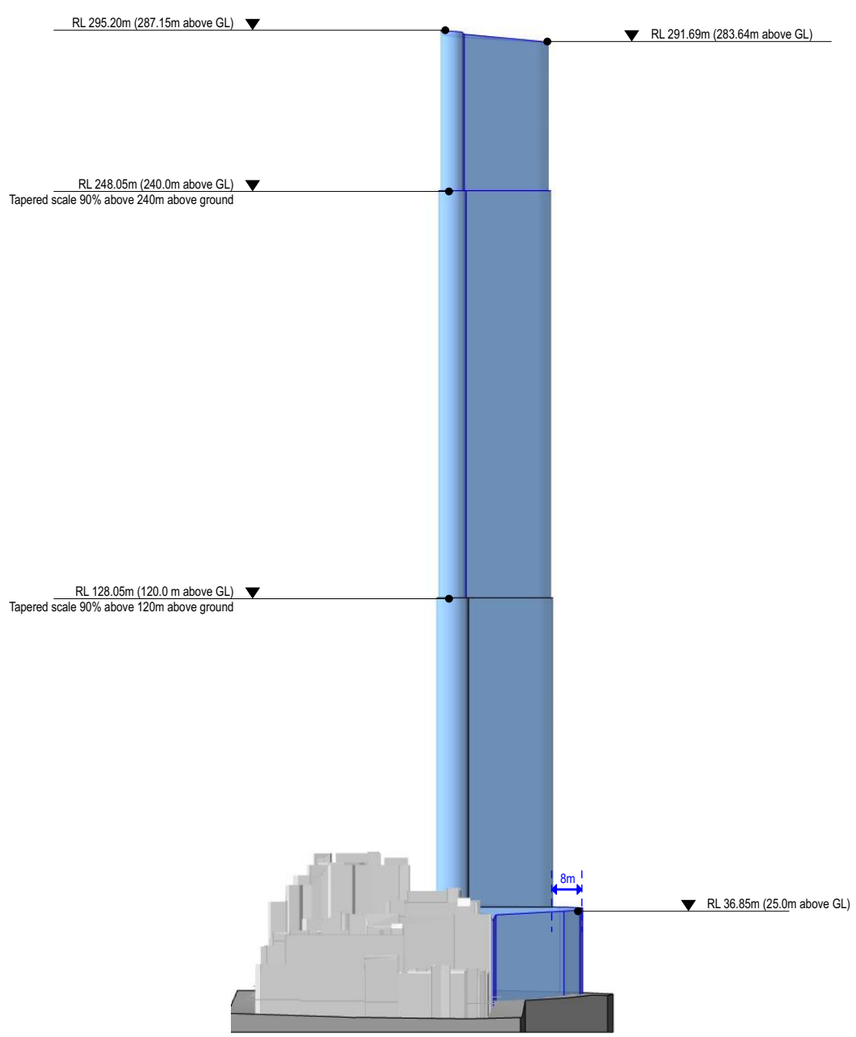
Sky View Factor Analysis

Schedule 11
"Base Case Massing"

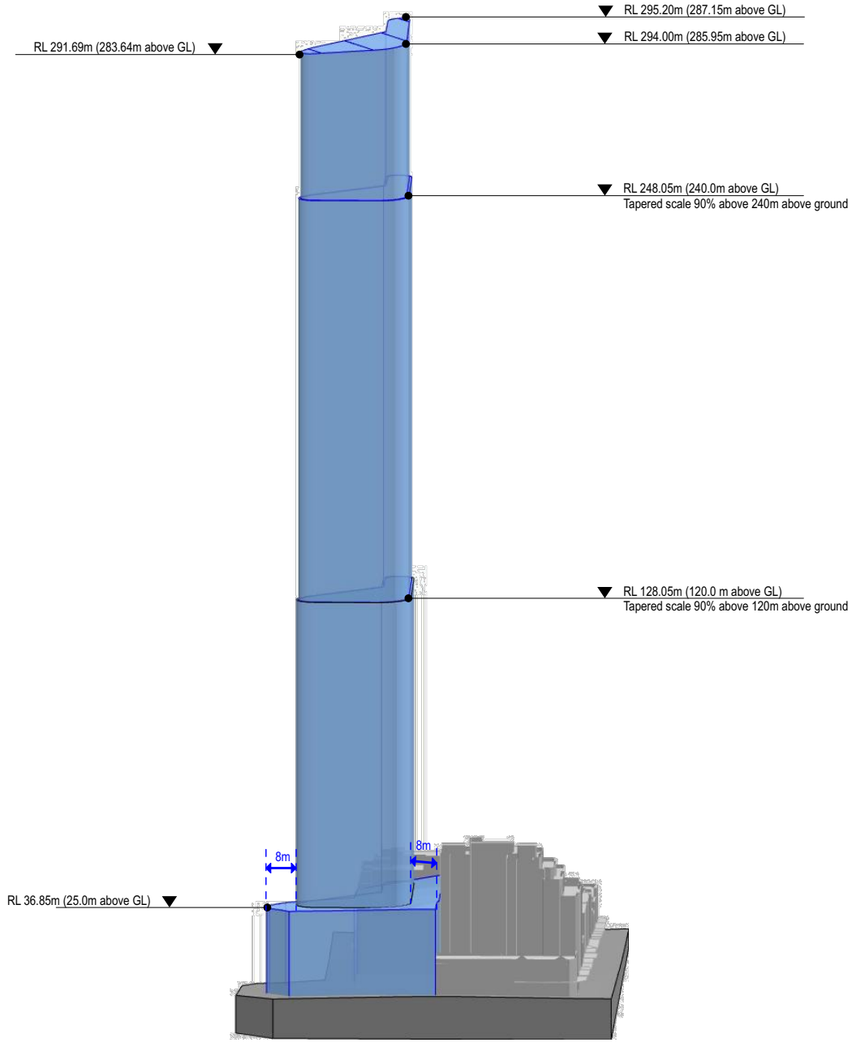
Initial analysis of the base case.







BASE CASE MASSING | NORTH-EAST VIEW



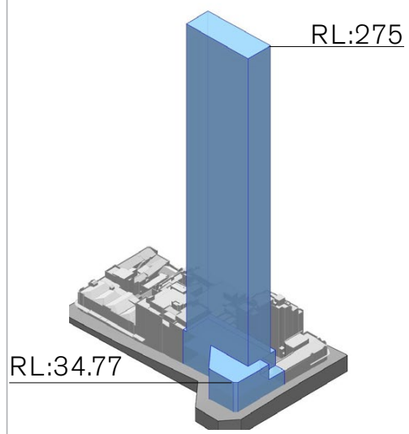
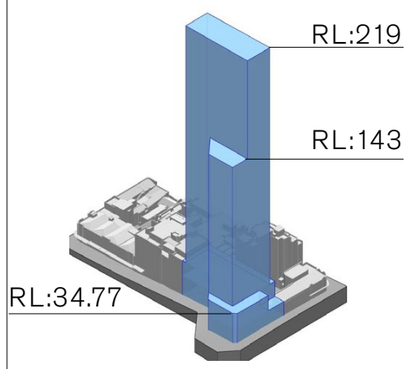
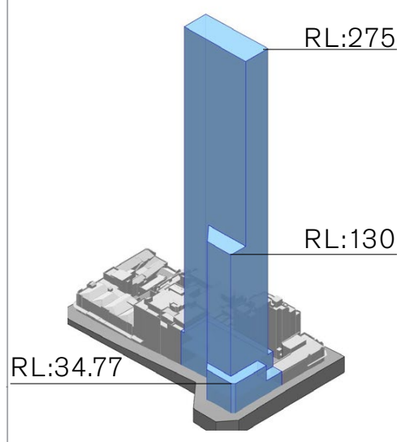
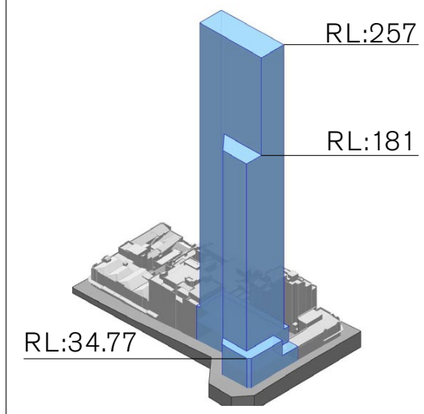
BASE CASE MASSING | SOUTH-WEST VIEW

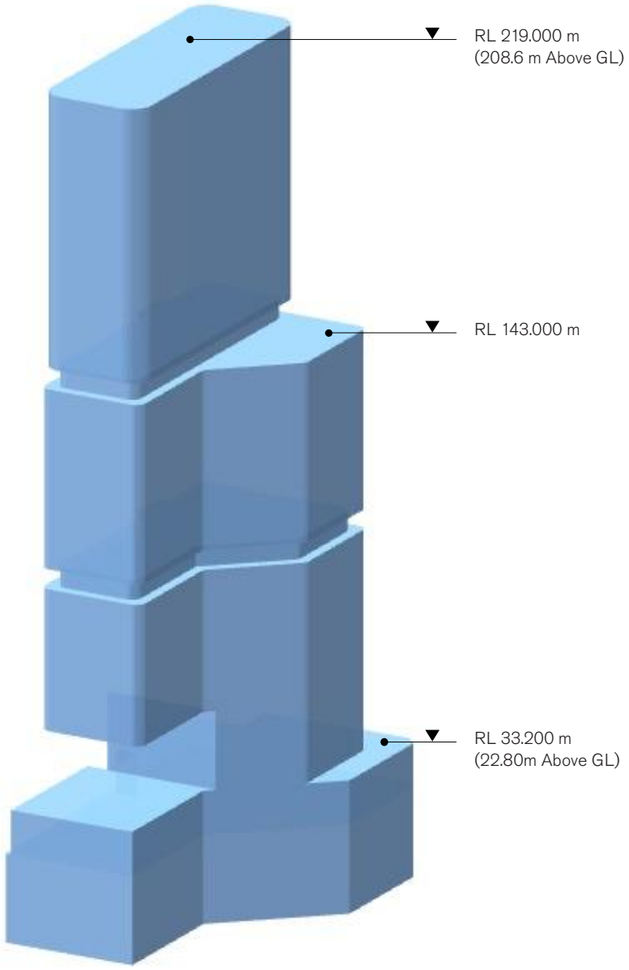
Test Case	Average SVF
Base Case Massing	32.882064 %

Envelope Options

A series of potential building envelopes has been evaluated against base case massing which was defined by Draft CSPS Amendment. The test has been conducted with and without future contexts within the neighbouring future tower clusters. The listed envelopes have demonstrated improved daylight levels in adjacent Public Places relative to the Base Case Building Massing with varied setbacks and heights.

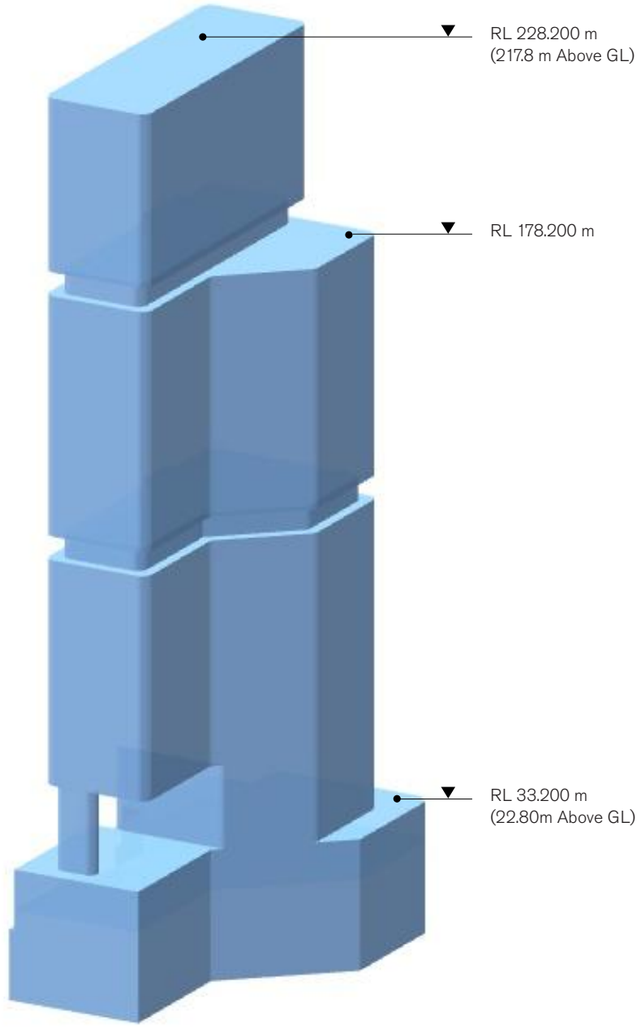
Those envelope options are carefully examined with wind comfort, wind safety and also floor plate size, regularity and its use.

3. 187 Thomas Street Only Excluding Existing DA Hotel **[Without Future Context]**	**3A.** 187 Thomas Street Only Excluding Existing DA Hotel **[Without Future Context]** Max Floor Plate/Lower Tower	**5.** 187 Thomas Street Only Excluding Existing DA Hotel **[With Future Context]**	**5A.** 187 Thomas Street Only Excluding Existing DA Hotel **[With Future Context]** Max Floor Plate/Lower Tower
			
Site Area : 2,351 m2 Total GFA : 64,426 m2 FSR : 27.40 :1 SVF : 32.885004%	Total GFA : 56,500 m2 FSR : 25.13 :1 SVF : 32.883181%	Total GFA : 71,298 m2 FSR : 30.33 :1 SVF : 32.882209%	Total GFA : 71,011 m2 FSR : 30.20 :1 SVF : 32.890909%



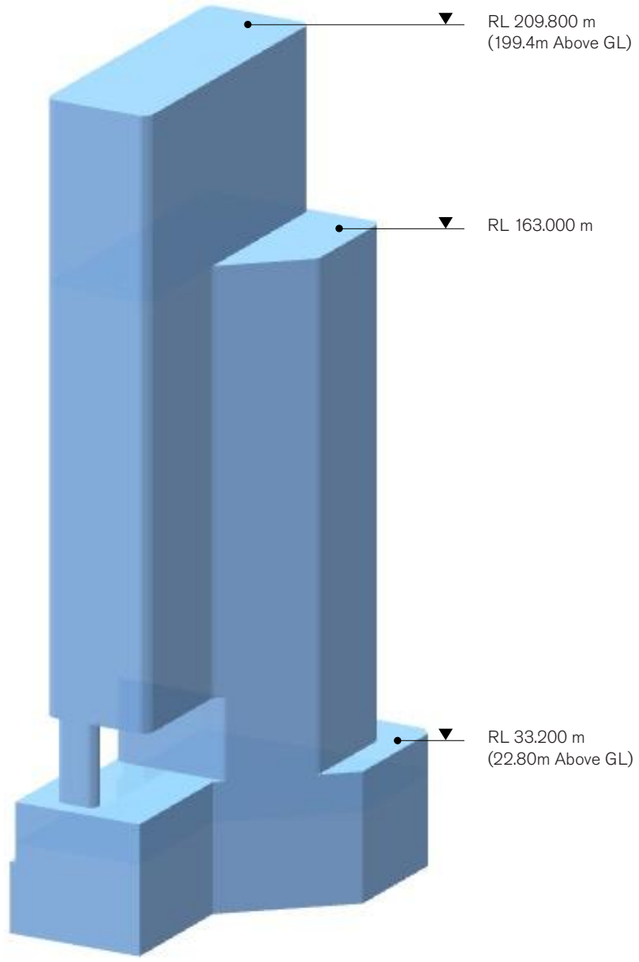
Option 3A Envelope

- GFA approx. 56,500 m2
- FSR approx. 25.13 : 1
- Average SVF 32.883181%



Option 5D Envelope

- GFA approx. 60,714 m2
- FSR approx. 25.82 : 1
- Average SVF 32.882374%



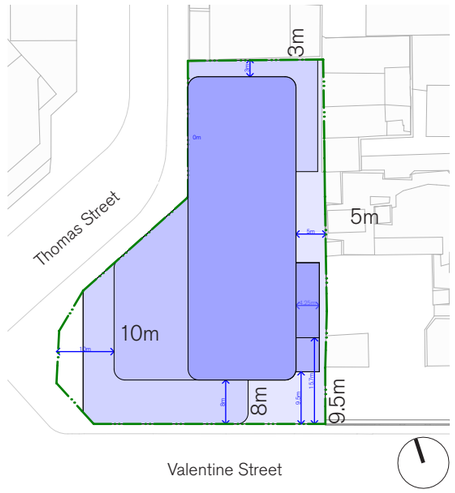
Option 5E Envelope

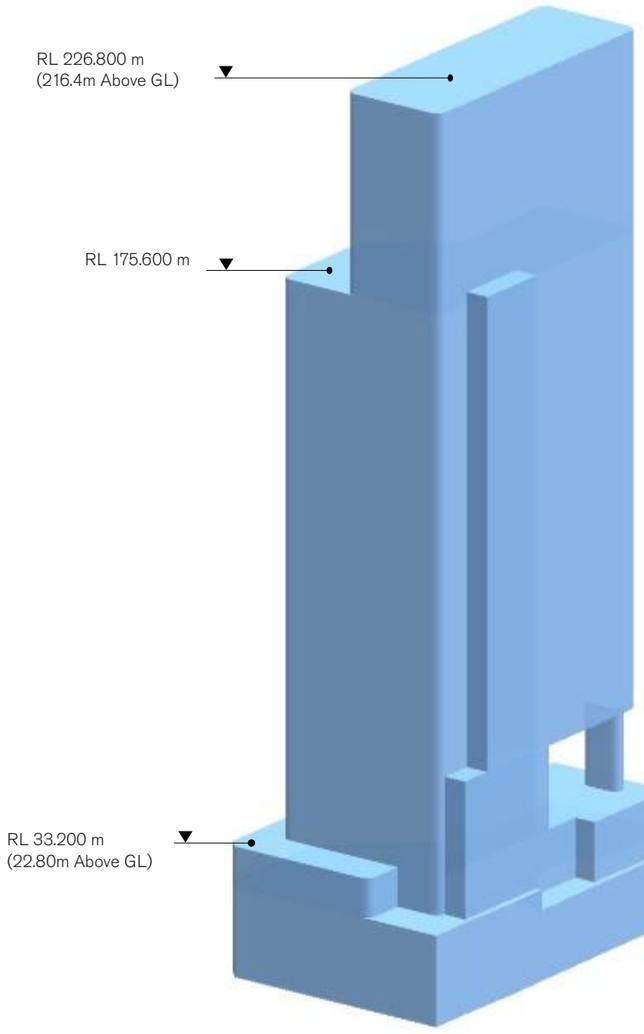
- GFA approx. 51,714 m2
- FSR approx. 22.00 : 1
- Average SVF 32.949525%

Proposed DCP Envelope

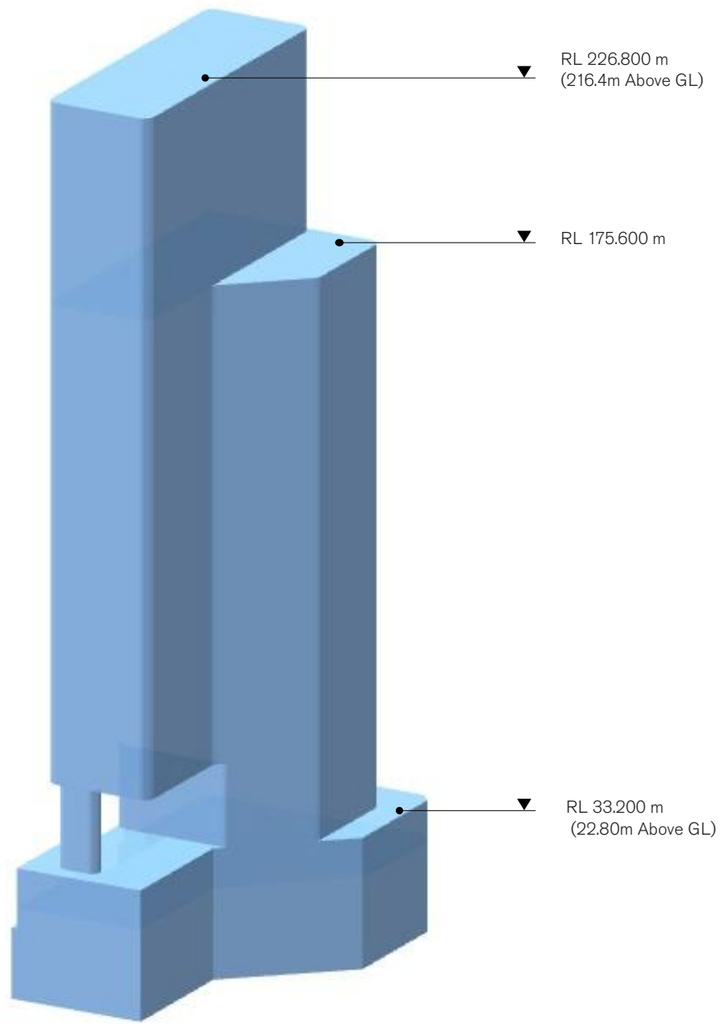
Finally Proposed DCP Envelope has been selected from the series of envelope options, which demonstrates the improvement of daylight levels, wind comfort, wind safety as well as accommodating a suitable sized regular floor plate for the proposed use.

- The Proposed DCP Envelope produces improved Sky View Factor of 0.033292%, with an estimated yield of:
- FSR approx. 25.00 : 1.

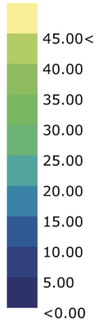




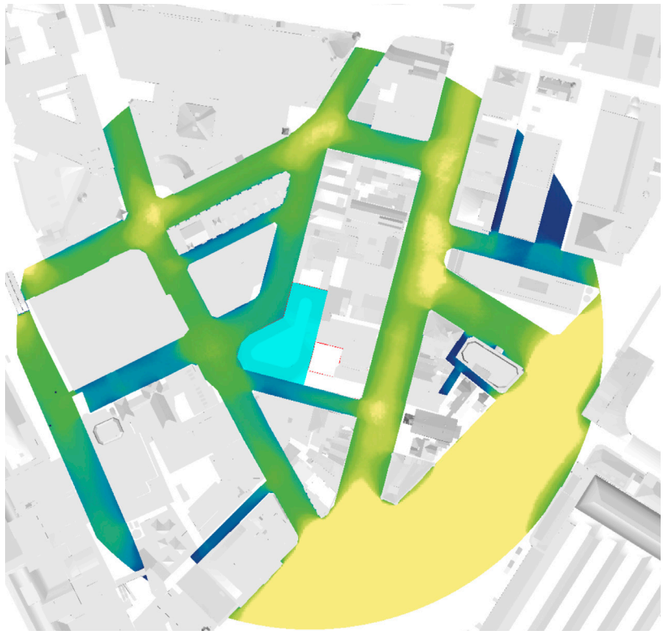
Proposed DCP Envelope - SE



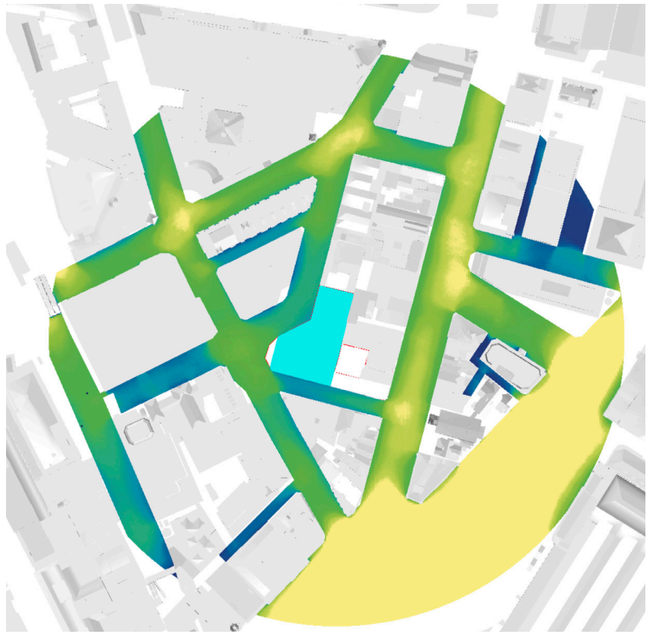
Proposed DCP Envelope - NW



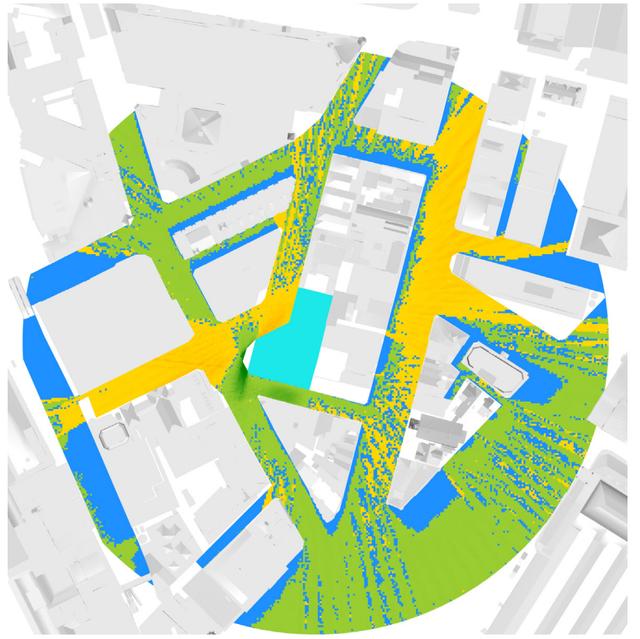
Sky View Factor (%)

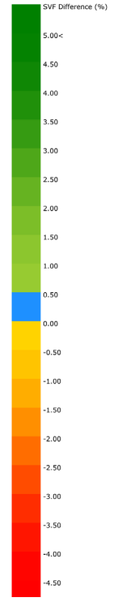


Average SVF: Base Case Massing

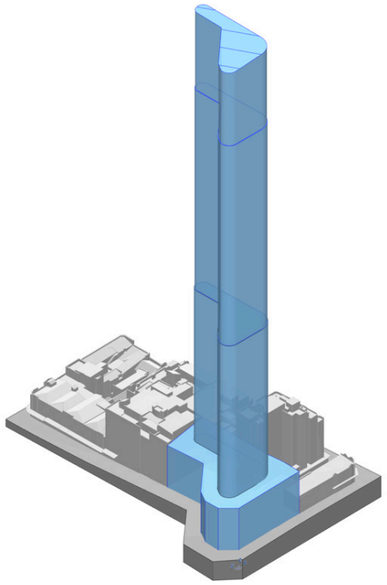


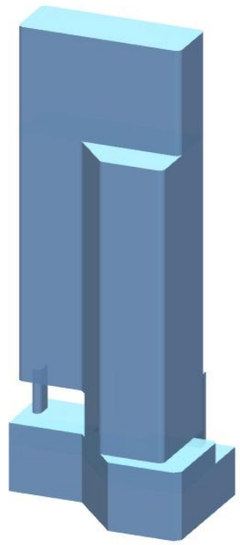
Average SVF: Proposed DCP Envelope





Comparison | Base Case Massing vs Proposed DCP Envelope





Test Case	Average SVF	Equivalent To Base Case Tower Building Massing	Improvement Upon Base Case Tower Building Massing
Base Case Massing	32.882064 %		
Proposed DCP Envelope	32.915356 %	-	+0.033292 %

Appendix I WIND ANALYSIS

Executive Summary

Generally, the inclusion of any large buildings on the fringe of a City markedly changes the local wind environment. The first isolated building typically creates the largest change in wind conditions with the windiest locations at the building corners. Subsequent large developments alter the overall wind flow pattern making some areas calmer and others windier, particularly at the outer corners of the compound shape and between closely spaced towers. As this area of the city continues to expand the area would tend to become calmer while the windier locations are moved to the perimeter of the developed area. Ideally the 'final' developed built-up profile would have the tallest buildings towards the middle tapering in height to the fringes.

Compared with the existing wind conditions, the inclusion of a large building generally increases the local comfort wind speeds by about one criterion level. For this site, the wind conditions change comfort classification category from pedestrian sitting to pedestrian standing. The majority of locations meet the target classification of pedestrian walking and standing depending on location.

From a safety perspective there are fewer exceedances of the safety criterion in the Proposed than the Baseline configuration. These locations are close to the site along Thomas and Valentine Streets and only slightly exceed the criterion level. The critical wind directions are from the south-east (where there are numerous proposed large buildings that would be expected to reduce the incident wind speed and direction) and the west.

Measured wind conditions are highly dependent on the proposed building massing, geometry, distribution, and orientation. The current tests have shown that the wind conditions around the site are problematic in specific areas. From a fundamental fluid mechanics perspective, there are numerous potential solutions to mitigate the exceedances of the safety criteria as described in Figure 1 and a combination of features could be employed to mitigate the issues. The current testing indicates that amending the tower detail close to the podium has a beneficial impact on the wind conditions at ground level reducing the number of exceedances of the safety criterion.

As part of the Design Excellence process, the architect teams would be expected to address the highlighted wind issues around the site, through incorporation of such features described in Figure 1. It is considered that there is currently sufficient information to highlight the critical locations impacted by wind, and information to inform an appropriate architectural solution. Additional testing to 'solve' the problems prior to the architectural Design Excellence competition would be considered unnecessary, as proposed building forms could drastically change the local wind conditions on the ground plane. Keeping wind considerations as a key consideration through the Design Excellence process is considered the best methodology to mitigate the wind issues. This would be a similar process to other Design Competitions processes such as 338 Pitt Street, and Cockle Bay Precinct, which all showed exceedances of the comfort and/or safety criteria in the initial massing scheme.

(Refer to the Environmental Wind Assessment report for further details.)

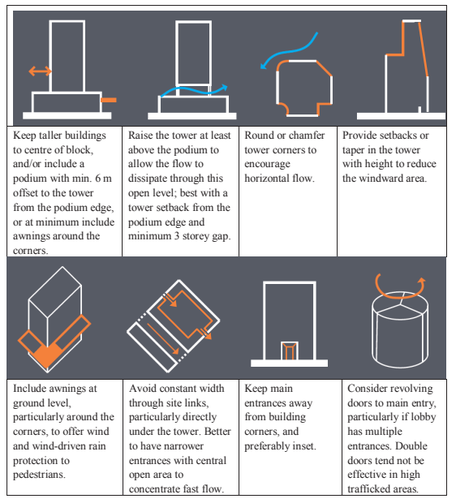


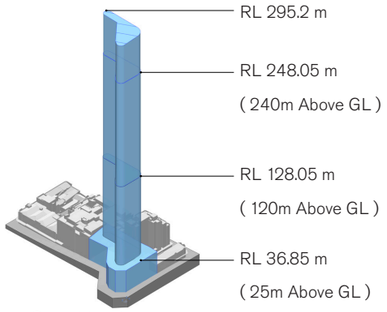
Figure 1 Methods to improve pedestrian level wind conditions

Modelling

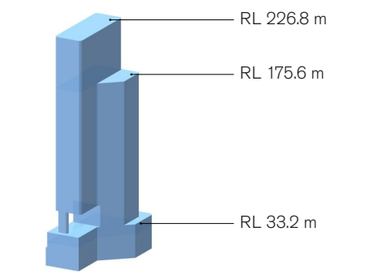
Wind-tunnel testing was conducted by RWDI on the existing, and two potential schemes for the site: the base envelope case, and an initial proposed design. Details of the three configurations are shown in Figure 3.

The construction of the physical models was based on the 3d model received from the architect. No landscaping was included in the models as this cannot be relied on for pedestrian safety in strong winds. Any landscaping would locally slightly improve the wind comfort conditions. All approved buildings in the vicinity were included in the model.

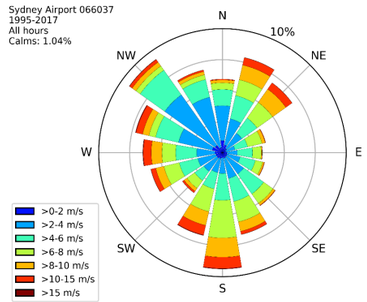
The wind-tunnel testing programme conducted by RWDI was in accordance with the requirements of AWES (2019) and appropriate for the investigation. Appropriate wind speed and turbulence profiles, and test locations were used in the testing. Testing was conducted for 36 wind directions and integrated with the Sydney wind climate.



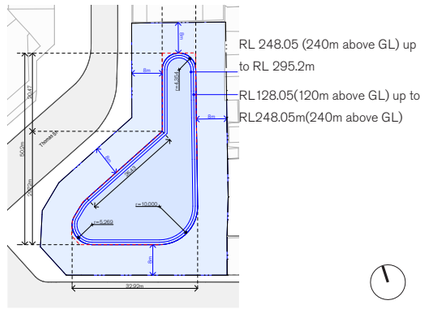
Base Case Massing



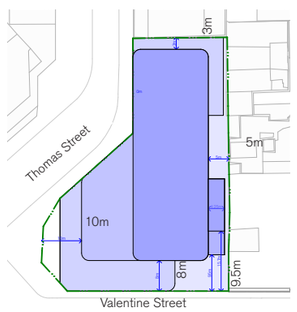
Proposed DCP Envelope



Wind rose showing probability of time of wind direction and speed

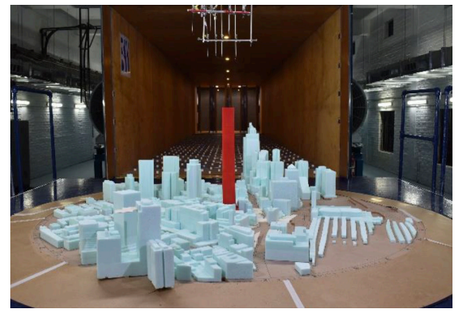


Base Case Massing Plan



Proposed DCP Envelope

Existing



Base case massing

Proposed DCP envelope

Figure 3 Wind tunnel test models

Discussion of results

The primary findings of the study for the three configurations are summarised in Figure 4, which list the locations selected for investigation, shown in Figure 5, along with the target and measured comfort and safety classifications. The values presented in Figure 4 are the wind speed associated with the criterion probability of time, and the colour represents the classification associated with the criterion. An additional classification has been included for the safety criterion when the mean wind speed is between 22 and 24 m/s, close to the failure level.

A visual summary of the spatial wind comfort classifications in and around the site for the various configurations is shown in Figure 5 to Figure 7 for the existing, baseline, and proposed configurations respectively. These plots show the physical location identifier, with the colour representing the wind classification for comfort in the top and safety in the lower images. The results have been condensed in Figure 4 for ease of comparison between configurations.

For pedestrian comfort, it is evident that in the existing configuration close to the site along Thomas, Valentine and Quay Streets the majority of locations are classified as suitable for pedestrian sitting activities with a number of locations just inside the standing criterion level. The wind speed at all locations with the development increase in magnitude and are classified as suitable for pedestrian standing and walking and therefore meeting the target criterion level. Generally the comfort conditions with proposed development are slightly better than the baseline case.

Further from the site the wind comfort conditions at the majority of locations in all configurations are classified as suitable for pedestrian standing type activities. In each configuration there are locations that move across the criterion threshold to be classified as walking or sitting.

Based on the results, the majority of locations would be classified as suitable for standing and walking type activities thereby meeting the target comfort classifications.

In terms of pedestrian safety, the existing configuration passes everywhere except close to the McKell building, due to the isolated massing of this building. In the Baseline configuration, there are additional exceedances of the safety criterion. The number and magnitude of exceedances of the safety criterion decreases in the Proposed configuration.

The primary areas of concern for both comfort and safety are close to the site along Thomas and Valentine Streets. The further afield issues around the McKell building are existing conditions. The flow mechanism causing the nearby issues are for winds from the south-east and west quadrants causing downwash flow accelerating around the windward corners of the exposed building, as described in Appendix 2. It is evident that amendments to the building geometry such as the inclusion of a notch above the podium level in the Proposed configuration, Figure 3, have a beneficial impact on the surrounding wind conditions. Such a notch is beneficial for the ground floor environment, but would be expected to classify the podium as suitable for pedestrian walking type activities, meeting the wind speed associated with the sitting criterion for about 60% of the time, which could be improved with local amelioration on the terrace.

Further improving the ground floor conditions through the Architectural Design Excellence competition using the fundamental guidelines described in Figure 1 should be achievable with the information available, and a key consideration for the technical panel and jury.

(Refer to the Environmental Wind Assessment report for further details.)

	Description / identifier	Comfort target	Wind-tunnel results					
			Existing		Baseline		Proposed	
			Comfort	Safety	Comfort	Safety	Comfort	Safety
Thomas St	1	>6 to 8	3.3	13.5	5.8	21.9	5.8	21.9
	2	>6 to 8	3.3	15.2	5.6	24.9	4.7	17.0
	3	>6 to 8	3.6	14.3	5.8	23.4	5.0	19.3
	4	>6 to 8	n/a	n/a	n/a	n/a	5.6	21.9
	5	>6 to 8	3.6	13.5	6.4	23.4	5.0	19.0
	6	>6 to 8	3.6	13.5	6.7	25.4	5.6	20.5
	7	>6 to 8	3.6	13.5	8.1	29.0	6.1	22.5
	8	>6 to 8	3.9	15.5	6.4	22.5	6.4	23.1
	9	>6 to 8	4.2	16.4	7.8	26.6	6.9	22.8
	48	>6 to 8	3.6	13.5	5.0	18.1	5.3	20.5
	49	>6 to 8	3.6	13.2	5.8	20.2	3.9	16.4
	50	>6 to 8	4.2	19.3	5.3	21.1	4.2	17.8
	51	>6 to 8	3.6	14.0	4.7	19.3	4.2	15.8
	52	>6 to 8	3.6	14.6	4.2	17.3	5.0	17.8
	53	>6 to 8	4.2	18.1	4.4	16.4	5.6	19.9
	54	>6 to 8	3.9	17.0	5.3	21.6	5.3	20.5
	70	>6 to 8	3.9	16.7	4.7	17.6	5.0	21.4
	71	>6 to 8	3.6	15.2	3.6	14.3	4.4	18.4
	72	>6 to 8	3.3	12.9	5.3	23.4	6.1	23.4
	73	>6 to 8	3.6	15.5	5.0	20.8	6.1	23.4
	74	>6 to 8	3.9	14.0	6.7	26.0	6.4	25.7
	75	>6 to 8	3.3	11.4	6.1	24.3	6.7	22.8
Valentine Street	10	>6 to 8	3.9	13.7	6.7	23.7	6.1	24.6
	11	>6 to 8	4.2	14.0	8.6	27.8	8.3	25.2
	12	>6 to 8	3.9	13.7	6.9	23.7	6.4	20.5
	13	>6 to 8	n/a	n/a	n/a	n/a	5.8	19.0
	14	>6 to 8	3.9	13.7	5.3	19.3	6.1	22.2
	15	>6 to 8	3.6	13.5	5.0	20.5	5.6	23.4
	16	>6 to 8	3.3	11.4	n/a	n/a	5.6	24.0
	17	>6 to 8	3.1	10.8	4.4	17.8	5.6	22.8
	40	>6 to 8	3.1	10.8	3.9	15.2	5.0	25.4
	41	>6 to 8	4.2	15.2	4.2	15.5	5.6	24.0
Quay Street	42	>6 to 8	3.9	13.5	4.4	21.1	5.6	21.4
	43	>6 to 8	3.9	16.1	6.4	23.1	4.4	18.7
	44	>6 to 8	4.7	19.0	5.8	19.9	5.0	18.4
	45	>6 to 8	3.6	13.7	4.7	16.7	5.0	19.6
	46	>6 to 8	3.3	11.7	5.0	18.4	5.0	18.7
	47	>6 to 8	3.6	12.6	5.6	19.9	5.8	20.5
	55	>6 to 8	3.9	17.8	5.8	24.3	6.1	23.1
	56	>6 to 8	4.4	22.2	5.8	23.7	5.3	21.1
	57	>6 to 8	3.9	16.4	5.8	21.4	5.8	22.2
George Street	18	>4 to 6	3.9	14.0	4.4	19.3	5.0	19.0
	19	>4 to 6	4.2	15.5	4.2	17.3	4.7	19.9
	21	>4 to 6	5.0	19.0	5.0	18.1	5.0	18.4
	22	>4 to 6	4.7	17.8	5.3	21.9	4.7	17.8
	23	>4 to 6	5.3	19.3	5.6	20.5	5.3	19.6
	24	>4 to 6	5.8	22.2	6.4	24.0	6.1	22.8
	28	>4 to 6	5.3	21.1	5.6	21.1	5.6	20.8
	32	>4 to 6	3.6	14.3	n/a	n/a	5.0	19.0
	33	>4 to 6	3.6	12.6	n/a	n/a	4.2	15.5
	35	>4 to 6	4.7	17.8	3.9	15.8	4.7	19.0
	36	>4 to 6	4.7	17.0	5.8	19.6	4.4	16.1
	37	>4 to 6	4.2	15.2	4.7	16.7	4.2	15.2
	38	>4 to 6	4.2	16.1	4.4	16.4	4.2	15.8
	39	>4 to 6	4.4	16.7	4.4	15.2	4.7	18.4
Ultimo Road	58	>6 to 8	5.0	19.9	5.0	21.4	5.0	19.0
	59	>6 to 8	4.2	17.0	5.3	20.8	3.9	15.8
	60	>6 to 8	4.7	17.3	5.0	19.3	5.0	18.1
	61	>6 to 8	3.9	15.2	3.9	16.4	4.2	15.8
	62	>6 to 8	4.7	17.3	5.0	17.8	4.7	16.4
	63	>6 to 8	5.0	19.6	3.9	15.5	4.7	18.4
	64	>6 to 8	5.0	20.8	4.7	17.0	5.0	19.3
	65	>6 to 8	5.0	22.5	5.3	19.0	5.3	20.8
	66	>6 to 8	5.0	21.4	5.0	19.6	5.3	19.9
	67	>6 to 8	5.3	21.1	5.0	21.9	4.7	18.4
	68	>6 to 8	4.7	18.7	5.0	20.5	5.0	18.7
	69	>6 to 8	4.2	14.6	4.2	16.1	3.9	15.2
McKell Building	25	>6 to 8	6.1	24.6	6.1	25.4	6.1	25.4
	26	>6 to 8	6.1	23.1	6.4	25.4	6.1	24.3
	27	>6 to 8	7.2	27.5	7.8	29.0	7.5	28.4
Pitt St	34	>6 to 8	5.8	19.9	4.2	18.7	5.8	19.3
Rawson Place	29	>6 to 8	5.3	18.1	5.8	18.7	5.6	18.4
	30	>6 to 8	6.4	21.6	6.7	24.3	6.1	22.5
	31	>6 to 8	5.6	21.1	5.8	22.2	5.6	21.1

LEGEND

Comfort criterion

- Outdoor dining
- Pedestrian Sitting
- Pedestrian standing
- Pedestrian Walking
- Business Walking
- Uncomfortable

Safety criterion

- ≤22 Pass
- >22 Pass
- >24 Fail

Figure 4 Summary of Wind tunnel test results

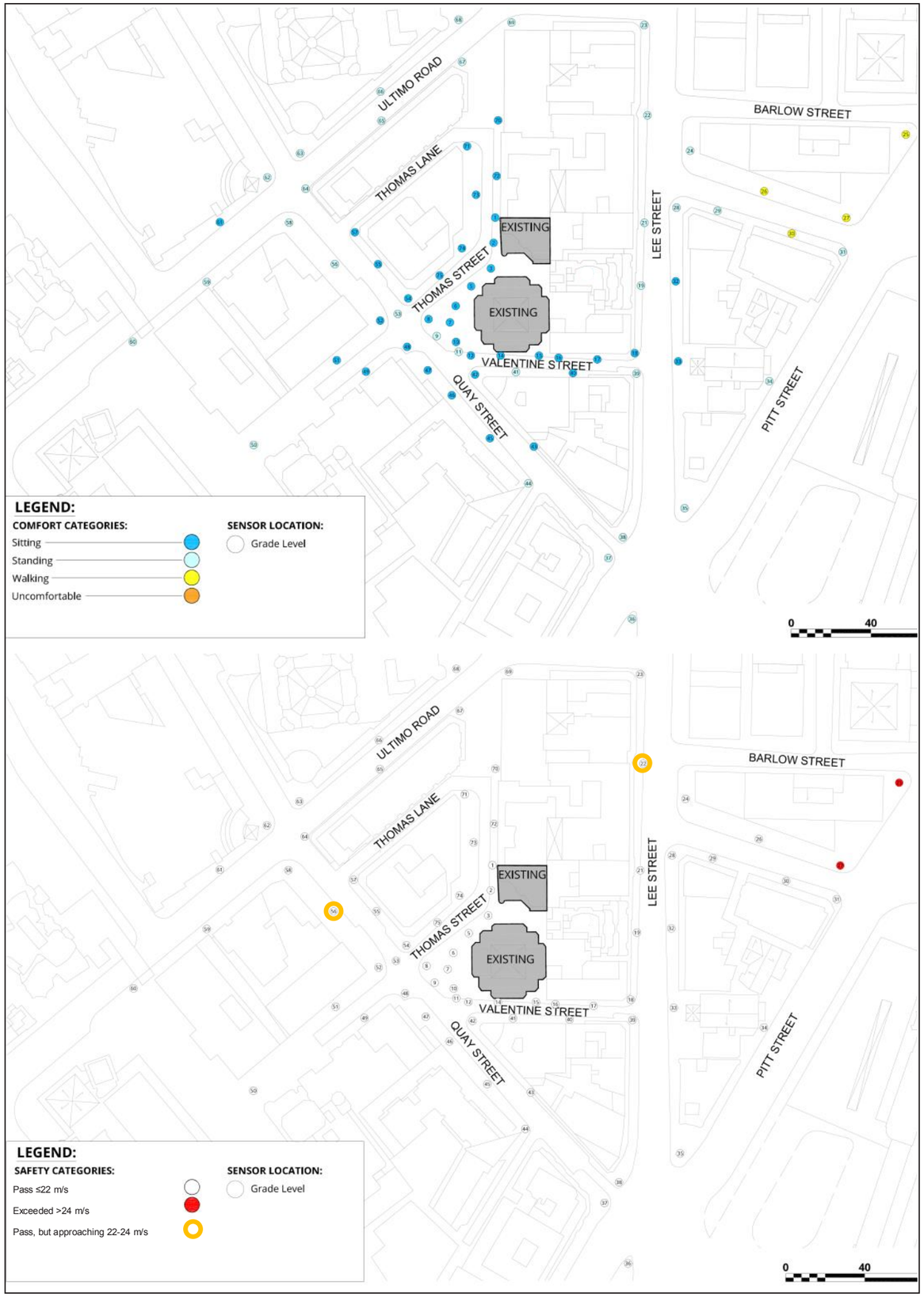


Figure 5 : Existing Configuration Comfort (T) And Safety (B) Wind Rating

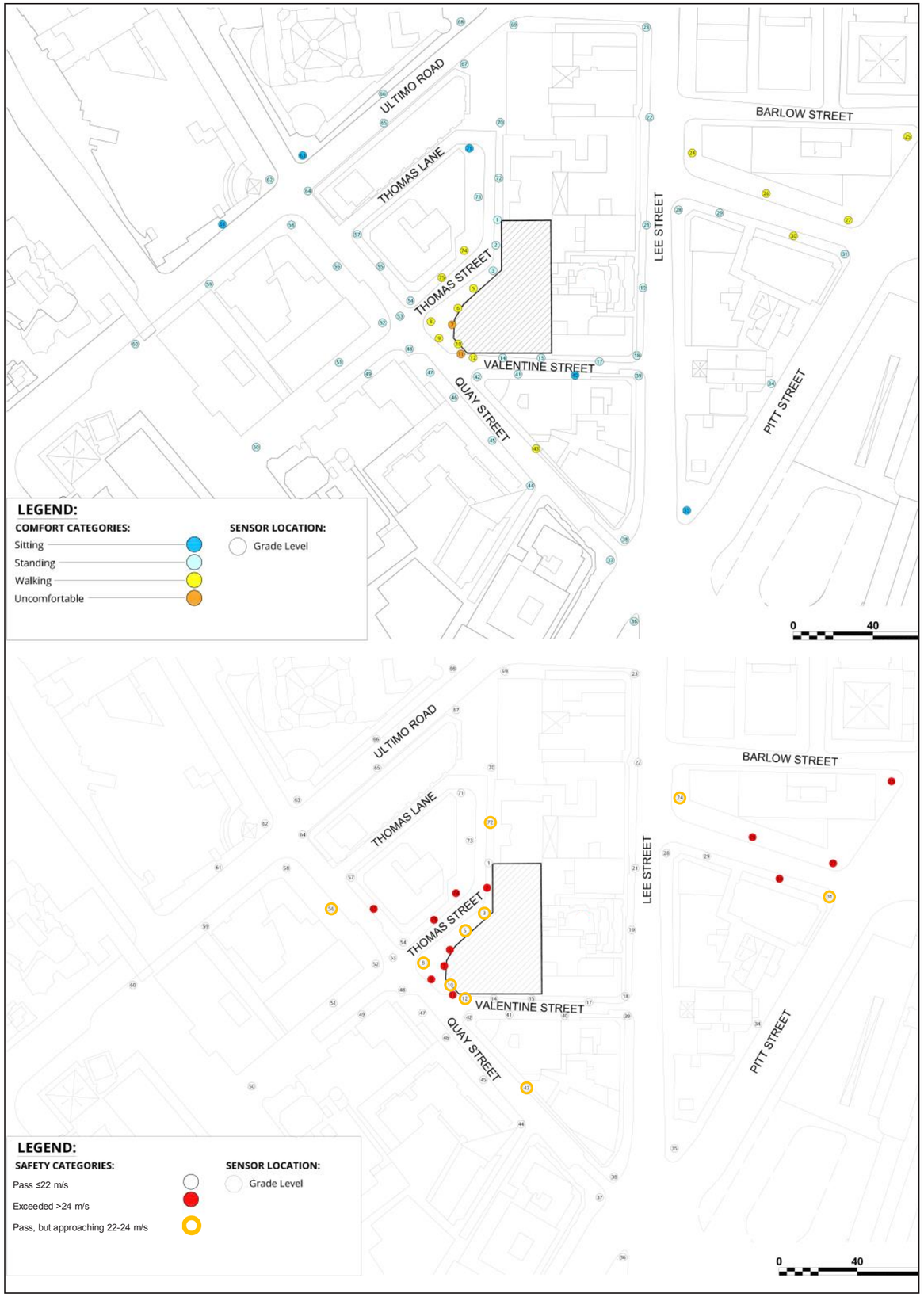


Figure 6 : Baseline Configuration Comfort (T) And Safety (B) Wind Rating

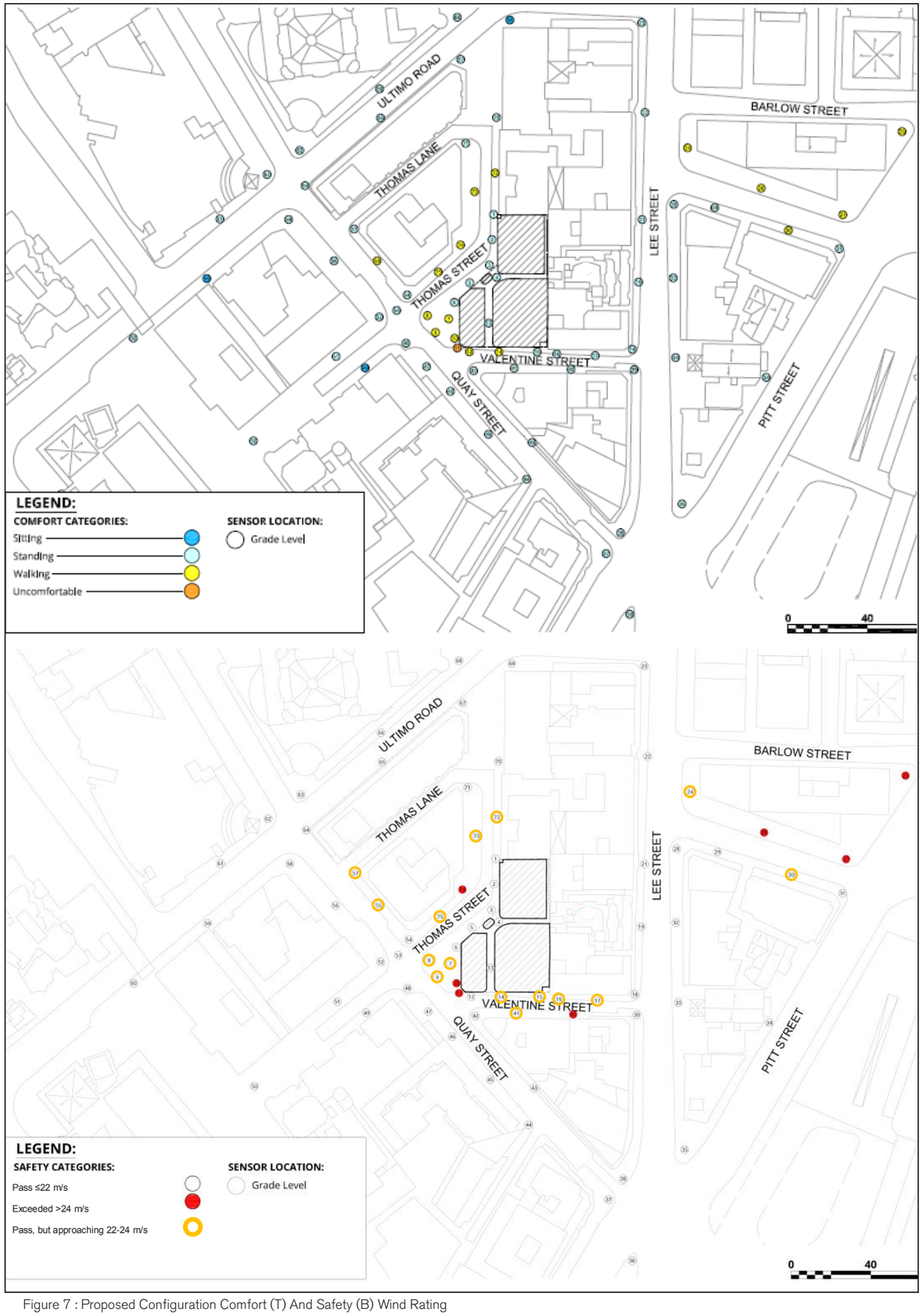


Figure 7 : Proposed Configuration Comfort (T) And Safety (B) Wind Rating

Appendix J PUBLIC SPACE OVERSHADOWING ANALYSIS

Chippendale Green Overshadowing Analysis

This analysis studies potential overshadowing impact on Chippendale Green from the indicative massing on the worst case day of June 21, before 10am when any potential impact would occur.

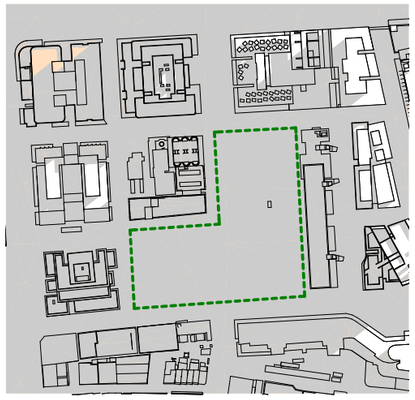
The following shadow diagrams indicate existing (grey) and additional (orange) shadows on June 21 at 15 minute intervals from 8am to 10am, indicating no additional shadow impact during this time. The shadow cast from the indicative scheme falls within the existing shadow cast by the central park main tower to the north east of the site.

Existing Shadows

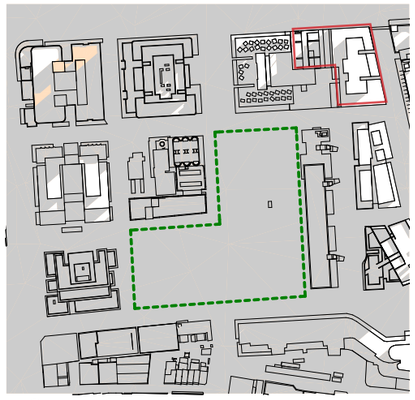
Additional Shadows From Indicative Scheme

Chippendale Green

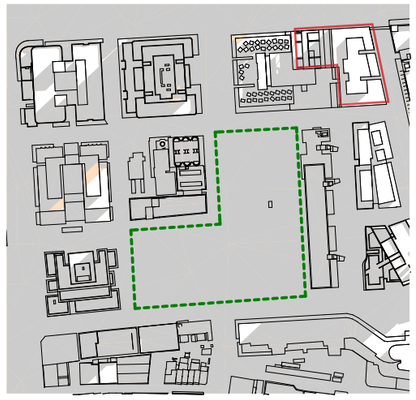
Central Park Main Tower



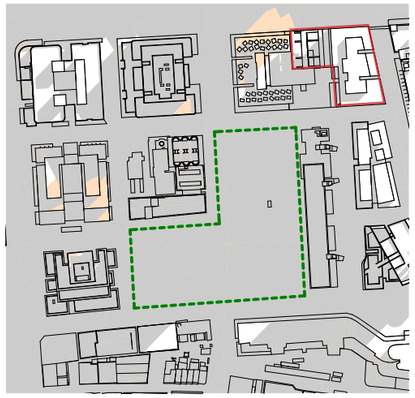
21 June - 8am



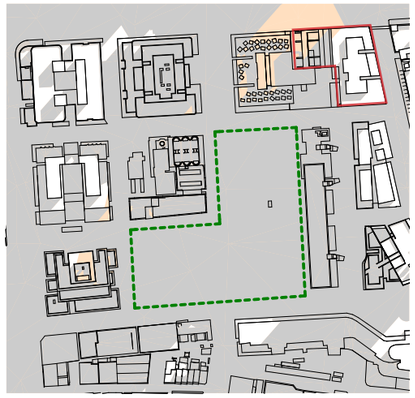
21 June - 8.15am



21 June - 8.30am

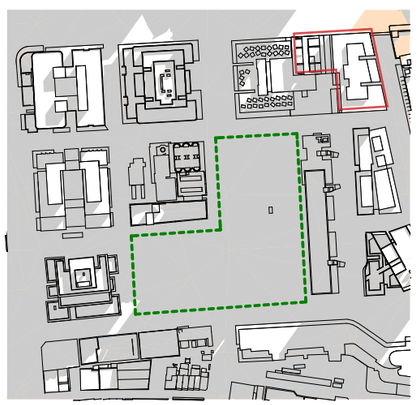


21 June - 8.45am

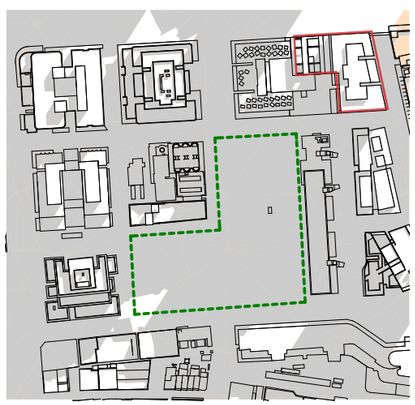


21 June - 9am

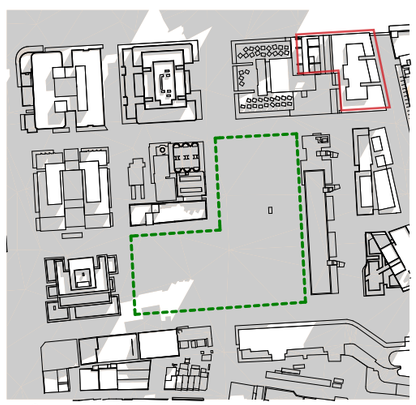
21 June - 9.15am



21 June - 9.30am



21 June - 9.45am

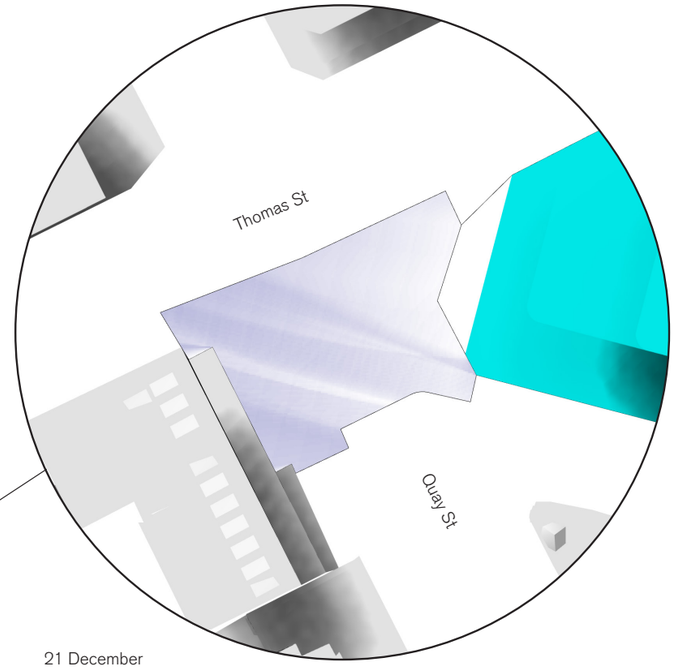


21 June - 10am

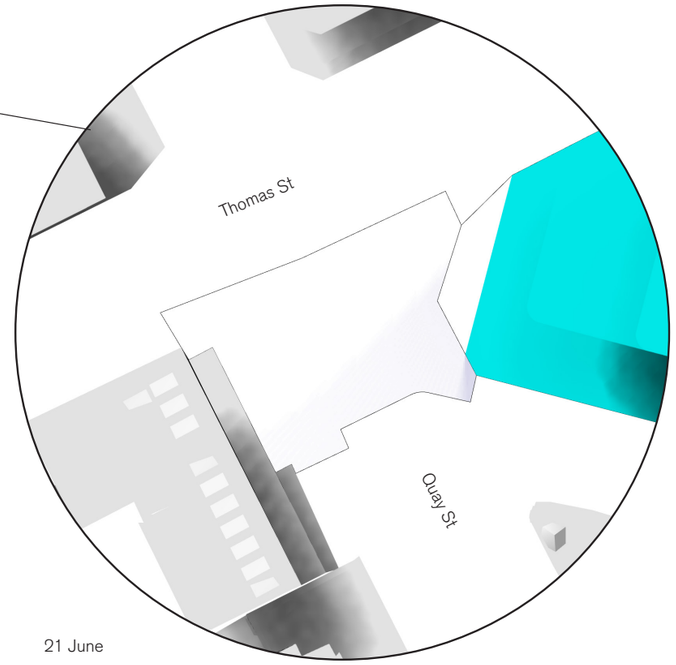
Thomas And Quay St Upgrade Overshadowing Analysis

The City of Sydney had identified a series of priority projects upgrading the public domain along Thomas and Quay Streets. These works include footpath widening and the potential creation of a new square at the intersection of Thomas and Quay Streets.

Overshadowing analysis for mid-winter and mid-summer has been undertaken to determine the extent of impact of the proposed massing on the proposed square and the footpaths on Thomas Street.



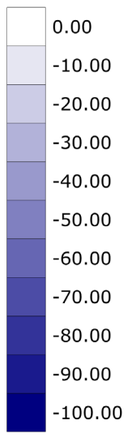
21 December

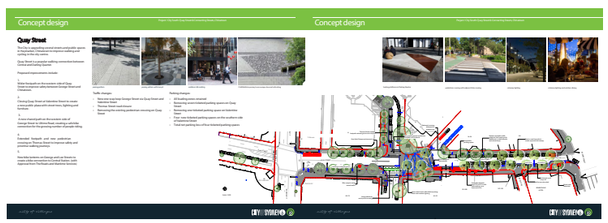


21 June

Impact on available hours of sun access (%)

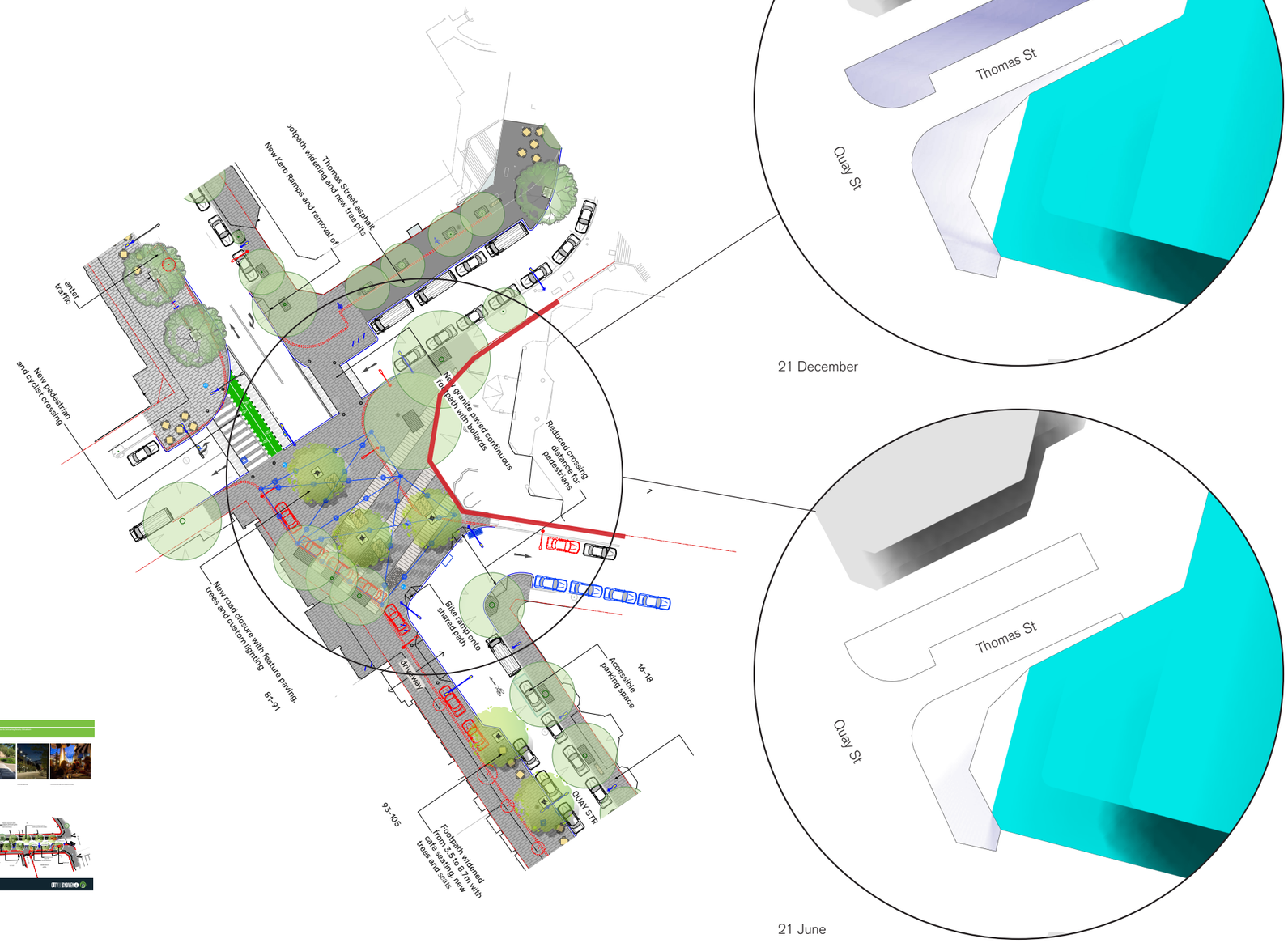
Proposed massing compared to existing.

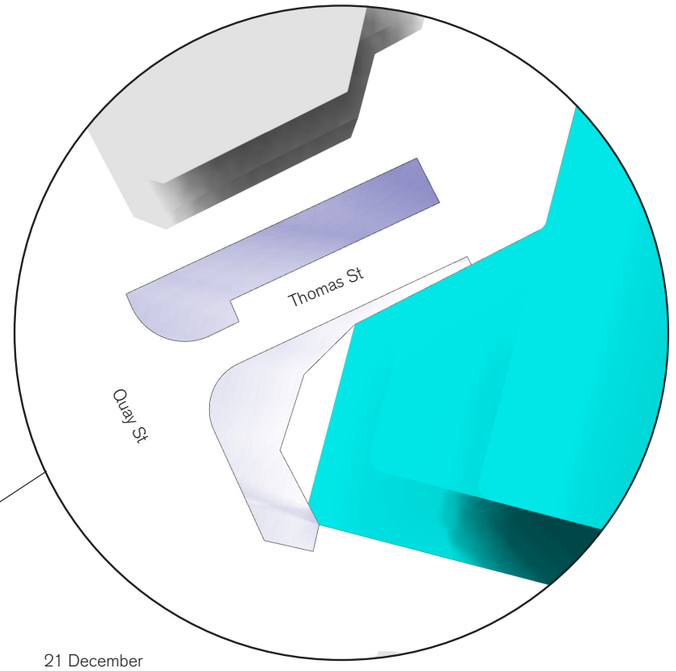




Improving Quay Street, Haymarket - City Of Sydney

Thomas Street overshadowing analysis to footpaths on Thomas Street



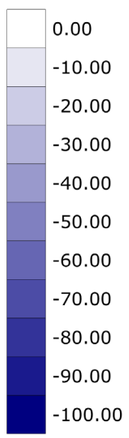


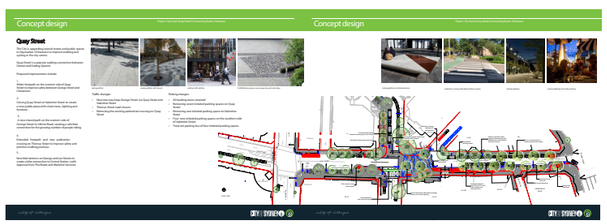
21 December

21 June

Impact on available hours of sun access (%)

Proposed massing compared to existing.





Improving Quay Street, Haymarket - City Of Sydney

Appendix K RESIDENTIAL OVERSHADOWING ANALYSIS

Residential Overshadowing Analysis

An initial residential sun access impact study has been undertaken for the southern downstream Neighbouring residential buildings based on the requirement of series of controls.

Neigbouring Residential buildings

The Analysed Neighbouring residential buildings and Overshadowing Study Zone are indicated as site plan below.

Control

DCP 2012 Clause 4.2.3.1 (3) :

New development must not create any additional overshadowing onto a neighbouring dwelling where that dwelling currently receives less than 2 hours direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm on 21 June.

Planning Proposal Central Sydney 2020

Clause 5.1.2 :

Central Sydney's dynamic and dense development environment certainty for the protection of private amenities such as sunlight and views cannot be guaranteed. The maintenance of sunlight access and private views to existing development should not unduly restrict the economic performance and economic growth of Central Sydney, where proposed development has demonstrated compliance with Sydney LEP 2012, in relation to height and FSR, and Sydney DCP 2012 Section 5.1.1 Built Form Controls. This is especially the case for proposed employment related developments that impact on existing residential and serviced apartment developments.

Planning Proposal Central Sydney 2020

Clause 5.1.2 :(6)

(6) When considering the likely impacts of a development on surrounding developments any adverse impacts on existing private views, visual privacy, solar and daylight access are considered reasonable where compliance with Section 5.1.1 and 5.1.2(1), (2) and (3) has been achieved.

Methodology

The standard for residential sun access compliance is the Apartment Design Guide minimum of 2 hours to living spaces between 9:00am and 3:00pm on 21 June (mid-winter)

The methodology is as follows:

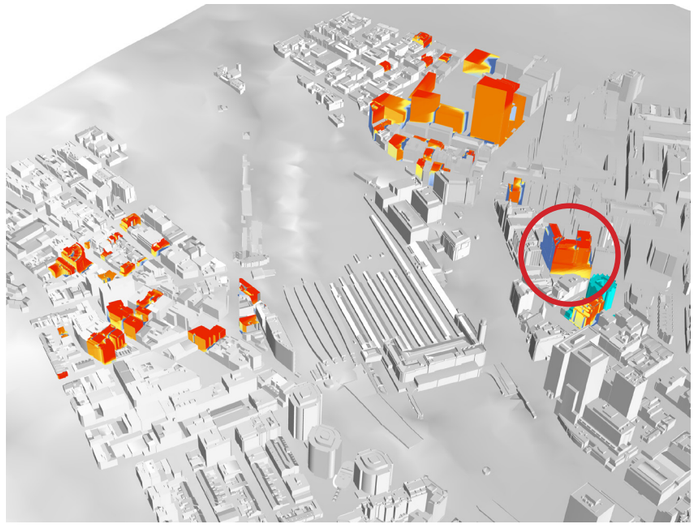
1. Residential buildings potentially affected were identified by determining the extent of any shadow of an RL 300m tower at the winter equinox.

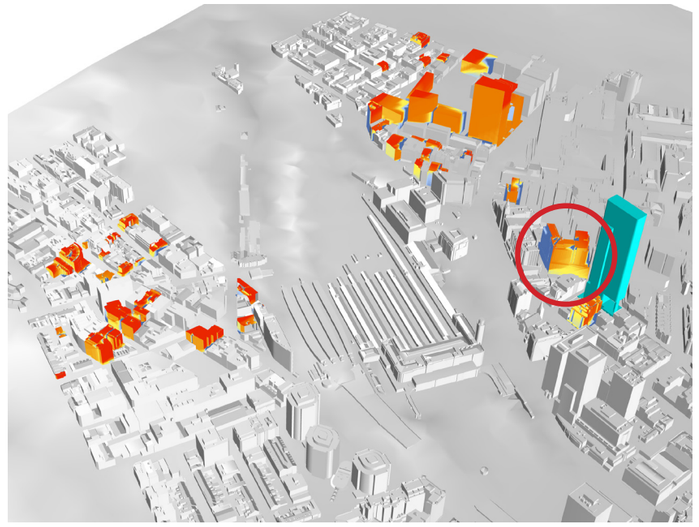
2. Existing sun access on the facades of the potentially affected buildings was calculated.

3. Sun access on the potentially affected buildings with the proposed massing was then calculated.

Overshadowing Study Zone

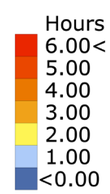
Residential Buildings within Study Zone





Proposed Sun Access

9am - 3pm mid winter.



Conclusion

a. The most overshadowing impact as a result of the proposed massing occurs closest to the development.

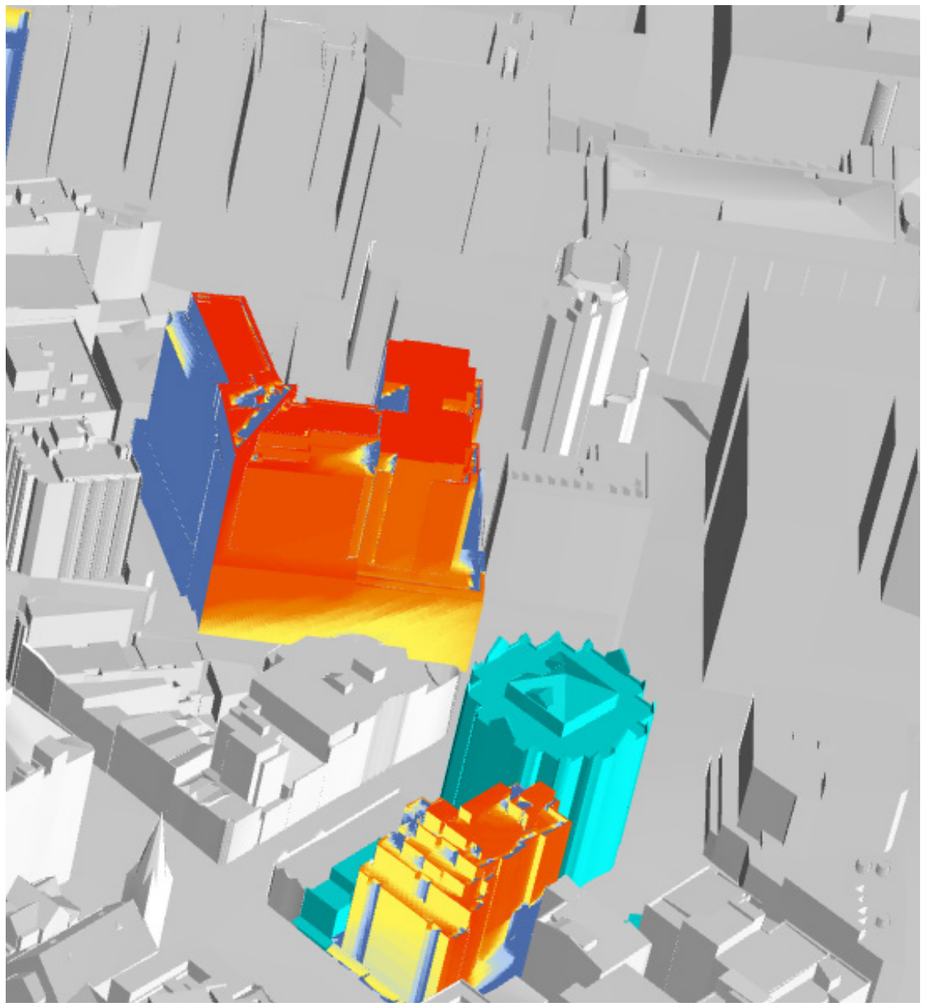
b. Some reduction of sun access is noticeable on 1 Central Park, however 3 hours of sun access is maintained in the affected areas

c. 2 hours sun access is maintained to the facades of potentially affected residential buildings

d. A more detailed study of the nearby buildings on Quay street would be required as part of a Stage 2 Development Application submission to assess any impact on ADG requirements.

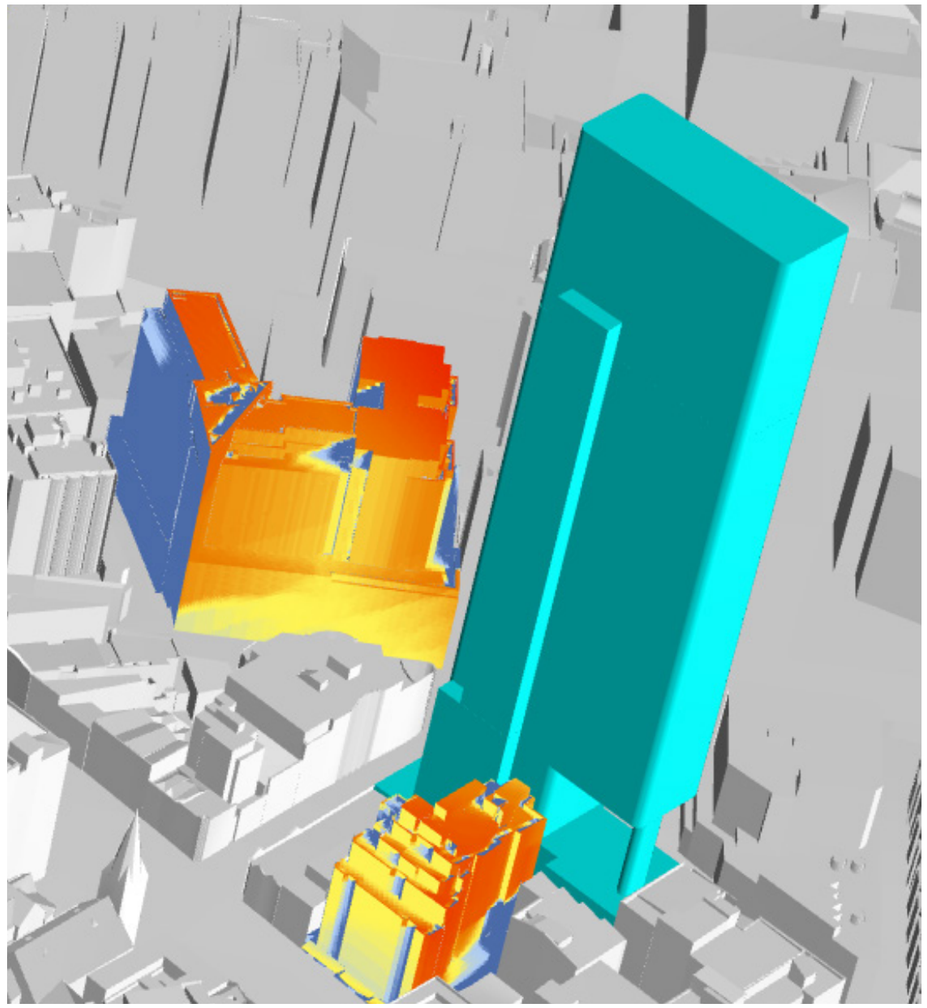
e. Under the Planning Proposal Central Sydney 2020, the protection of private amenities such as sunlight and views cannot be guaranteed within the Central Sydney's dynamic and dense development environment.

Regardless of the ability for commercial developments to impact private residential amenity under the draft DCP, the proposed development envelope does not reduce existing sun access to living spaces of surrounding residential developments below the ADG minimum of 2 hours in mid-winter.



Existing Sun Access

9am - 3pm mid winter.



Proposed Sun Access

9am - 3pm mid winter.

Sun Eye View Study

An initial residential sun eye view study has been undertaken for the adjacent Neighbouring residential buildings based on the requirement of series of controls.

Control

DCP 2012 Clause 4.2.3.1 (3) :

New development must not create any additional overshadowing onto a neighbouring dwelling where that dwelling currently receives less than 2 hours direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm on 21 June.

Planning Proposal Central Sydney 2020

Clause 5.1.2 :

Central Sydney's dynamic and dense development environment certainty for the protection of private amenities such as sunlight and views cannot be guaranteed. The maintenance of sunlight access and private views to existing development should not unduly restrict the economic performance and economic growth of Central Sydney, where proposed development has demonstrated compliance with Sydney LEP 2012, in relation to height and FSR, and Sydney DCP 2012 Section 5.1.1 Built Form Controls. This is especially the case for proposed employment related developments that impact on existing residential and serviced apartment developments.

Planning Proposal Central Sydney 2020

Clause 5.1.2 :(6)

(6) When considering the likely impacts of a development on surrounding developments any adverse impacts on existing private views, visual privacy, solar and daylight access are considered reasonable where compliance with Section 5.1.1 and 5.1.2(1), (2) and (3) has been achieved.

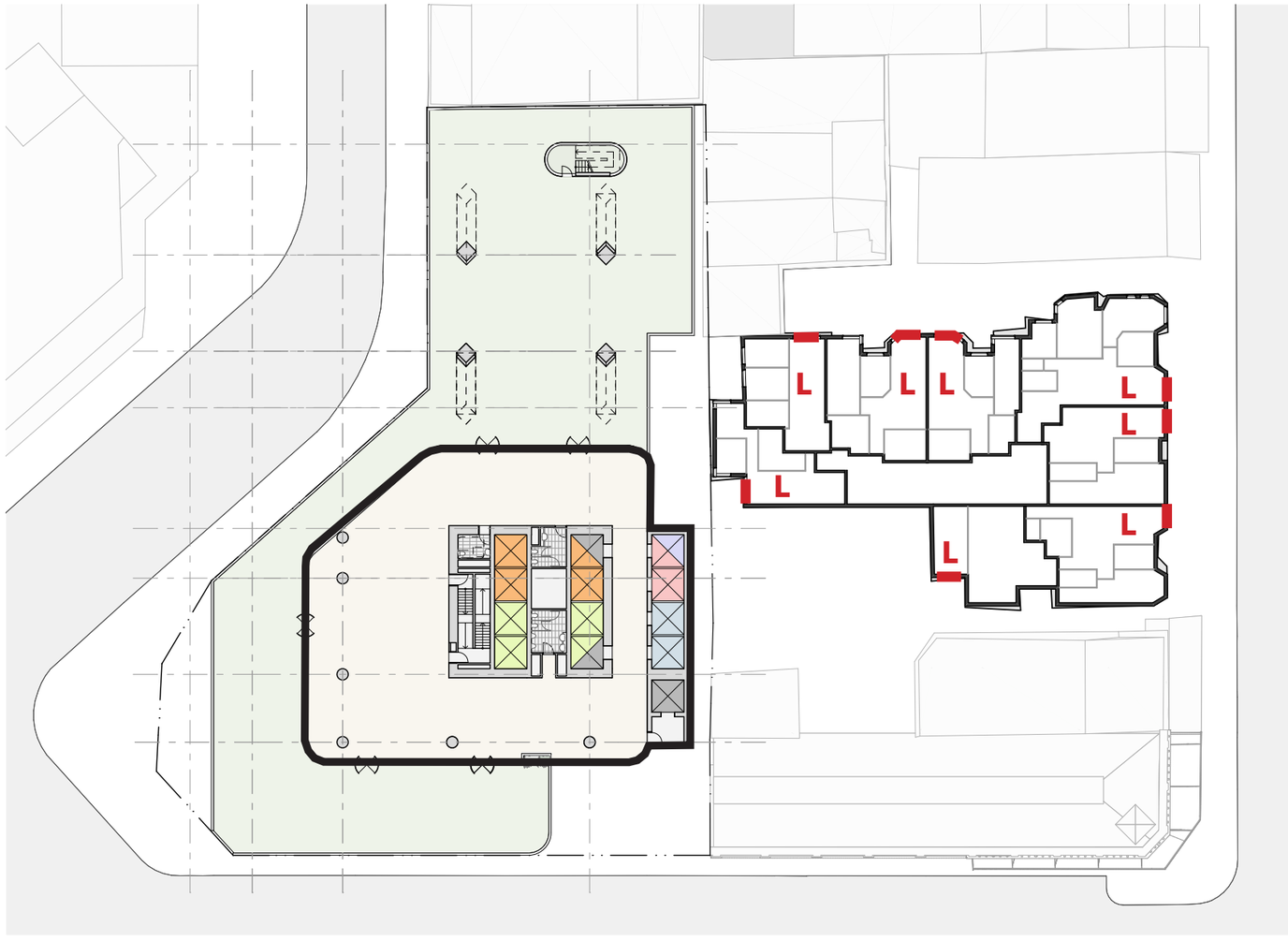
Methodology

743-755 George Street

9:00am - 3:00pm AEST

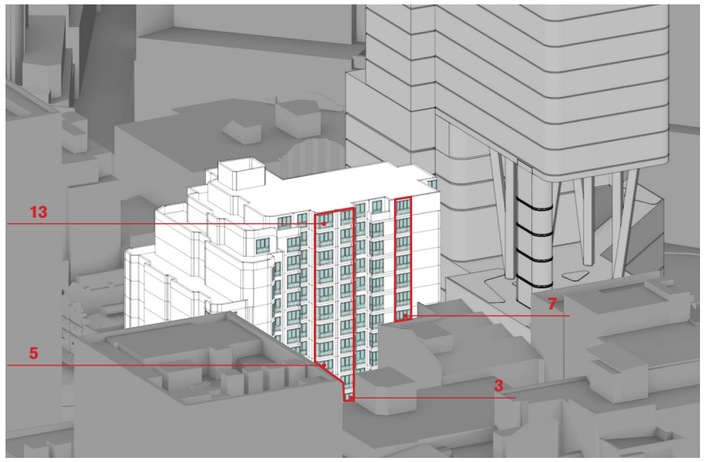
21st June (Mid Winter)

30 minutes intervals

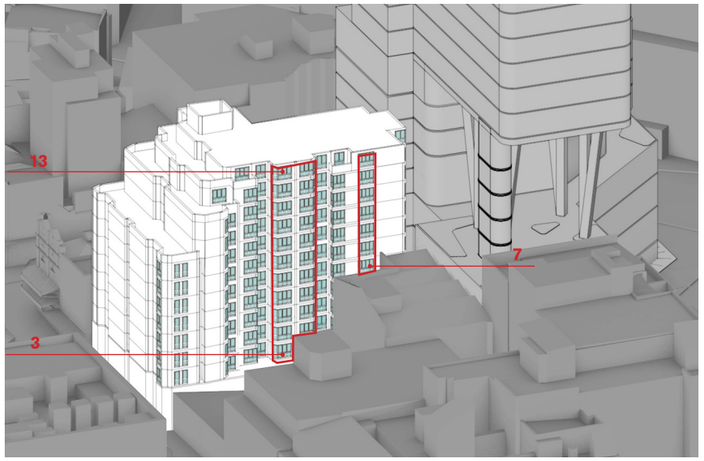


Living Room Windows

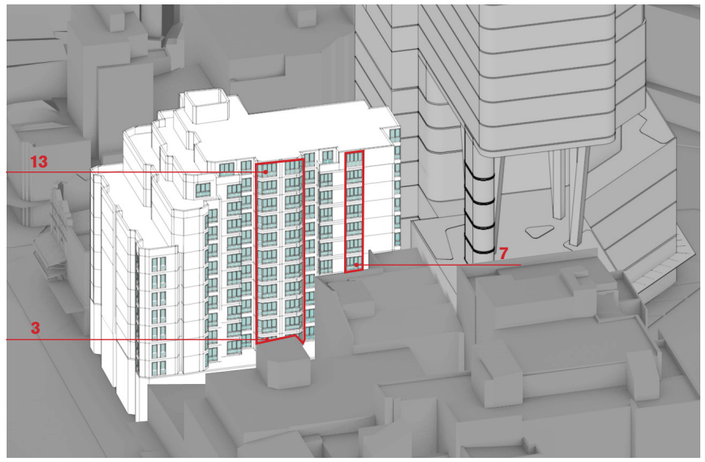
Sun Eye View Study



21st June 09:00am

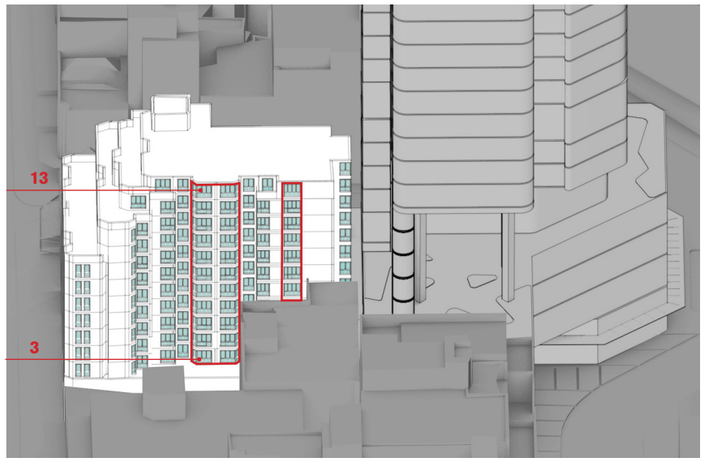


21st June 09:30am



21st June 10:00am

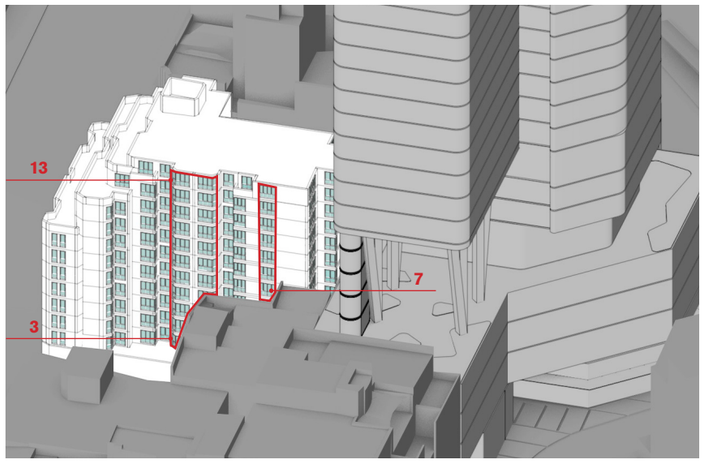
21st June 10:30am



21st June 11:00am

21st June 11:30am

Living Room Windows



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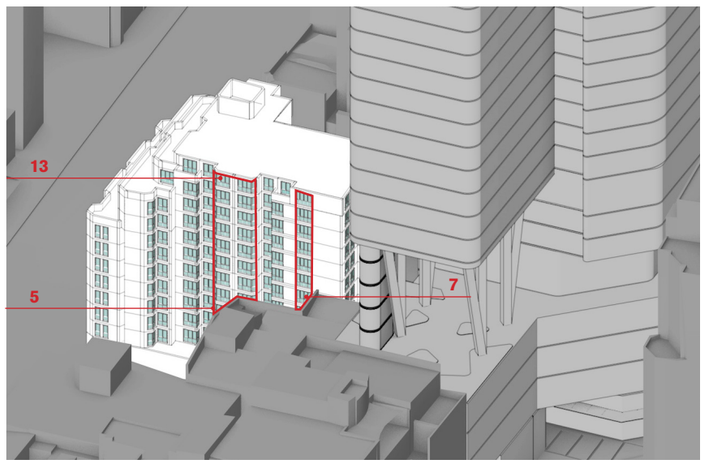

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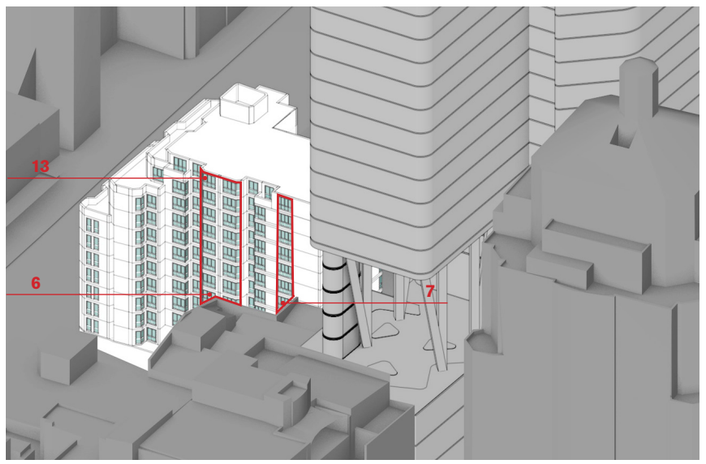

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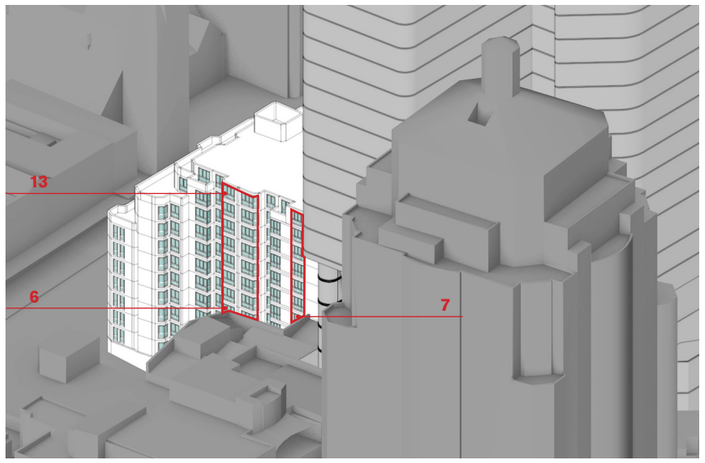

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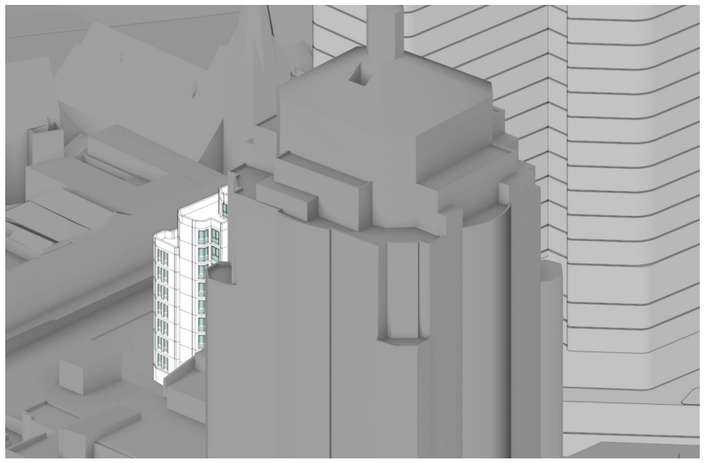

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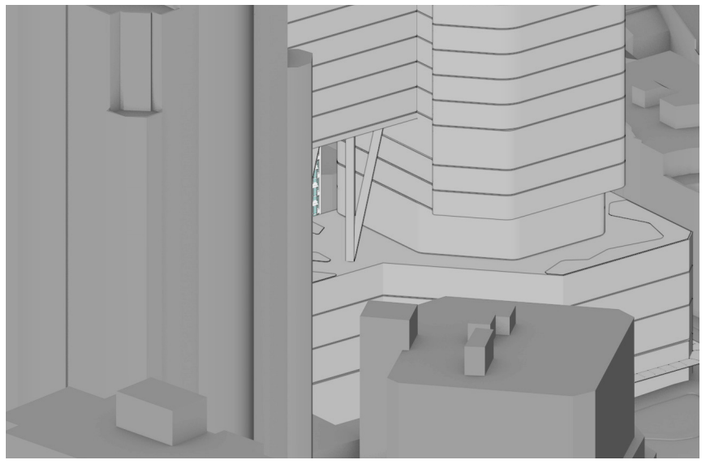
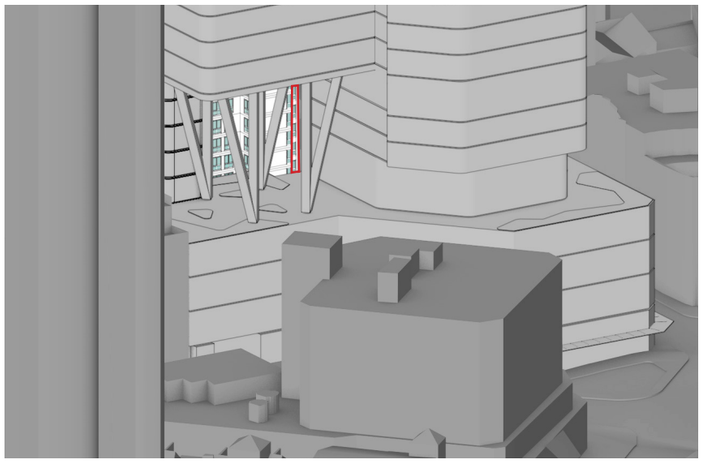


21st June 02:30pm

Living Room Windows



21st June 03:00pm

Living Room Windows

Conclusion

The extent of solar access to apartments of 743-755 George Street has been measured in 30 minutes intervals.

The Proposed Dcp Envelope does not impact on 2 hours solar access of any apartments of 743-755 George Street between 9am and 3pm on 21st June.

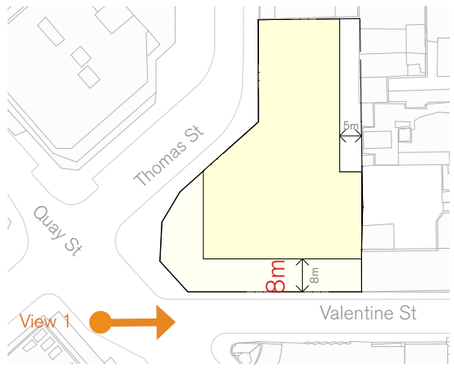
Further detailed analysis will be undertaken as part of a future Stage 2 detailed development application.

Under the Planning Proposal Central Sydney 2020, the protection of private amenities such as sunlight and views cannot be guaranteed within the Central Sydney's dynamic and dense development environment.

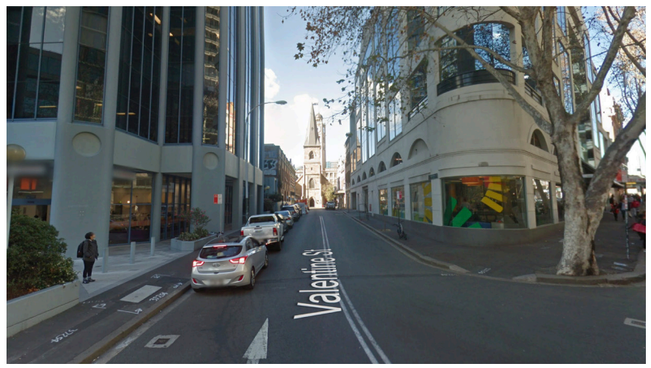
Regardless of the ability for commercial developments to impact private residential amenity under the draft DCP, the proposed development envelope does not reduce existing sun access to living spaces at 743-755 George Street below the ADG minimum of 2 hours in mid-winter.

Appendix L PUBLIC VIEW ANALYSIS

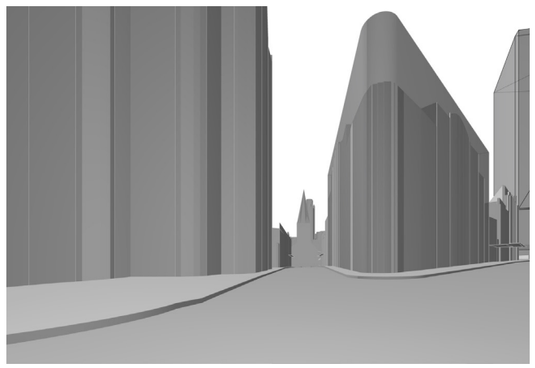
Valentine St View 1



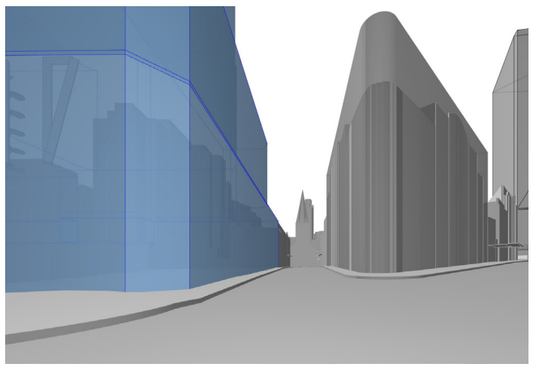
Plan - View 1



View 1 - Google Street View

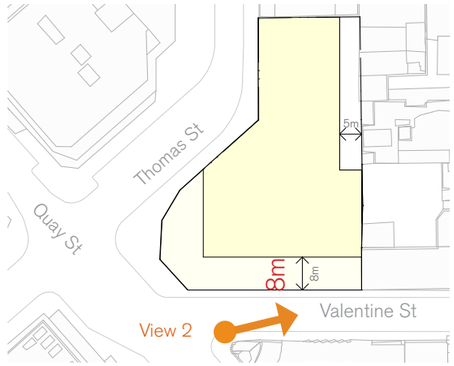


View 1 - Existing



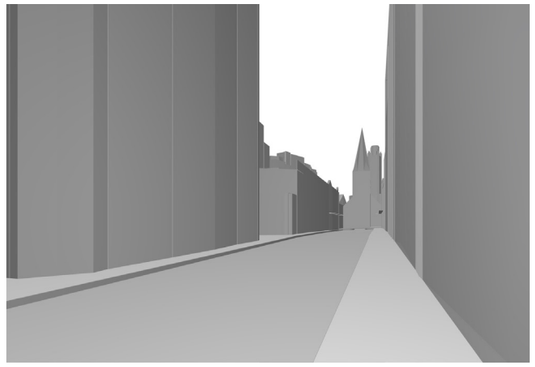
View 1 - Proposed Envelope

Valentine St View 2

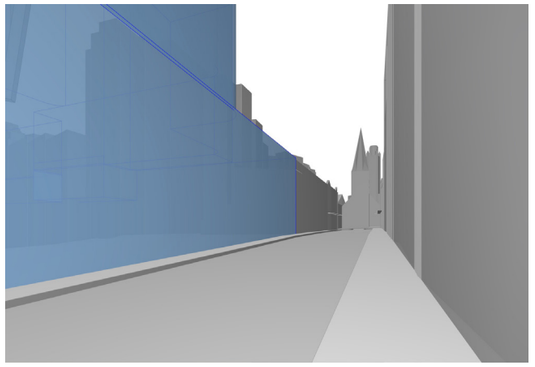


Plan - View 2

View 2 - Google Street View



View 2 - Existing

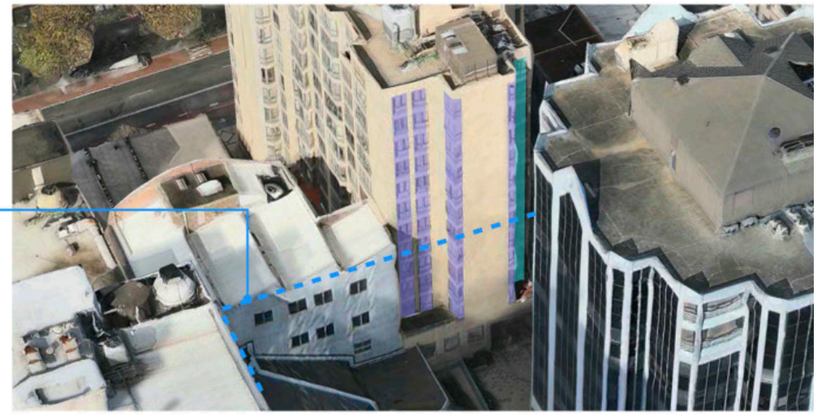


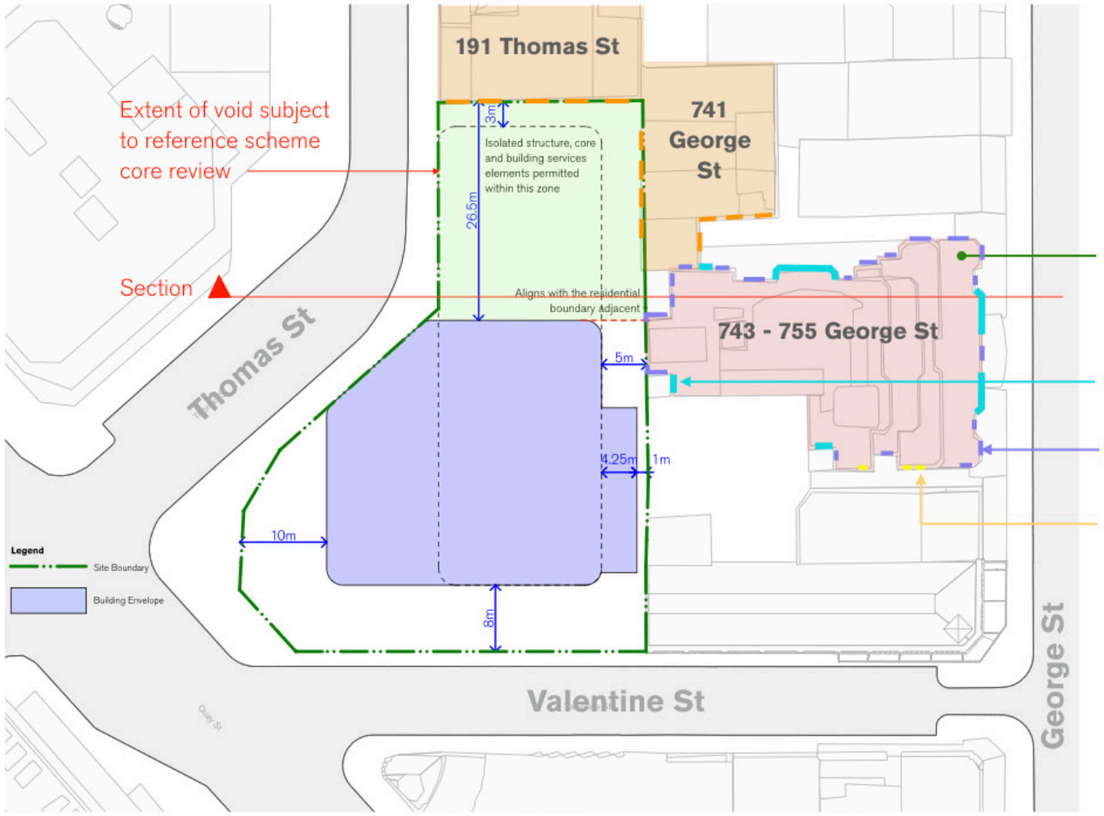
View 2 - Proposed Envelope

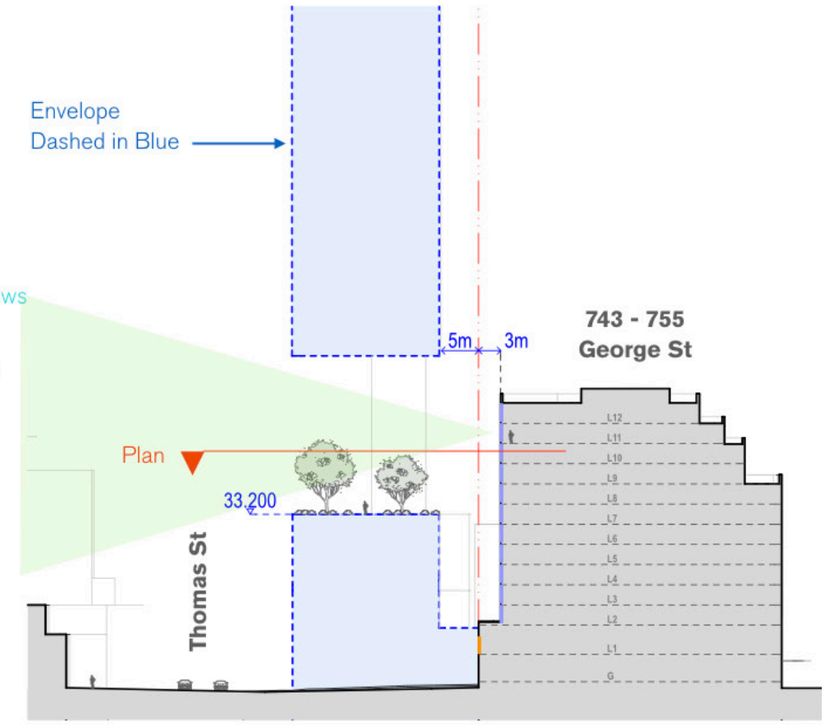
Appendix M PRIVATE VIEW ANALYSIS

Side Setbacks Adjacent Residential

743 - 755 George St West Facing

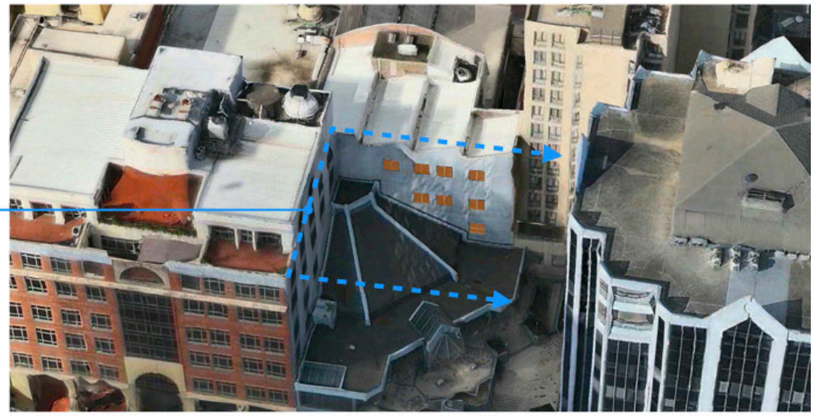


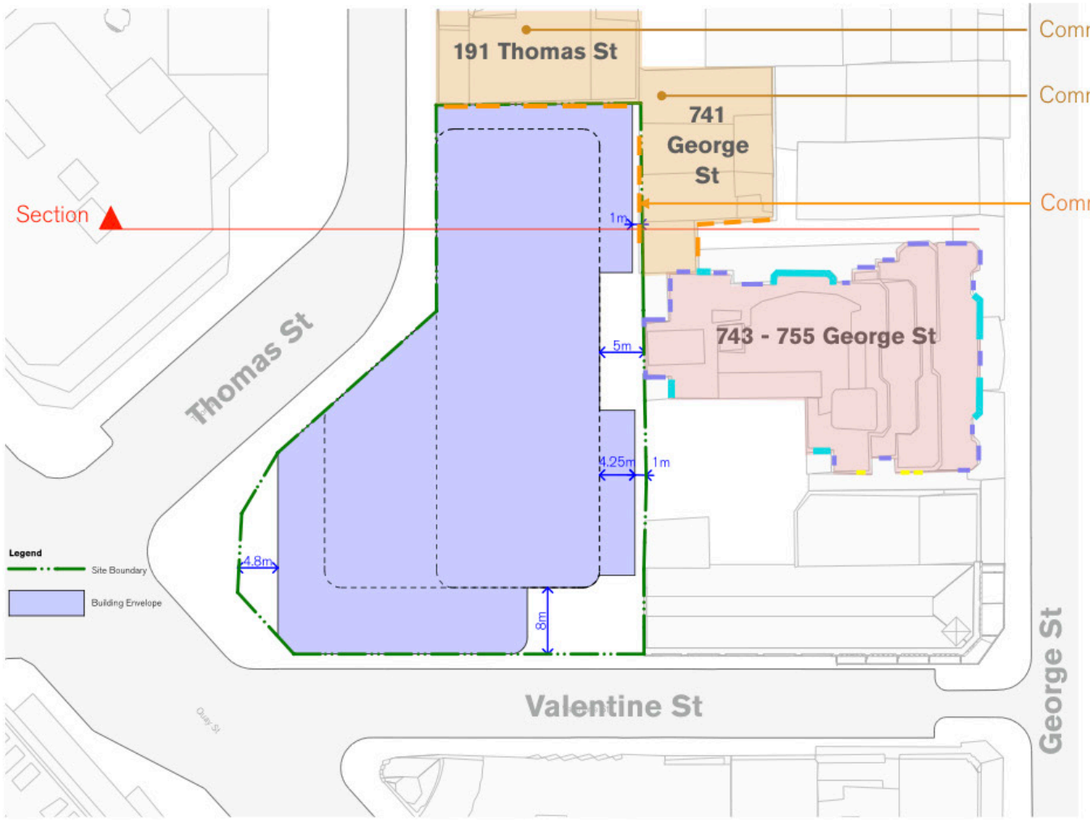


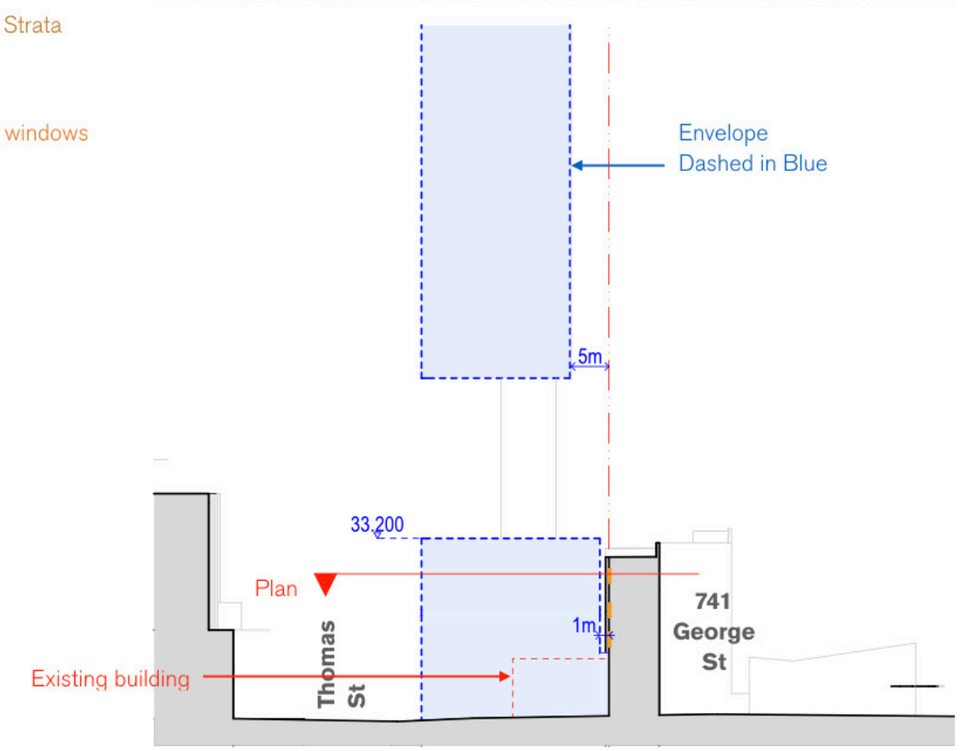


Side Setbacks Adjacent Commercial

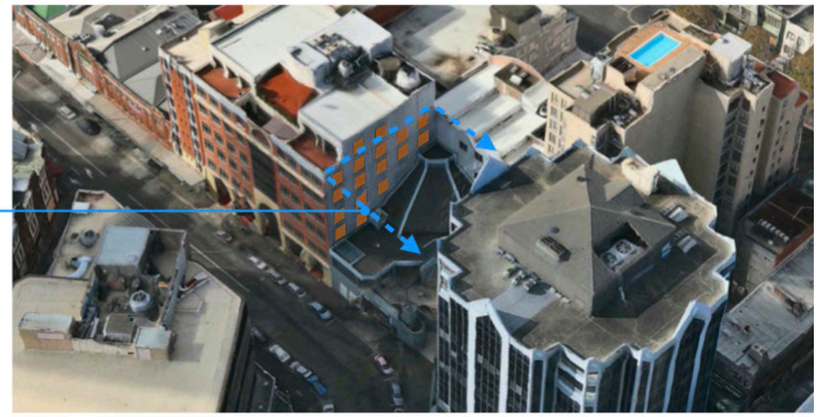
741 George St West Facing

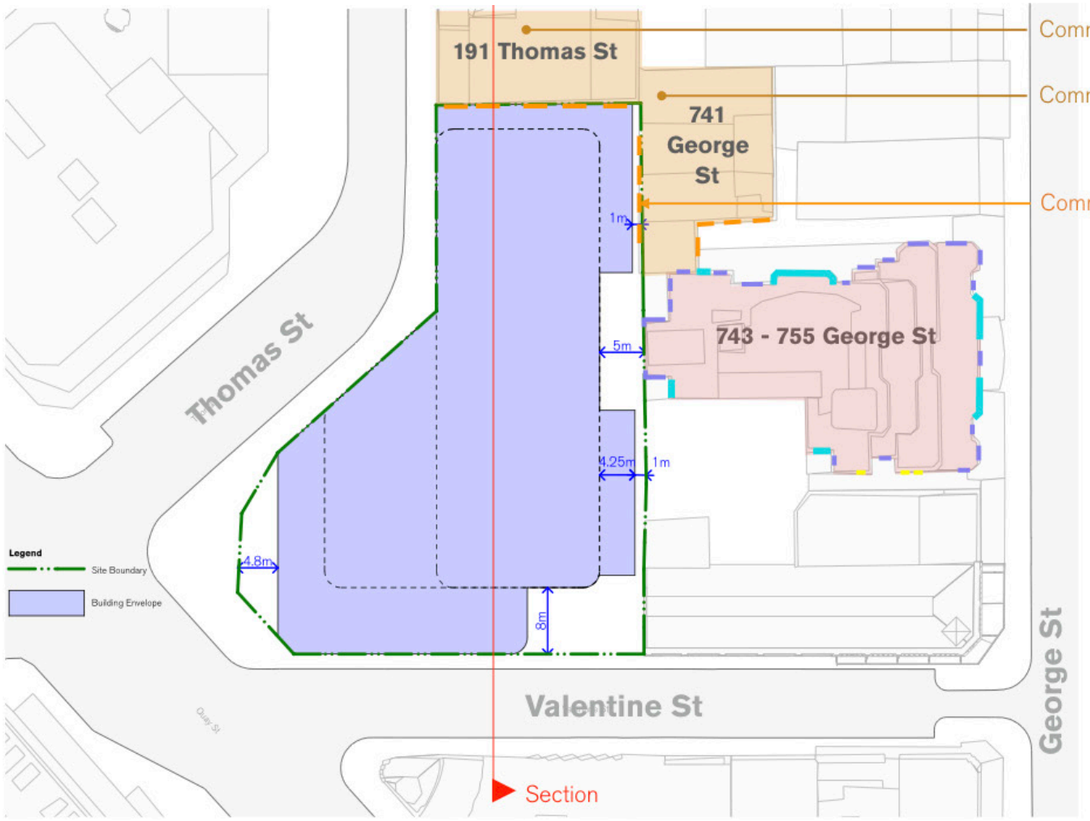


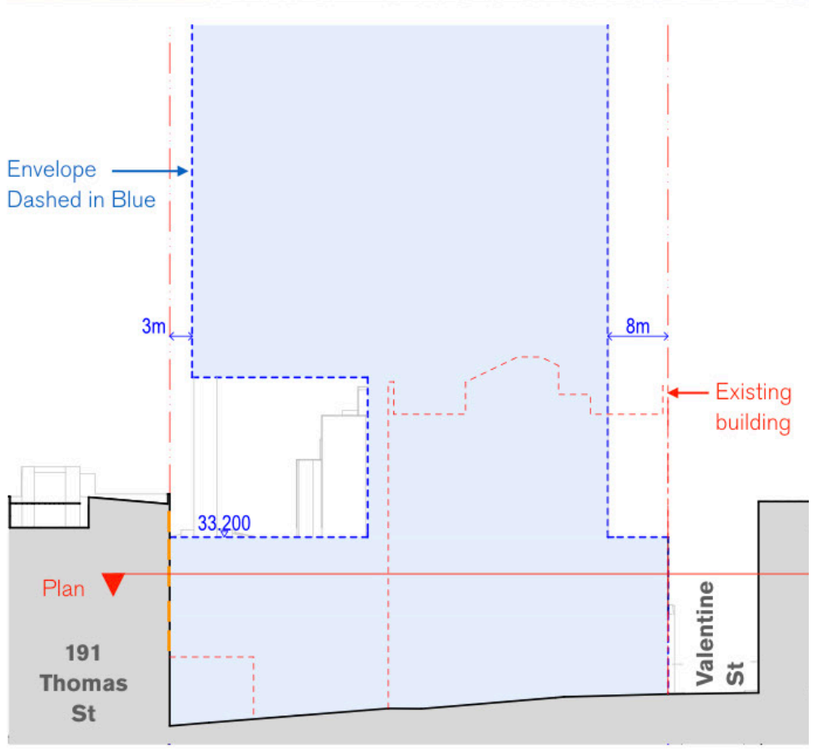




Side Setbacks Adjacent Commercial
191 Thomas St South Facing

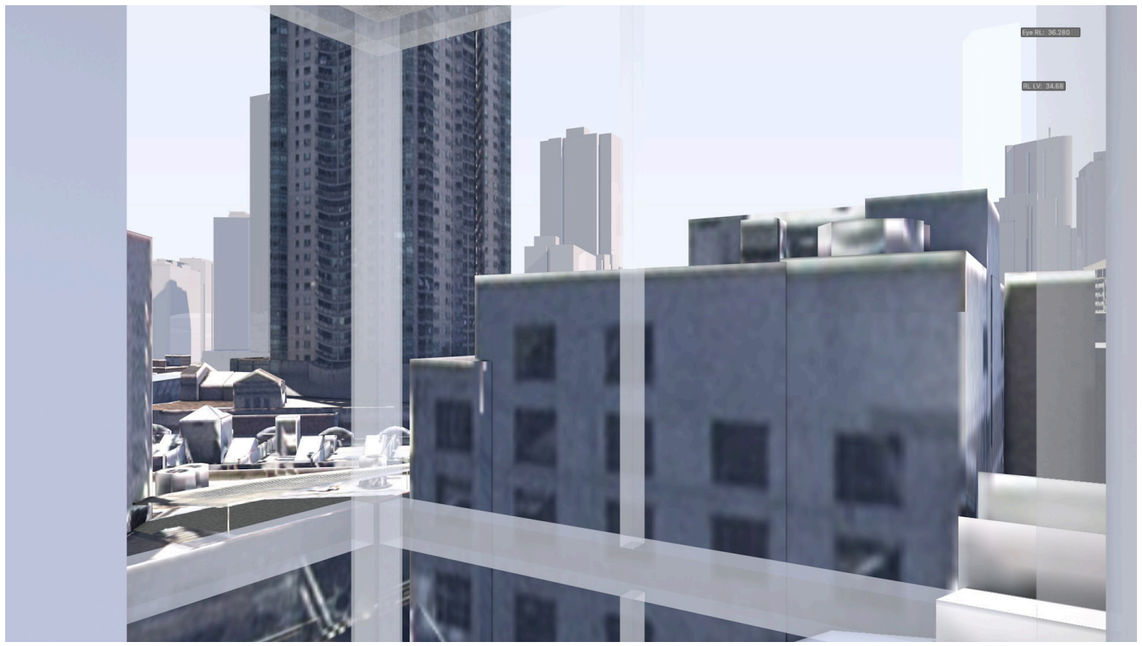




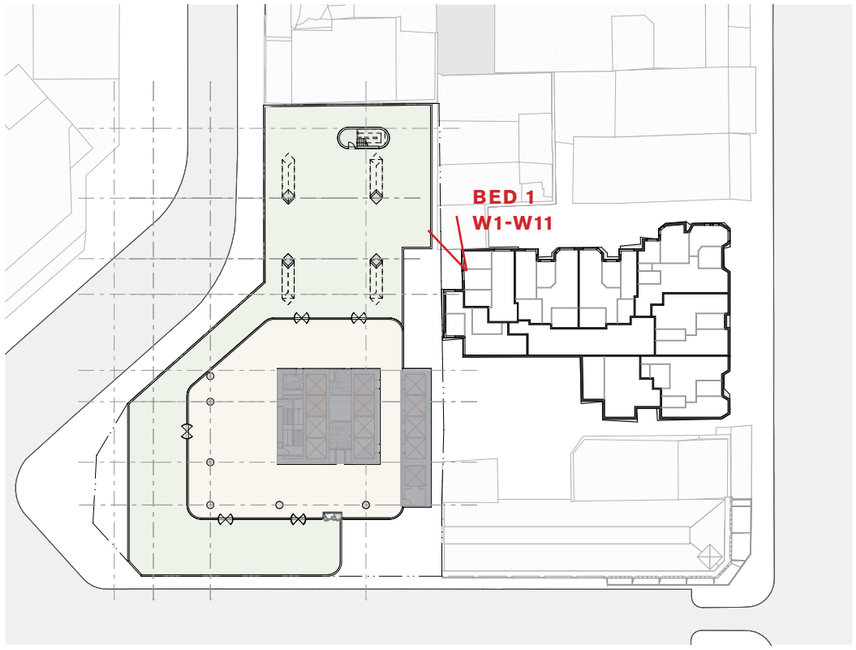


Neighboring View Study
743 - 755 George St

Existing View

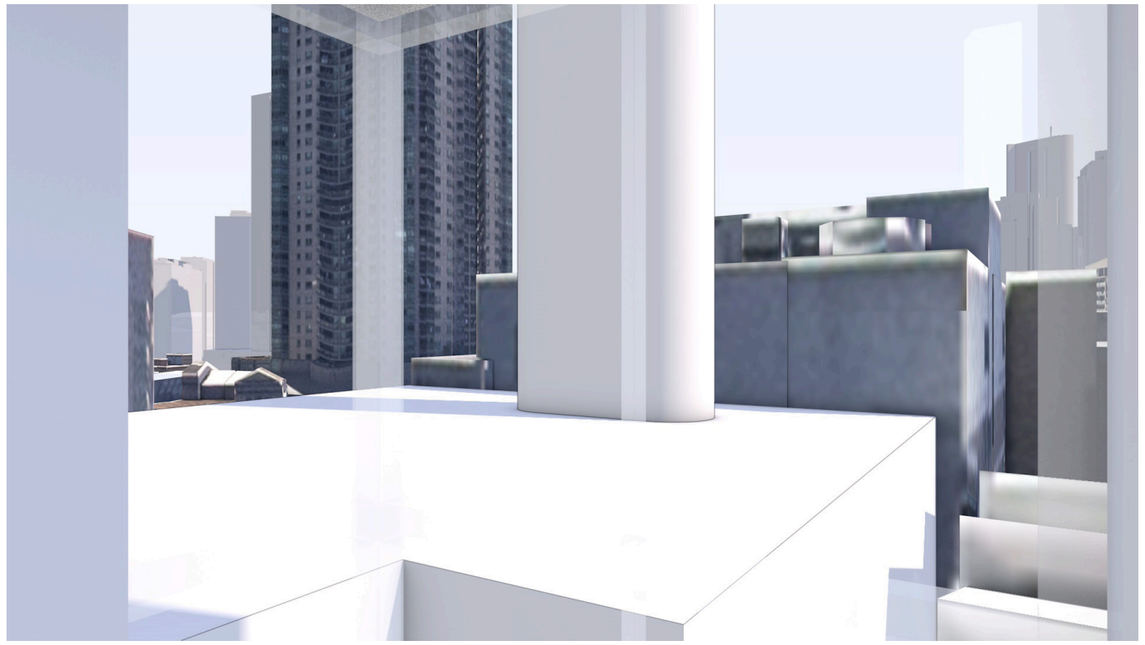


Bedroom 1 W7



Site Plan

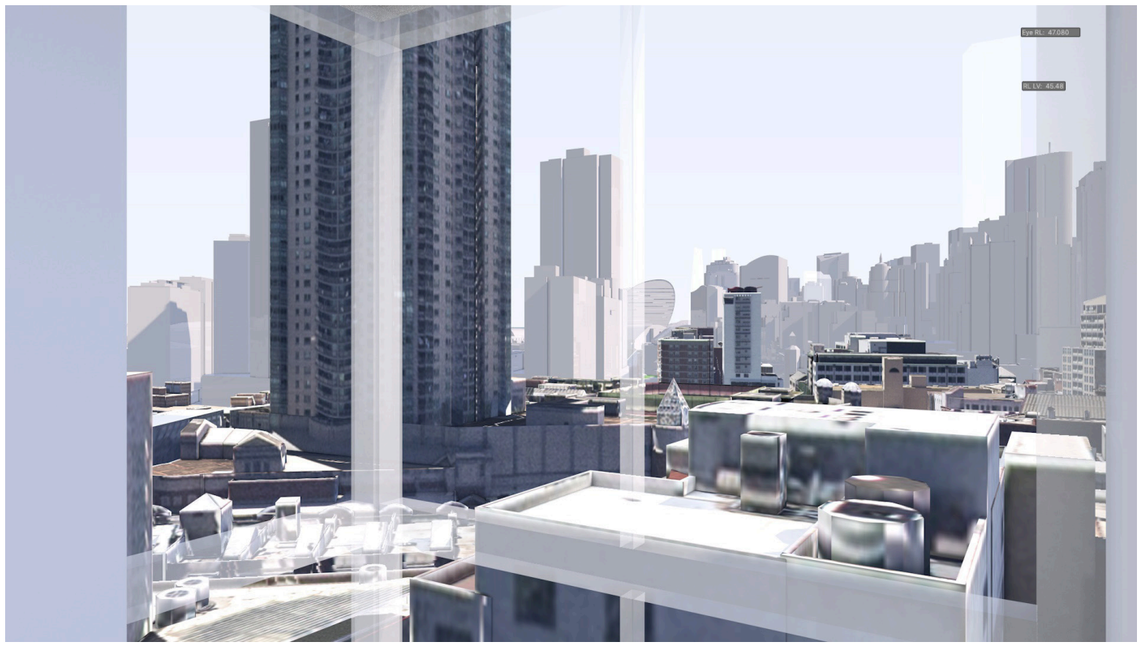
Proposed View



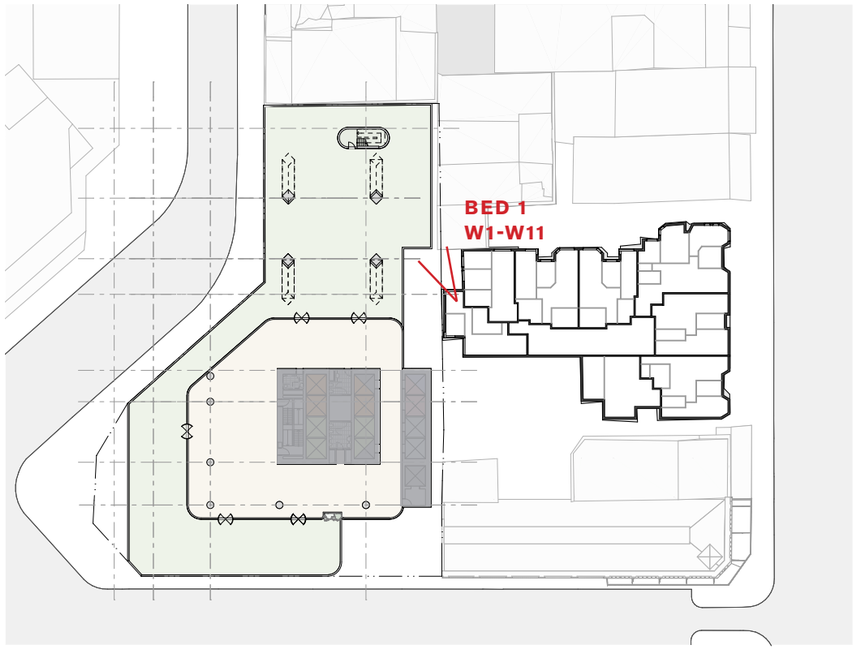
Bedroom 1 W7

Key Elevation

Existing View



Bedroom 1 W11



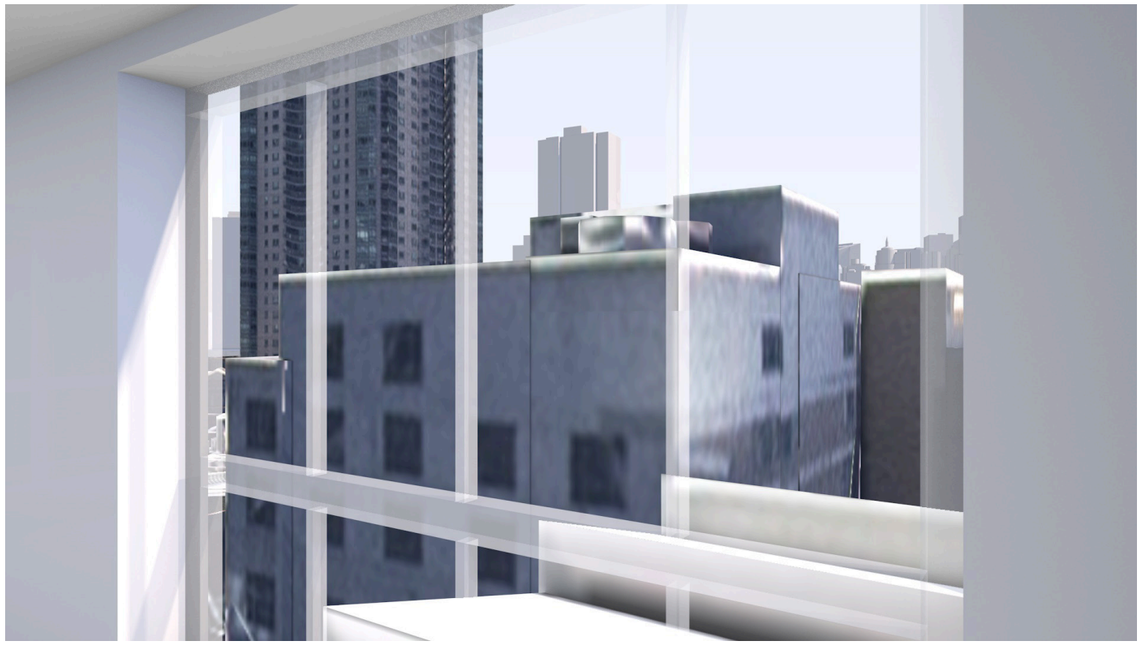
Site Plan

Proposed View

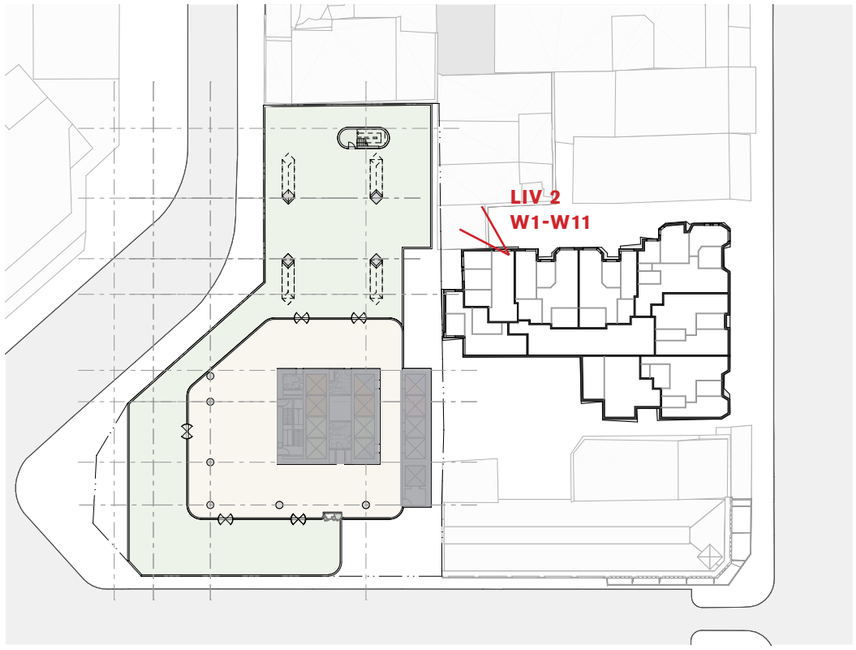
Bedroom 1 W11

Key Elevation

Existing View

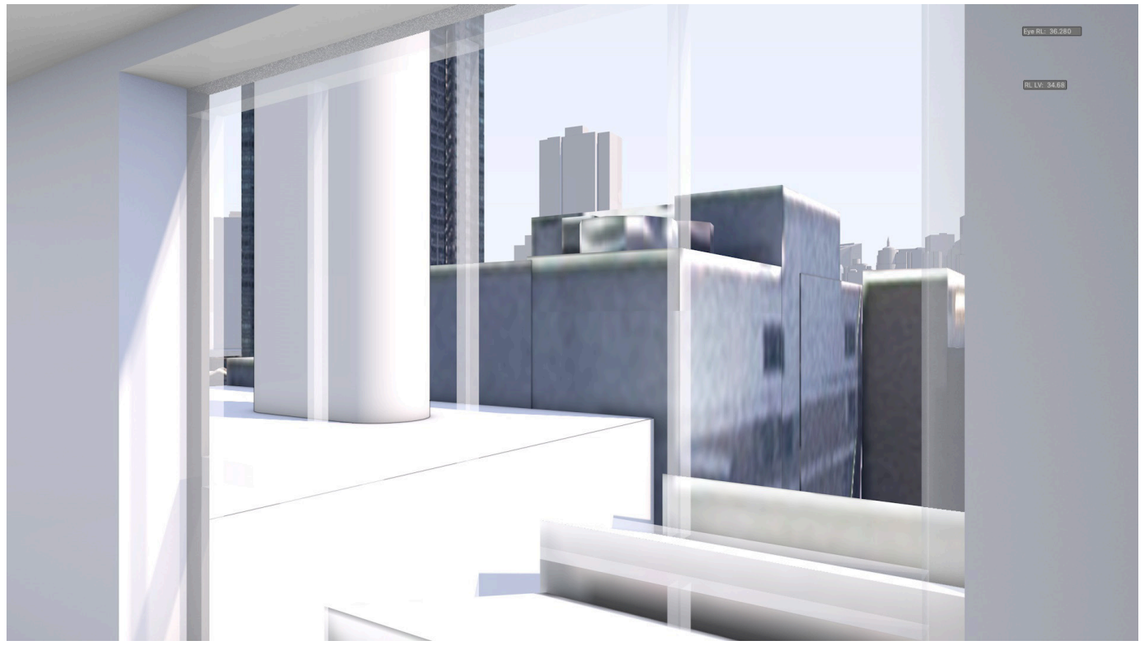


Living Room 2 W7



Site Plan

Proposed View

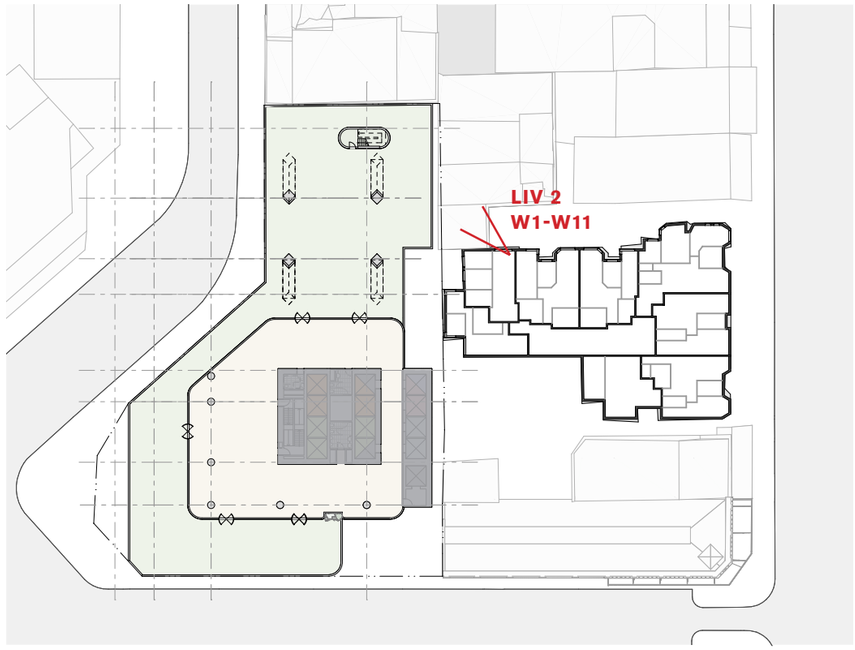


Living room 2 w7

Key Elevation

Existing View

Living Room 2 W11



Site Plan

Proposed View

Living Room 2 W11

Key Elevation

Appendix N FUTURE POTENTIAL DEVELOPMENT ON ADJACENT BLOCKS

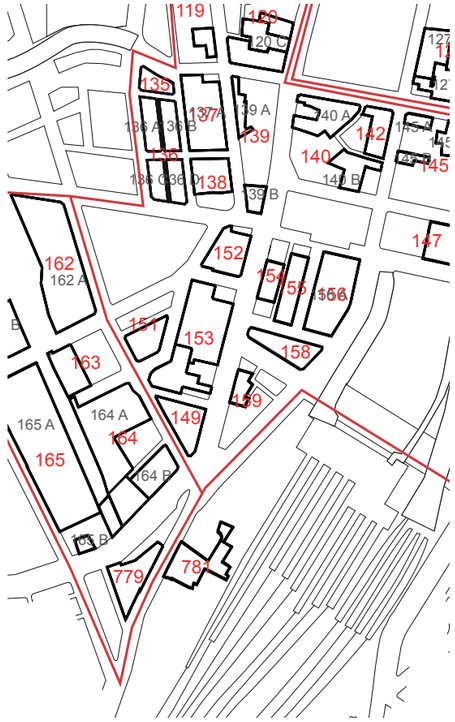
Setback and Future Potential Development on Adjacent Blocks

Any tower development for the site need to consider separation from other buildings.

The Draft CSPS identifies sites with future potential and also identifies minimum setback for these sites.

From this an indication of building separation from future towers can be determined.

The separation from future tower envelopes across Thomas, Quay and Valentine Streets are all greater than 24m.



Built Form Capacity Study - Draft CSPS Appendix B

CSPS Identified Neighbouring Sites And Potential Future Envelopes

Future Potential Development on Block 153 North

The following is a high level study of the remaining capacity of 'Draft CSPS Appendix B Built form Capacity Study. Identified Site 153,' once 187 Thomas St site has been removed.

A massing has been developed under the following assumed constraints:

- Single site amalgamation for the remainder of Block 153 to the north of 187 Thomas St
- The podium and street wall heights vary to align with heritage buildings on George St, Ultimo Rd and Thomas St
- 8m street setbacks to Thomas St and Ultimo Rd, with an increased 20m setback to George St as proposed by this 187 Thomas St proposal
- No additional built form over the existing heritage buildings as per Draft CSPS controls, resulting in two tower zones
- The southern zone is assumed to be an unfeasible tower location due to constraints including irregular geometry, small floor plate size after setbacks, and ADG considerations to the north facing living spaces of Capitol Terrace.
- A tower is located in the northern zone conforming with setbacks, height constraints and tapering controls

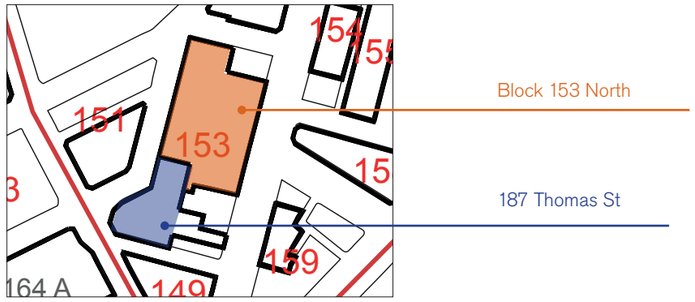
The resulting massing yield estimate is as follows. These figures may vary based on further investigation into site constraints, potential variations of controls and use mix.

BLOCK 153 NORTH POTENTIAL FUTURE DEVELOPMENT

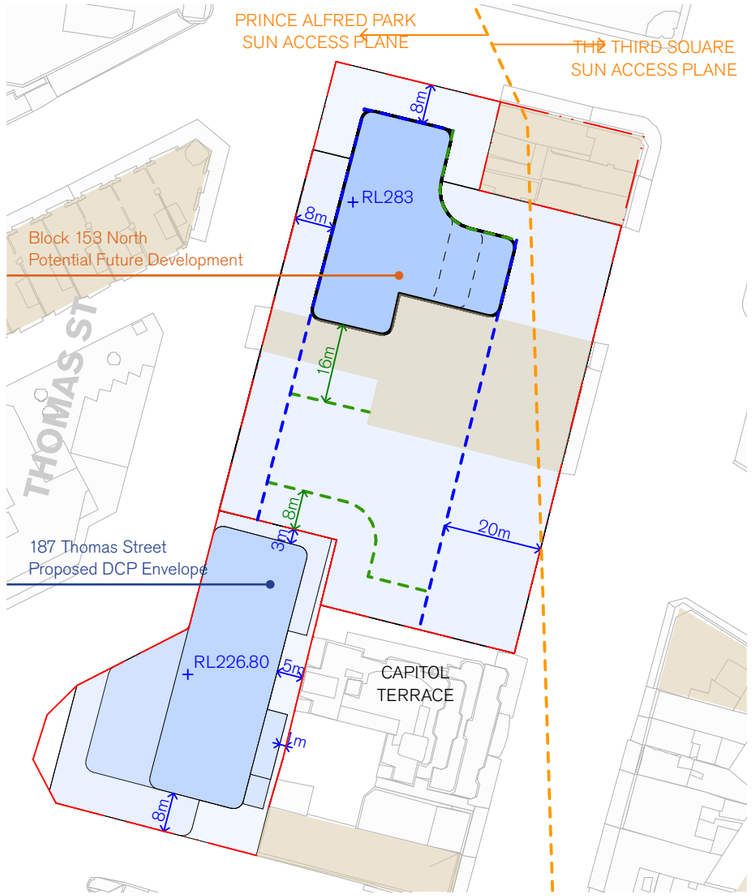
Site Area: 6,150m^2

GFA: approx 80,000m^2

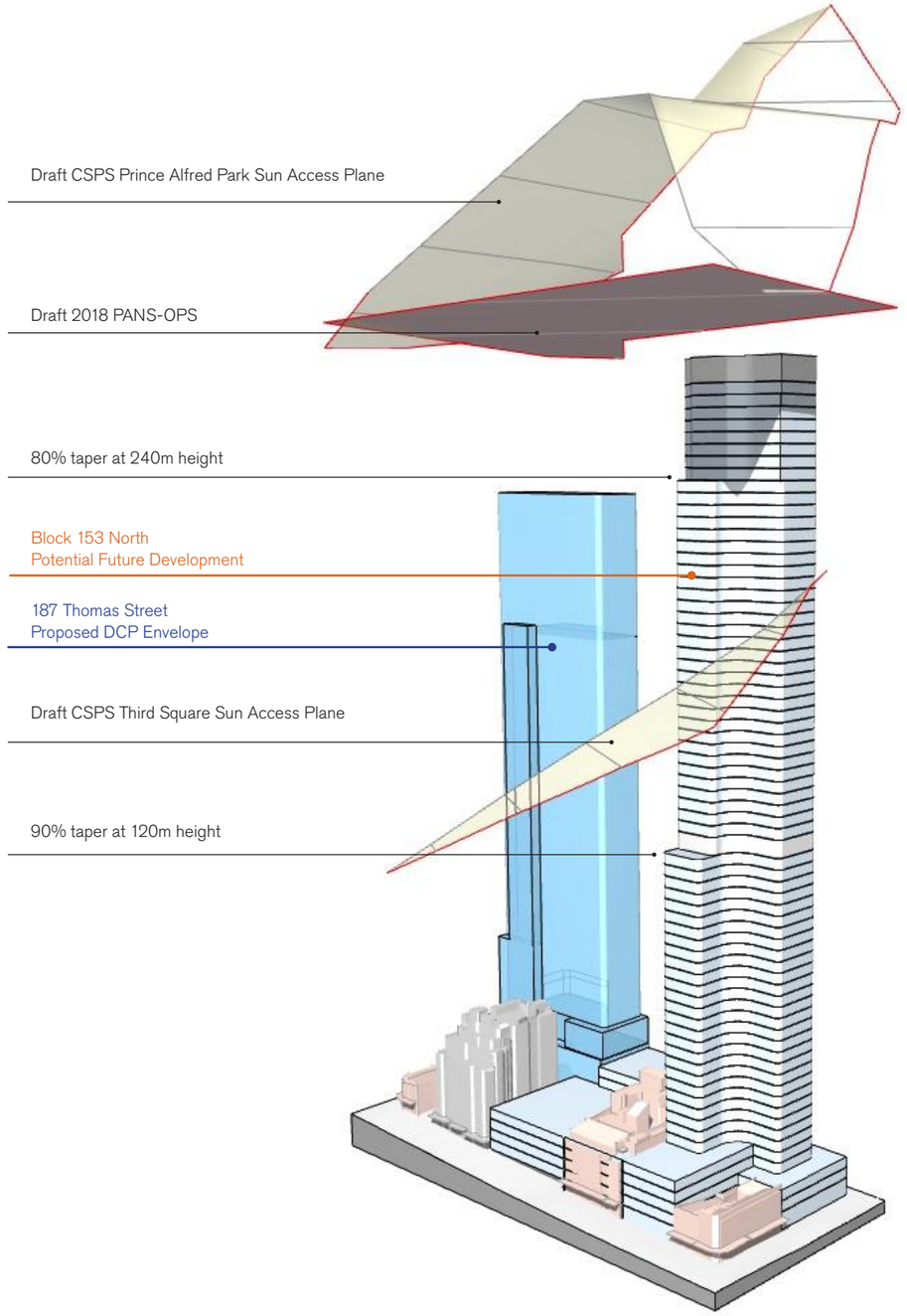
FSR: 13:1



Draft CSPS Appendix B Built Form Capacity Study
Identified Site Block 153 North



Block 153 North Study Plan



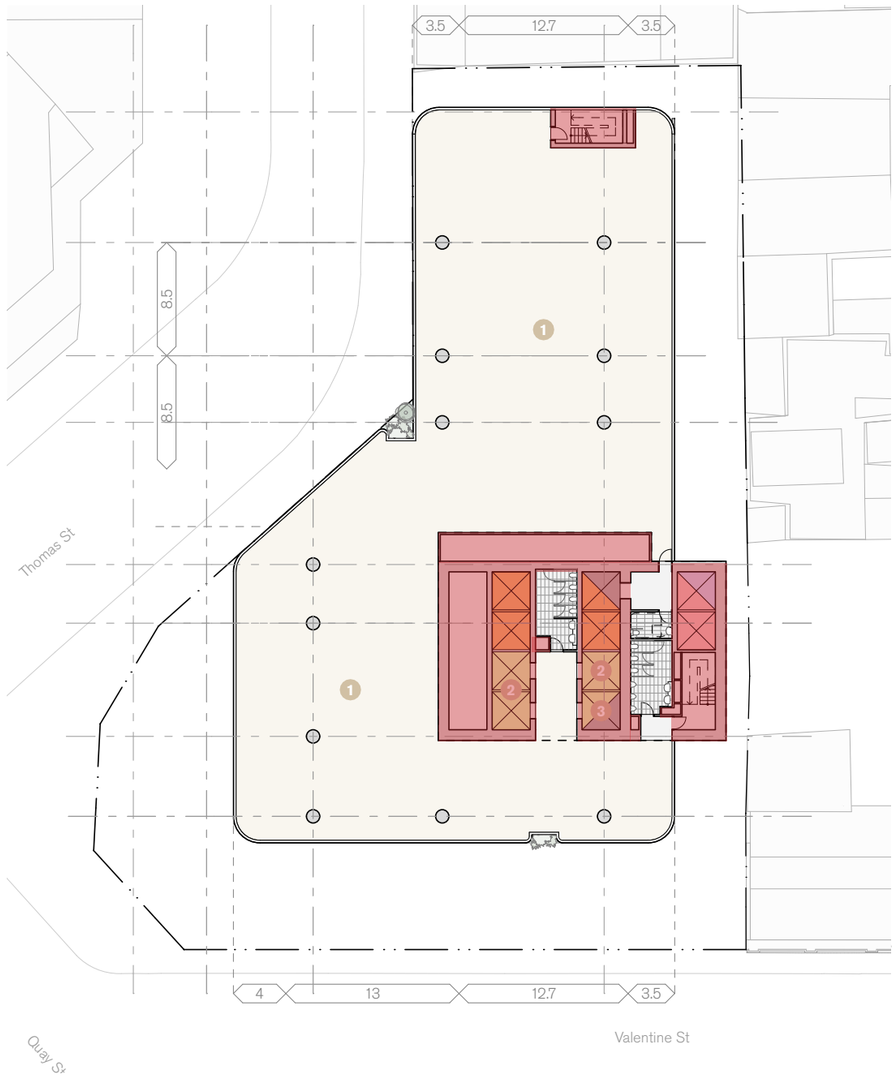
Block 153 North Study Axonometric

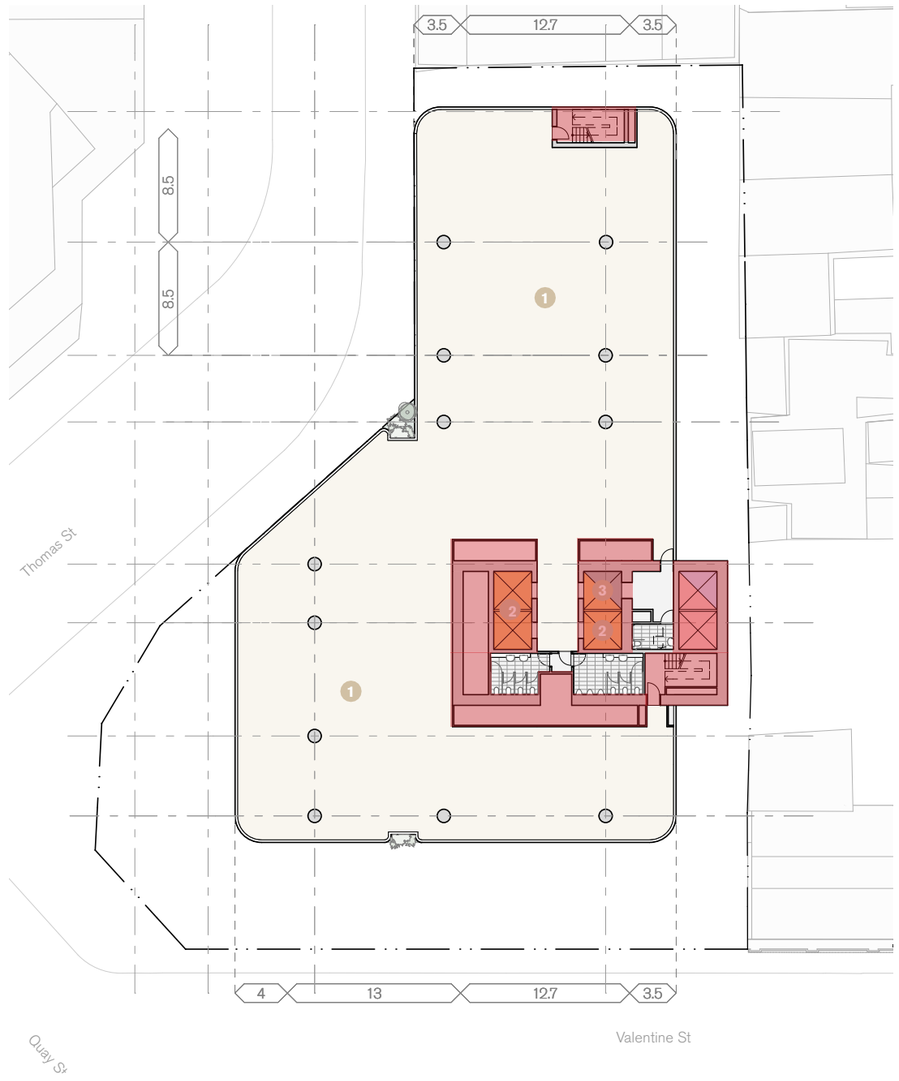
Appendix O FLOOR SPACE EFFICIENCY STUDY

Double-Deck Lifting Study

Indicative GFA/GBA Efficiency

51714sqm /70106sqm = 73.8%





Core Area

Low Rise Commercial Floor Plan

GBA (Low Rise Commercial Per Floor)= 1502 sqm

Core (Low Rise Commercial)= 269 sqm

CORE/GBA= 269/1502 = **17.9%**

High Rise Commercial Floor Plan

GBA (High Rise Commercial Per Floor)= 1498 sqm

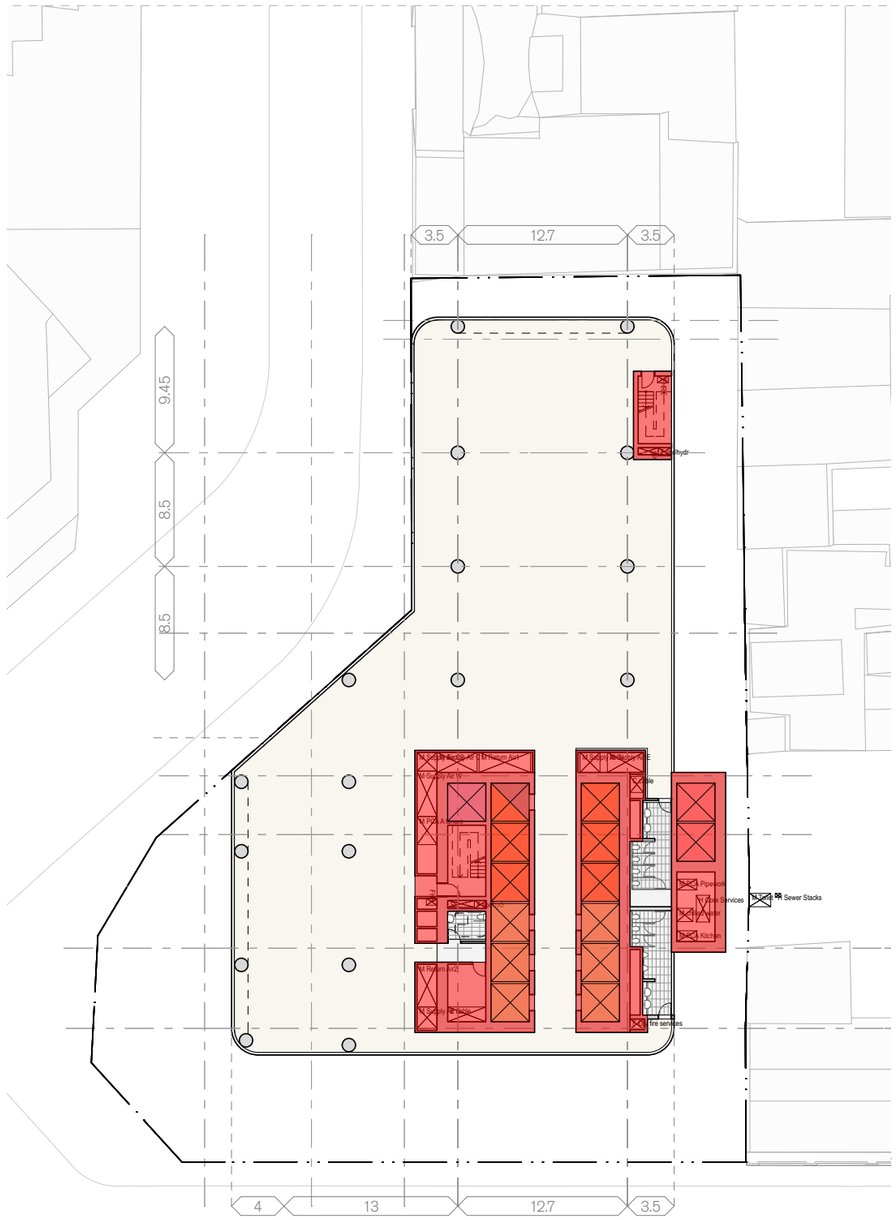
Core (High Rise Commercial)= 235 sqm

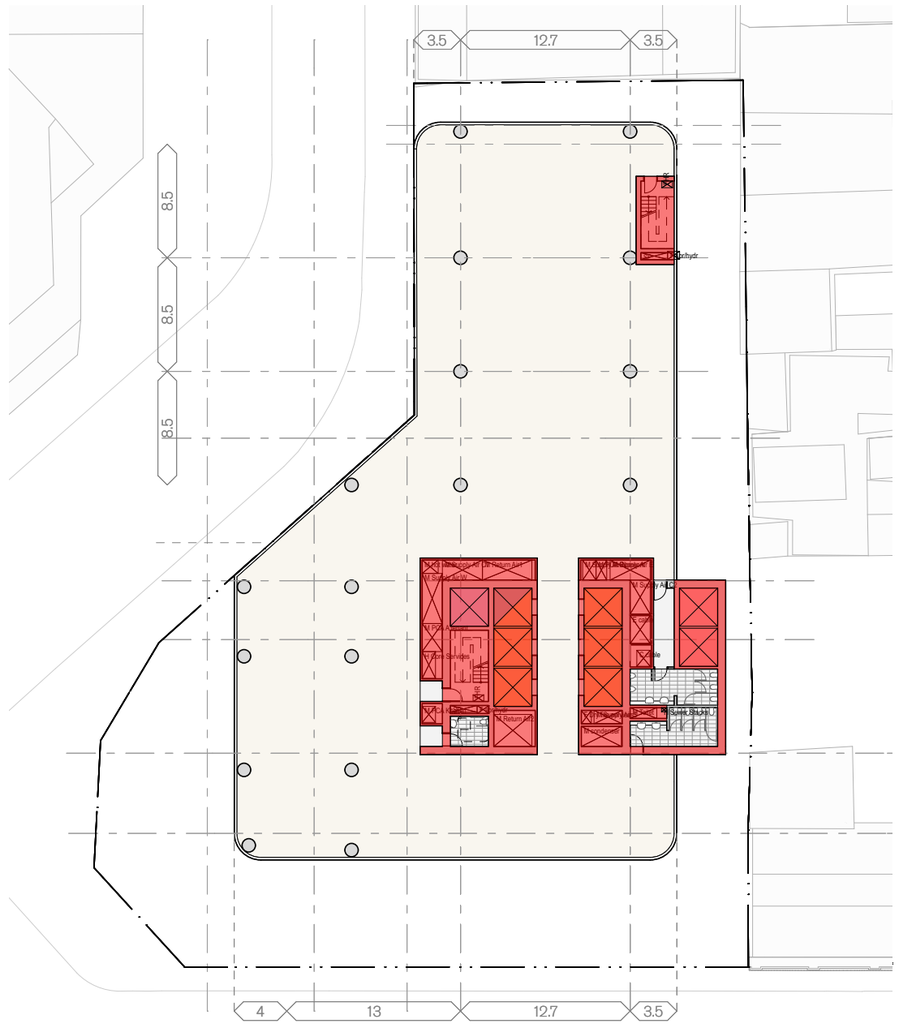
CORE/GBA= 235/1498 = **15.7%**

Conventional Lifting Study

Indicative GFA/GBA Efficiency

56849sqm /78095sqm= 72.7%





Core Area

Low Rise Commercial Floor Plan

GBA (Low Rise Commercial Per Floor)= 1502 sqm

Core (Low Rise Commercial)= 346 sqm

CORE/GBA= 346/1502 = **23.0%**

=> 5% increase compared to stacked lifting

High Rise Commercial Floor Plan

GBA (High Rise Commercial Per Floor)= 1498 sqm

Core (High Rise Commercial)= 244 sqm

CORE/GBA= 346/1502 = **16.3%**

=> 1% increase compared to stacked lifting

Floor Efficiencies Benchmarks
200 George Street, Sydney

Office Building, Sydney, Australia, Completed 2016

Architects: Francis-Jones Morehen Thorp

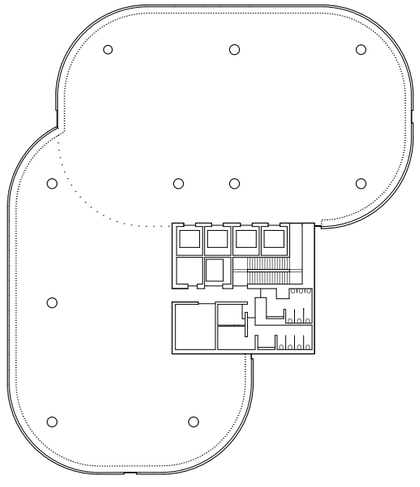
- 37 storeys

- PCA premium grade

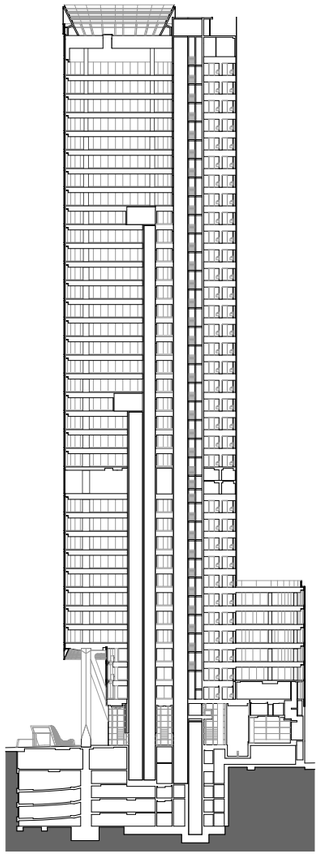
- 6-star Green Star Office Design

Indicative GFA/GBA Efficiency

43078sqm /63372sqm = 68%



Typical floor plan

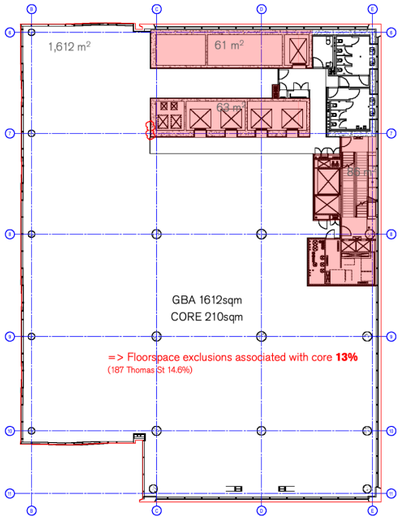


Section

Floor Efficiencies Benchmarks
80 Collins Street, Melbourne

Indicative GFA/GBA Efficiency

1402 sqm /1612 sqm = 86.9%



Typical floor plan

Floor Efficiencies Benchmarks
4-6 Bligh Street, Sydney

Office/Hotel Building, Sydney, Australia

Planning Proposal 2018,
Reference Design by Architectus

- 55 storeys

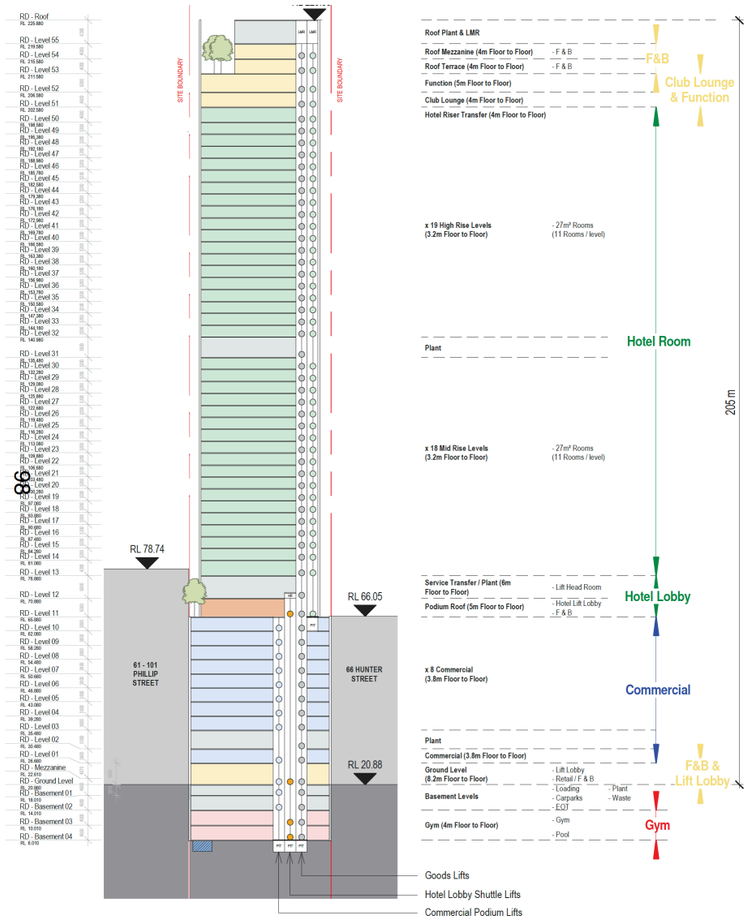
- site area 1,217.8sqm

- FSR sought in planning proposal 22:1

Indicative GFA/GBA Efficiency

26792sqm /39153sm = 68.4%

Typical floor plan



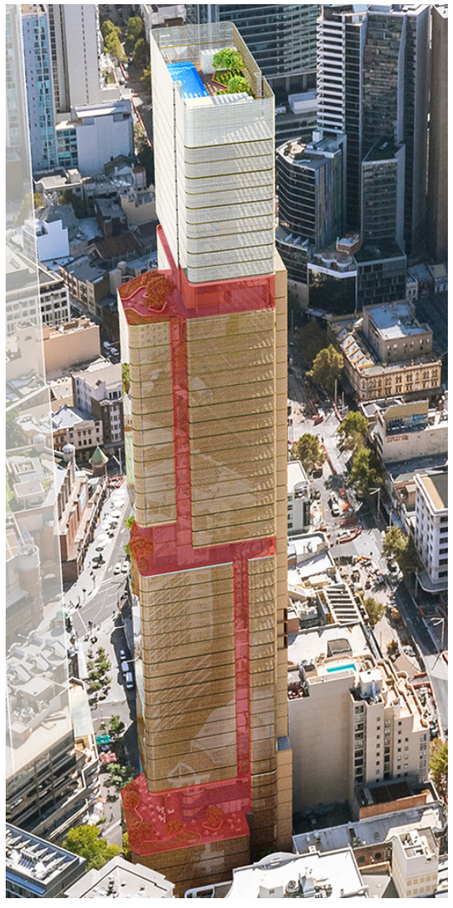
Section

Appendix P ARCHITECTURAL ARTICULATION & EFFICIENT BUILDING ENVELOPE DESIGN

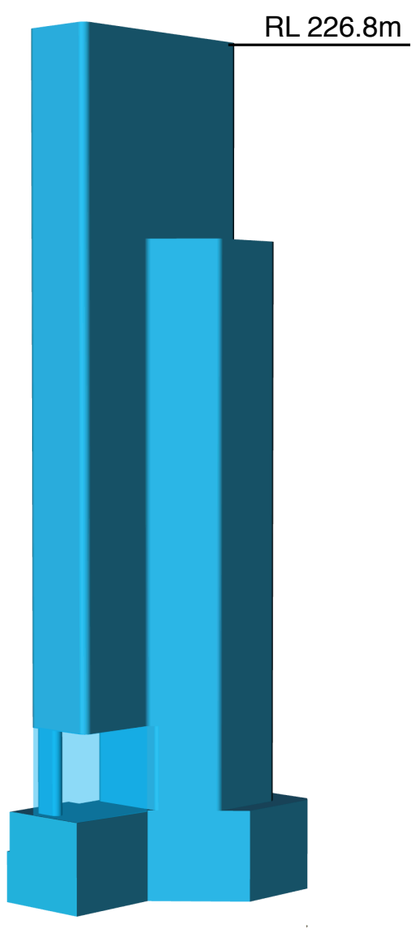
Architectural Articulation

The reference design includes a heavily articulated envelope. Major building setbacks are at level 8, level 22 and level 48 with additional setback floors at levels 4 and 37. A large void spanning over 4 levels and vertical gardens to multiple facades provide further articulation.

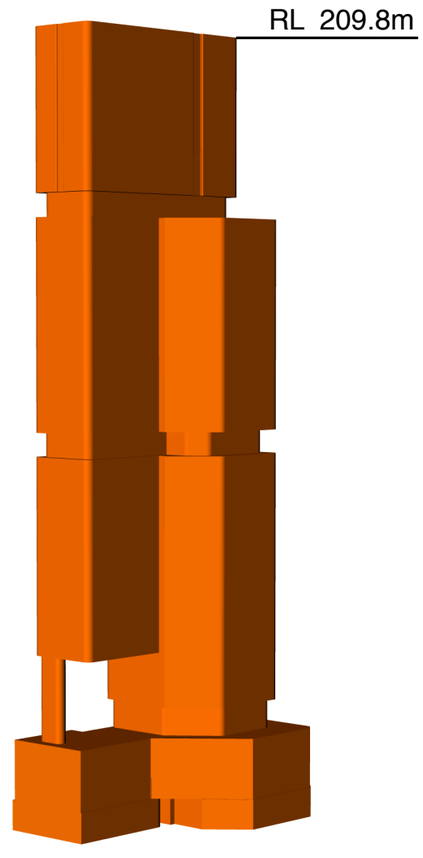
Increased floor to floor heights at ground, level 2, 3 and sky lobby visually break up the facade and allow for additional flexibility in the envelope.



Architectural Articulation



Proposed DCP Envelope



Preferred Indicative Scheme
(FSR 22: 1)

Proposed DCP Envelope	Preferred Indicative Scheme (FSR 22:1)	Occupancy Ratio
320849 m3	272,540 m3	84.9%

Architectural Articulation	15.1%

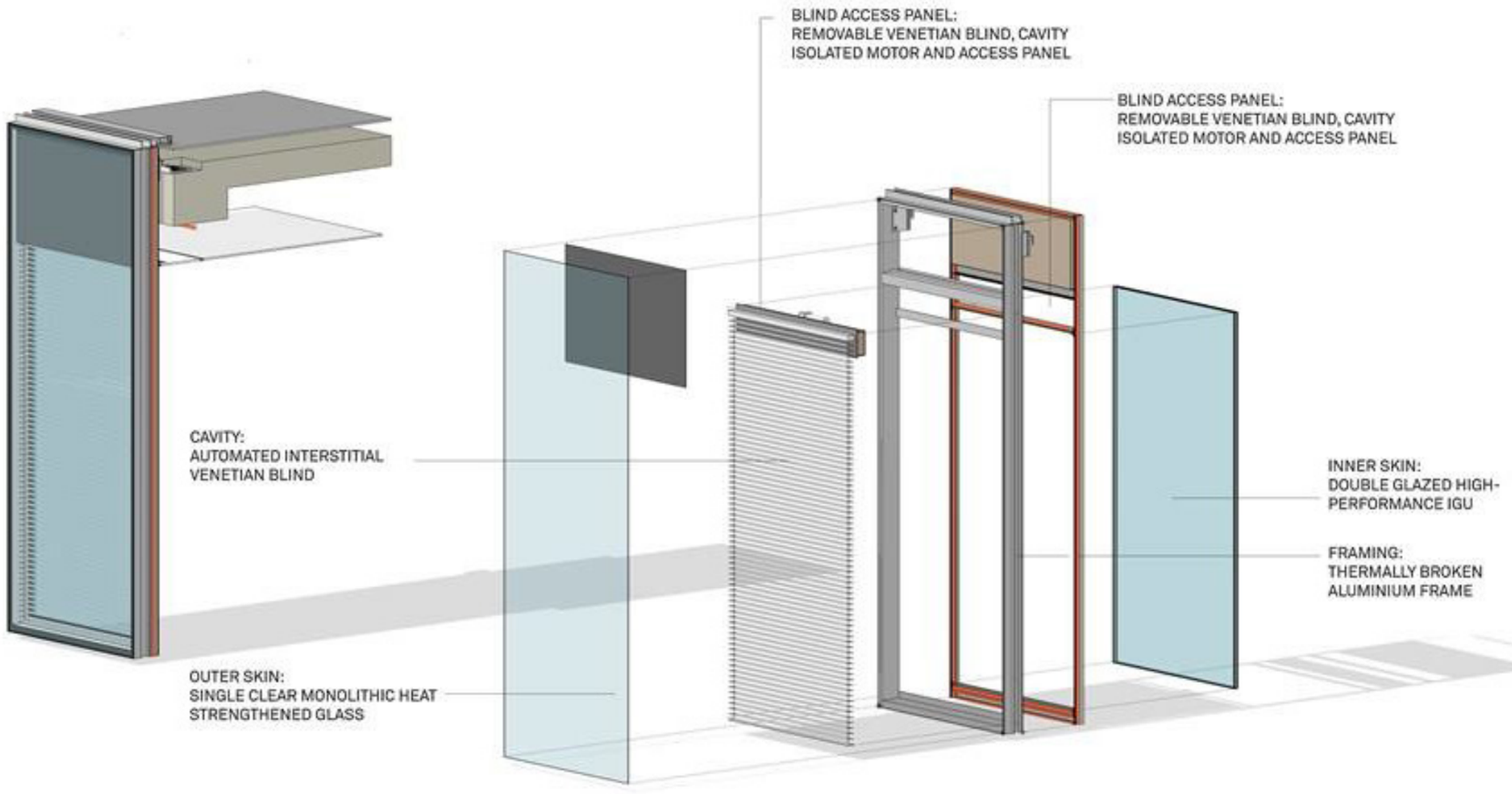
Closed Cavity Facade System

The 750mm benchmark dimension for facade zone assumes a naturally ventilated double skin façade (DSF) or similar. These systems typically comprise of a low-iron exterior pane of glass and an interior DGU skin with low-e glazing and thermally broken frames. The two skins are separated by an open air cavity (600mm) with blinds, naturally ventilated by air passing through a void at the bottom and top of each floor plate. Air passes through the cavity, cooling the temperature before being expelled through another void at the top of the ceiling slab.

A Closed Cavity Façade (CCF) on the other hand that has a sealed and pressurised cavity rather than a naturally ventilated one. It is designed to have a slight leakage so a small amount of dehumidified pressure can be pumped into the cavity to stop the ingress of dust.

The CCF allows a significantly reduced thickness of the façade zone - (150-200mm which effectively sits within the depth of a traditional commercial DGU façade system) . It uses less material and is effectively cheaper, but also delivered the performance of the naturally ventilated double skin system.

As the typical floor plate for this reference scheme is relatively small a CCF is proposed in order to use the floor space in the most efficient way.



Appendix Q ENVELOPE EFFICIENCY & ALIGNMENT WITH DRAFT COUNCIL DCP ASSUMPTIONS

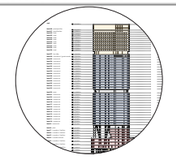
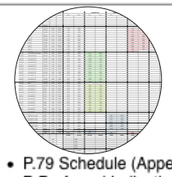
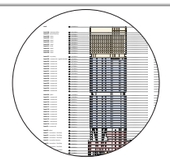
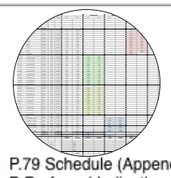
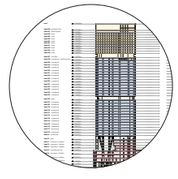
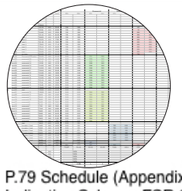
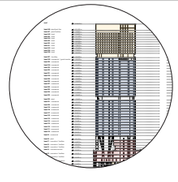
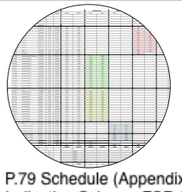
DRAFT CSPS 2020

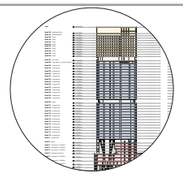
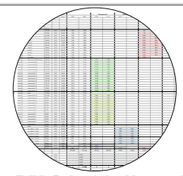
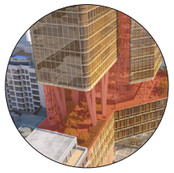
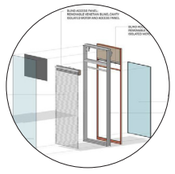
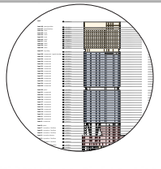
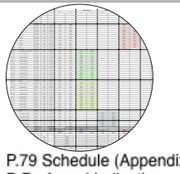
Sydney DCP 2012 - Tower Cluster Areas and Design Excellence Procedure Amendment

3.3.2 Design excellence strategy

(1A) (d) provide an indicative FSR for each massing envelope where the envelopes and estimated FSRs assume: (i) - (x).

The chart demonstrates the compliance of the Preferred Indicative Scheme within the Proposed DCP Envelope with Draft Council DCP Assumptions.

		Compliant	Note	Reference
(i)	a 15 metre architectural roof feature zone for sites where the maximum height of the building is determined by Sun Access Planes, No Overshadowing Controls or Public View Protection Planes	✓	- The top of building of the reference scheme is at RL 209.8m, which is lower than the Sun Access Plane of Prince Alfred Park above the site.	 • P.29 Tower Height (3.0 Key Urban Design Principles)
(ii)	a 30 metre architectural roof feature/construction zone where the maximum height of the building is determined by Sydney Airports Prescribed Airspace (excluding the Obstacle Limitation Surface)	✓	- The top of building of the reference scheme is at RL 209.8m including 9m roof feature. With considering a 15m construction crane zone, it is at RL 224.8m which is lower than the PANS-OPS at RL290 .	 • P.29 Tower Height (3.0 Key Urban Design Principles)  • P.78 Section (Appendix B Preferred Indicative Scheme FSR 22:1)  • P.79 Schedule (Appendix B Preferred Indicative Scheme FSR 22:1 Development Summary)
(iii)	5 metres clear floor to floor for ground and first floors and allowances for new pedestrian links and public domain improvements supported by urban design analysis	✓	- Ground floor : 7.6m clear floor to floor height - Level 1 : 5.2m clear floor to floor height - New pedestrian links and public domain improvements are demonstrated in the design report	 • P.78 Section (Appendix B Preferred Indicative Scheme FSR 22:1)  • P.79 Schedule (Appendix B Preferred Indicative Scheme FSR 22:1 Development Summary)  • P.20-25 (3.0 Key Urban Design Principles)
(iv)	3.85 metres floor to floor for typical commercial floors and structural transfer zones at steps in the building massing		- 3.8m floor to floor height is proposed for typical commercial floors, which is suitable for relatively small 1,200 m2 GFA floor plate.	 • P.72,73,78 Plan & Section (Appendix B Preferred Indicative Scheme FSR 22:1)  • P.79 Schedule (Appendix B Preferred Indicative Scheme FSR 22:1 Development Summary)
(v)	3.3 metres floor to floor for typical hotel floors and structural transfer zones at steps in the building massing		- 3.2m floor to floor height is proposed for typical hotel floors, which is able to achieve 2.9m ceiling height.	 • P.78 Section (Appendix B Preferred Indicative Scheme FSR 22:1)  • P.79 Schedule (Appendix B Preferred Indicative Scheme FSR 22:1 Development Summary)

		Compliant	Note	Reference
(vi)	A full floor plant level at least for every 20 occupied levels at minimum 6 metres floor to floor should be provided for plant and equipment with no floor space	✓	- 3 full floor plant levels are designed at level 8, 22 and 48 over the 48 storey building.	 • P.78 Section (Appendix B Preferred Indicative Scheme FSR 22:1)  • P.79 Schedule (Appendix B Preferred Indicative Scheme FSR 22:1 Development Summary)
(vii)	Minimum 15 per cent of the design envelope for architectural articulation (not occupied by floor space, structures, sun shading or the like)	✓	- 15.1% of Proposed DCP Envelope is used for the architectural articulation.	 • P.154 (Appendix P Architectural Articulation & Efficient Building Envelope Design)
(viii)	Minimum 750mm facade depth for facade and external shading elements		- 200mm facade based on a closed cavity facade system achieving a higher solar performance and spatial efficiency.	 • P.155 (Appendix P Architectural Articulation & Efficient Building Envelope Design)
(ix)	Minimum 16 per cent floor space exclusions allocated to building core and other internal non-floor space elements	✓	- Highly efficient floor plate is achieved by the double decker lifts scheme - 17.9% core area in Low-rise commercial floor - 15.7% core area in High-rise commercial floor	 • P.150 (Appendix O Floor Space Efficiency Study)
(x)	Vehicle access, servicing, services, balconies, voids or other areas are not counted as floor space and should be determined from demonstrated best practice or reference designs.	✓	- The high level strategy of Vehicle access, servicing and the services are described in the technical report. - In the reference scheme, the floor to floor height is increased at Ground floor for retails and lobbies, Level 2 and 3 for the innovation and Level 37 for the hotel sky lobby, which activate the spaces and provide amenities.	 • P.78 Section (Appendix B Preferred Indicative Scheme FSR 22:1)  • P.79 Schedule (Appendix B Preferred Indicative Scheme FSR 22:1 Development Summary)  • P.43 Innovation Hub (4.0 The Vision - A Hybrid Tower)

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architecture
interiors
urban
landscape
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