Project Number SJ-06087

Sydney CityGrid Project

Submissions Response Report for Stage 2A(ii) of the Sydney CityGrid Project - City East Zone Substation and Integrated Commercial Tower

May 2012

Document Control and Approval

Ausgrid

Endorsed by: Gareth Evans

Title: Senior Area Development Manager - CBD and East

Signed: 

Date: 25 May 2012

Approved by: Wilma Penrose

Title: Director - Area Development - CBD and East

Signed: 

Date: 25 May 2012

GHD Pty Ltd

Author: Peter Carson

Signed: 

Date: 25 May 2012

Contents

Table Index

Figure Index

Appendices

1. Introduction

1.1 Background

Ausgrid developed the Sydney CityGrid Project as an integrated program of works to upgrade critical electricity infrastructure in Sydney's central business district (CBD). The Sydney CityGrid Project comprises a number of discrete but interrelated components, one of which involves construction and operation of the City East Zone Substation and integrated commercial tower at 33 Bligh Street, Sydney.

Concept Approval for the Sydney CityGrid Project was granted by the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 20 September 2009. The Concept Approval requires further environmental assessment prior to commencing various stages of the Sydney CityGrid Project, including the City East Zone Substation. As a result, Project Approval is required to construct and operate the City East Zone Substation and integrated commercial tower.

The City East Zone Substation is an essential component of the overall Sydney CityGrid Project and Ausgrid is seeking Project Approval for the substation and integrated commercial tower under Part 3A of the EP&A Act in the following stages:

- Stage 2A(i) – involves site establishment including demolition of the existing building at the site, 33 Bligh Street (known as Kindersley House). Project Approval for Stage 2A(i) was received on 13 July 2011. Preparatory works have commenced and site works are expected to begin in mid-2012.
- Stage 2A(ii) – involves subsurface construction works and construction and operation of the City East Zone Substation and the integrated commercial tower located above the substation (subsequently referred to as the 'project'). The substation would be in the basement and lower levels and the commercial tower would be above the substation.

An Environmental Assessment for Stage 2A(ii) of the City East Zone Substation was exhibited by the Department of Planning and Infrastructure between 29 February 2012 – 30 March 2012.

1.2 Purpose of this report

During exhibition of the Environmental Assessment, the community and other stakeholders were invited to make submissions to the Department of Planning and a total of 10 submissions were received.

The purpose of this report is to:

- Respond to the issues raised in submissions received during exhibition of the Environmental Assessment.
- Finalise the draft Statement of Commitments that was provided in the Environmental Assessment.

This Submissions Report should be read in conjunction with the Environmental Assessment dated February 2012.

1.3 Overview of the project

The primary objective of the Stage 2A(ii) works is to construct and operate the City East Zone Substation and integrated commercial tower. Construction of Stage 2A(ii) would commence immediately following completion of Stage 2A(i).

The substation would support the operation of the overall Sydney CityGrid Project and assist Ausgrid to meet licence requirements in the CBD. The commercial tower would provide additional commercial space in the CBD and achieve a high quality urban design outcome.

1.4 Approvals process

The Sydney CityGrid Project requires approval under Part 3A of the EP&A Act and the Minister for Planning and Infrastructure is the approval authority. The Minister for Planning granted Concept Approval under Part 3A of the EP&A Act for the Sydney CityGrid Project on 20 September 2009.

The Concept Approval requires that additional environmental assessment is undertaken to obtain Project Approval for those components of the project that comprise Stage 2 of the Sydney CityGrid Project. Ausgrid subsequently obtained:

- Project Approval for Stage 2A(i) of the City East Zone Substation on 13 July 2011.
- Project Approval for Stage 2D and 2E of the Sydney CityGrid Project on 18 July 2011.

Ausgrid prepared an Environmental Assessment for Stage 2A(ii) of the City East Zone Substation that was exhibited by the Department of Planning and Infrastructure between 29 February 2012 and 30 March 2012. A total of 10 submissions were received during the exhibition period and the Director-General required that Ausgrid respond to issues raised in the submissions. This document details Ausgrid's response to the submissions.

The Department of Planning and Infrastructure will evaluate the Environmental Assessment and Submissions Report giving consideration to the issues raised in submissions received during the exhibition period.

Ausgrid would proceed with the project if it is approved under Part 3A of the EP&A Act.

1.5 Structure of this report

This Submissions Response Report is structured as follows:

- **Chapter 1**: provides an introduction and background to this report.
- **Chapter 2**: provides an overview of the project that is described in the Environmental Assessment.

- **Chapter 3**: responds to the issues raised in submissions received during the exhibition period.
- **Chapter 4**: provides the final Statement of Commitments that have been revised to address issues raised in submissions, if necessary.
- **Chapter 5**: concludes the report.

2. Overview of the project described in the Environmental Assessment

2.1 Staged approval of Stage 2A and the City East Zone Substation

Ausgrid must augment and replace infrastructure which is due for retirement in the Sydney CBD and the inner metropolitan area to comply with licensing requirements. The licence specifies that all CBD substations must achieve 'n-2' capacity (Design, Reliability & Performance Licensing Conditions issued by the Minister for Energy).

Ausgrid has developed an integrated strategy to construct new infrastructure or refurbish existing infrastructure, while maintaining sufficient spare capacity to ensure an ongoing and reliable electricity supply. This strategy is referred to as the Sydney CityGrid Project. The components of the Sydney CityGrid Project are detailed in Figure 2-1.

Stage 2A of the Sydney CityGrid Project, known as the City East Zone Substation, is an essential component of the overall Sydney CityGrid Project and Ausgrid is seeking Project Approval for the substation under Part 3A of the EP&A Act in the following stages:

- Stage 2A(i) – involves site establishment including demolition of the existing building at the site, 33 Bligh Street (known as Kindersley House). Project Approval for Stage 2A(i) was received on 13 July 2011. Preparatory works have commenced and site works are expected to begin in the first quarter of 2012.
- Stage 2A(ii) – involves subsurface construction works and construction and operation of the City East Zone Substation and the integrated commercial tower located above the substation. The substation would be in the basement and lower levels and the commercial tower would be above the substation.

2.2 Works to be undertaken as part of Stage 2A(ii)

Stage 2A(ii) involves the following main construction stages:

- Bulk excavation for the substation basement.
- Excavating and constructing a shaft and a 150 m section of cable tunnel between 40 m and 50 m beneath Bligh Street to the intersection of Bent Street and Bligh Street where it will interface with the City East Cable Tunnel Project. The City East Cable Tunnel is known as Stage 2D of the Sydney CityGrid Project. Stage 2D was approved on 18 July 2011 and is currently under construction.
- Constructing and operating the City East Zone Substation and integrated commercial tower.

Construction of Stage 2A(ii) would commence immediately following completion of Stage 2A(i).

Details relating to the built form of the substation and integrated tower, the components of the substation, the tunnel and the overall indicative construction method are provided in Chapter 6 of the Environmental Assessment. Photomontages of the built form are shown in Figure 2-2 - Figure 2-4.

2.3 Design of the substation and integrated commercial tower

2.3.1 Overview of the design

The design of the project is described in Chapter 6 of the Environmental Assessment and photomontages are provided in Figure 2-2 - Figure 2-4. The substation would be located in the basement and podium levels and would extend to a height of about 52.58 m above O'Connell Street and 45.68 m above Bligh Street. The commercial component would be a tower above the substation that would have a height of about 161.73 m and would achieve 5 Star Greenstar and 5 Star NABERS energy ratings. The tower would be composed of three cubic volumes separated by horizontal offsets. It would have a floor space area of 28,050 m^2 with floor plates on the 20 commercial floors ranging between 1,342 m^2 and 1,474 m^2.

2.3.2 Design review process

The design for the substation and commercial tower was selected following a design review process in accordance with the Director-General's requirements and the requirements of MCoA 3.2 of the Concept Approval. This included an invited competitive design alternatives process that was based on the principles outlined in the Sydney Local Environmental Plan (2005). The objective of this process was to:

- Encourage high quality and innovative design excellence by using a competitive design process
- Achieve development that individually and collectively contributes to the architectural and overall urban design quality of the city.

The brief for the competition was reviewed and endorsed by the City of Sydney Council prior to distribution to five architectural firms with demonstrated experience in the design of high quality commercial buildings.

A six member selection committee was established to evaluate the five designs. The committee included representatives from the City of Sydney, Government Architect's office, Investa and Ausgrid. The selection committee evaluated the shortlisted designs and chose the submission by Fitzpatrick and Partners as the preferred option. The committee considered that this design best achieved design excellence as it featured:

- A bold, crisp design that presented as heroic and resonated landmark quality to provide a positive architectural statement.
- An innovative design with an interesting and elegant façade that would provide an iconic and lasting legacy.

The selection committee made the following comments on the design:

- It was a bold, crisp design that presented as heroic and resonates landmark quality, providing a positive architectural statement
- It was an innovative design with an interesting and elegant tower façade that would provide an iconic and lasting legacy
- The interstitial spaces and detail treatment of the soffit to each cubic volume would be particularly important when viewed by the public at ground level
- The proposed substation artwork façade presents a risk of appearing too heavy if not handled properly, however the panel felt that the further development of the design had artistic possibilities
- The proposed substation façade concept celebrated rather than hid the substation component, whilst incorporating art for public benefit
- The artwork solution does not need to be replicated on both Bligh and O'Connell Street frontages, with the O'Connell Street frontage offering an opportunity to be more consistent with adjoining building facades
- Alternatives to detailing the substation façade should be investigated. This could include reconstituted stone if the 'sandstone' elements become too fine, as it would allow different fixing and customised profiles, and could be colour matched to a sandstone finish
- The interiors challenge normal commercial office practice by providing the amenities as a floating block. This concept can be commercially tested and resolved during detail design
- The floor plate efficiency is high with typical net lettable area of 1,245m^2 – 1,416m^2
- It included a public domain which had been dealt with in a well thought out manner with the celebration of the substation artworks, outbound building café and landscaping of Richard Johnson Square in a complementary manner
- Internal timber floor panelling has the ability to provide tenant flexibility for internal stair location
- Fitzpatrick and Partners indicated that there does not appear to be a historical argument for a setback to the former NSW Club (Lowy Institute) building at 31 Bligh Street, as all early plans and photos indicate a building built to the street edge
- The proposal would provide a great contribution to the variety of CBD buildings.

Overall, the selection committee considered that the submission put forward by Fitzpatrick and Partners provided a unique landmark building which would add value and quality to the mix of buildings in the CBD, whilst meeting the specific requirements and proposed usage of the site. The scheme successfully addressed the challenges of the site and brief and delivered a proposition that would achieve design excellence including an iconic legacy.

In choosing the design, the selection committee noted that the scheme generally complied with the City of Sydney's planning controls except for building setbacks in the development control plan, service access to the basement and shared vehicular

access. The scheme would require a 10% increase in the maximum floor space ratio (FSR) under Clause 10 of the Sydney Local Environmental Plan 2005 (LEP). As the project is subject to approval under Part 3A of the EP&A Act, environmental planning instruments (other than State environmental planning policies) do not apply to or in respect of an approved project due to the application of Section 75R(3) of the EP&A Act.

The current design is considered to be justified as it is the outcome of a design review process that was undertaken in accordance with the Director-General's requirements and the requirements of MCoA 3.2 of the Concept Approval.

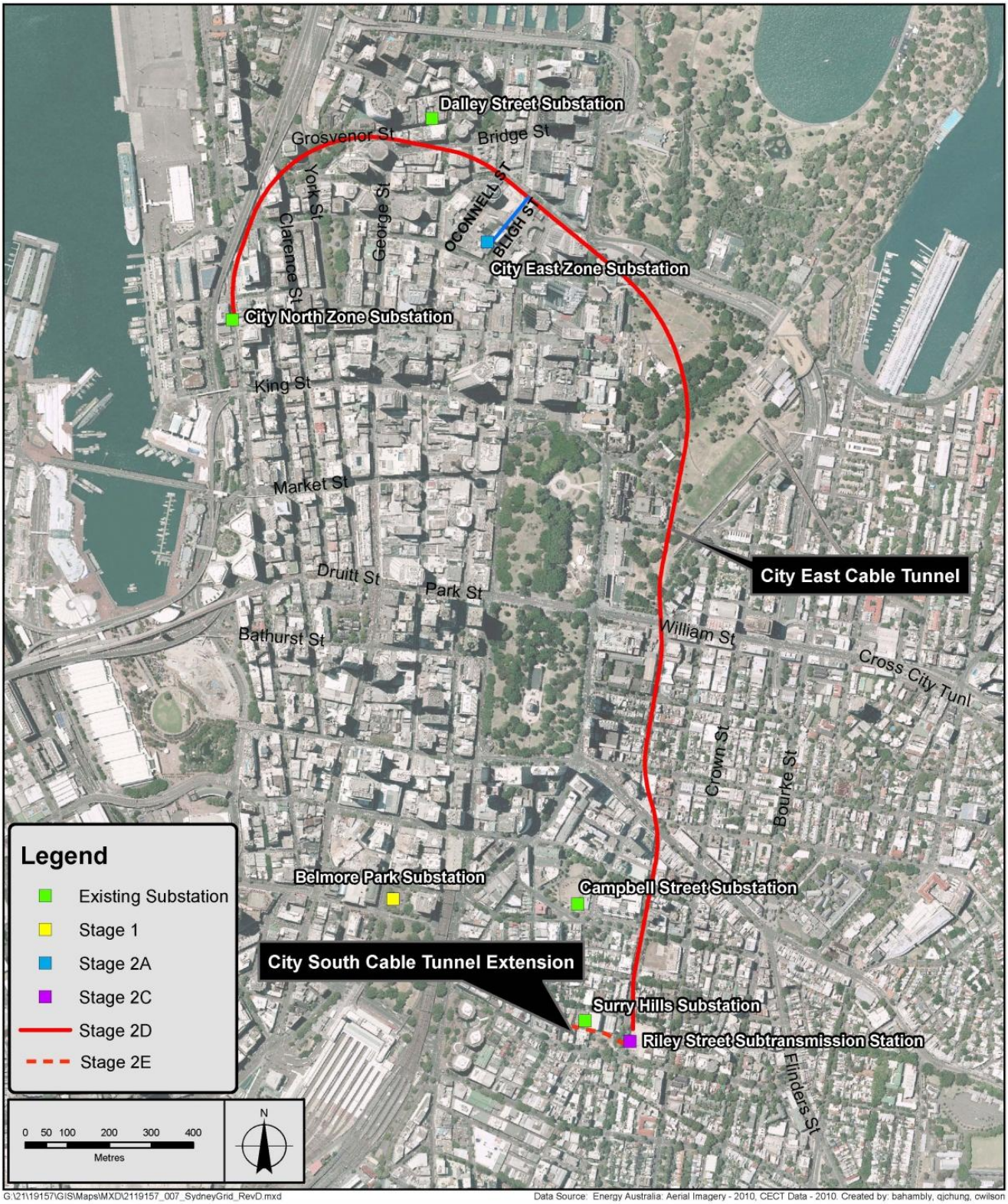


Figure 2-1 Components of the Sydney GityGrid Project

Figure 2-2 Photomontage of the substation and commercial tower viewed from the Bligh and Hunter Street intersection

Figure 2-3 Photomontage of the building when viewed from the Bligh and Hunter Street intersection at night

Figure 2-4 Photomontage of the building from an aerial view

3. Consideration of issues raised in submissions

3.1 Overview

This chapter summarises issues raised in submissions received in response to exhibition of the Environmental Assessment. The location of landholders in the area that made submissions is shown in Figure 3-1.

Many of the issues raised in the submissions relate to the built form, building setbacks, and further work that the Environmental Assessment indicates would be undertaken during the detailed design of the substation and integrated commercial tower building. As indicated in Section 2.3.2, the design was selected following a design review process that was undertaken in accordance with the Director-General's requirements and the requirements of MCoA 3.2 of the Concept Approval. This included an invited competitive design alternatives process that was based on the principles outlined in the Sydney Local Environmental Plan (2005). The selection committee included representatives from the City of Sydney, Government Architect's office, Investa and Ausgrid.

In choosing the design, the selection committee considered how the design brief had been addressed, including aspects relating to the built form and setbacks that have been raised in submissions on the Environmental Assessment. The design is considered to be justified as it is the outcome of a design review process that was undertaken in accordance with the Director-General's requirements and the requirements of MCoA 3.2 of the Concept Approval.

Figure 3-1 Location of landholders that made submissions

3.2 NSW Government – Heritage Council of NSW

3.2.1 Design of the fire stairs

Issue – architectural impacts

The Heritage Council of NSW notes that considerable effort has gone into creating a design for the City East Zone Substation and commercial development which is sympathetic to the many State and locally listed heritage buildings within its immediate proximity.

The Heritage Council considered that aspects of the design for the proposed building, specifically the proposed external fire staircase on the Bligh and O'Connell Street elevations, have the potential to impact visually on the architectural character of the surrounding historic buildings.

The relationship between the proposed rounded fire stairs and the rectilinear walls of the adjoining historic buildings needs further design resolution. In this context, a right angled external staircase would be a better option in place of the currently proposed rounded stairs.

The junction between the proposal stairs and the historic buildings should be as light and transparent as possible. It is considered that the current design of the proposed fire stairs does not form an acceptable junction with a heritage building in terms of geometry and material.

Response

The form, position and materiality of the fire stairs was carefully considered during the design phase. Different forms (square nose, round nose, steel structure, fully enclosed and partial open) were tested both in physical working models and computer models.

The round nose version, being a solid glass reinforced concrete railing to the front of an open precast concrete stair was selected as the preferred option because:

- The open stair provides a level of visual detail to the strong vertical ends of the core and reduces the visual bulk of these elements to single floor elements
- The curved form provides a softer and feathering edge to the neighbouring buildings. The curve form also produces a shadowed recess against the neighbouring buildings, providing a “softer” edge condition.

The round form also allows more vision of the sides of the neighbouring buildings, particularly those fronting Bligh Street. An important consideration in selecting the design was how the buildings and neighbours would be viewed from the public domain (viewing the edge and return of the neighbouring building).

A shadow line, created by the gap between the buildings and the thickness of the textured precast side panels to the stair also reinforces the separation of elements, forms and materials.

Square formed stair elements would create a bulkier form and visually exaggerate the width of the stair. This was considered by the selection committee to create an uncomfortable junction with the neighbouring buildings.

The round form of the firestair and its underlying logic was supported by the six member selection committee.

3.2.2 Archaeological remains with Richard Johnson Square

Issue – cabling works

Casey and Lowe's letter (Appendix Q of the Environmental Assessment) outlines that excavations within the footpath envelope of Bligh Street within Richard Johnson Square have the potential to impact on archaeology relating to the site of the first Church in Sydney which, if it exists, is potentially of State significance. Given the potential significance of this archaeology it is considered that an archaeological assessment which includes an assessment of the significance of this potential

resource should be undertaken for this site and archaeological testing may be required to determine if any archaeological remains related to the Church and subsequent uses of the site are present. If they are and are deemed to be of State significance, a redesign of the proposed cabling works may be necessary so these remains are left undisturbed.

This should be specifically listed in the Draft Statement of Commitments in place of the current draft Commitment No.3.

Response

Excavation works for the project within Richard Johnson Square would be between the property boundary and the existing services in the footpath. This area is considered to be of low archaeological potential as it has been disturbed by earthworks associated with installation of existing services that include low voltage electricity cables, fibre optic cables, stormwater pipes and water supply pipes. The Statement of Commitments reflects that excavation in this area would be monitored by an experienced historical archaeologist.

Section 15.2 of the Environmental Assessment states that works to install 11kV cables to connect to the City East Zone Substation would be undertaken separate to the project. Potential impacts on items of archaeological significance within Richard Johnson Square would be considered as part of environmental impact assessment for this separate project.

3.2.3 Landscaping and archaeology

Issue – consideration of archaeological remains

The Heritage Council of NSW suggested that the proposed landscaping works for Richard Johnson Square should also take into consideration any archaeological remains left in situ and ensure that they are not impacted by these works. This should be specifically listed in the Draft Statement of Commitments in place of the current draft Commitment No.3.

Response

Section 6.3.9 of the Environmental Assessment reflects that the landscaping works within Richard Johnson Square are not part of the project and would be undertaken by the City of Sydney as a separate project. Richard Johnson Square is owned by the City of Sydney Council and further design and consultation with Council is required to finalise the public domain and landscaping plan. When developing the public domain and landscape plan, Council would need to take into consideration potential archaeological impacts.

3.2.4 Excavation director

Issue – heritage council excavation director criteria

The proposed Excavation Director undertaking the works in relation to non-Indigenous archaeology should demonstrate that they meet the Heritage Council Excavation

Director Criteria for works on State significant sites. This should be specifically listed in the Draft Statement of Commitments in place of the current draft Commitment No.3.

Response

The Statement of Commitments has been revised to reflect that the Excavation Director engaged for the project would meet the Heritage Council Excavation Director Criteria for works on State significant sites.

3.2.5 Notification of the Heritage Council

Issue

The draft Statement of Commitments relating to non-Indigenous heritage state that any non-Indigenous heritage would be managed in consultation with OEH. This should more properly state that they would be managed in consultation with the NSW Heritage Council. In addition, draft commitment five states that should any unexpected historic relics be encountered, OEH would be notified in accordance with the *Heritage Act 1977*. This should be amended to reflect Section 146 of the *Heritage Act 1977* which states that the Heritage Council will be notified in the event of the discovery of any 'relic'.

Response

The Statement of Commitments (Section 4) has been revised to reflect that any items of non-indigenous heritage would be managed in consultation with the NSW Heritage Council and that the NSW Heritage Council would be notified in accordance with Section 146 of the *Heritage Act 1977* if any unexpected historic relics are encountered.

3.3 NSW Transport – Roads and Maritime Services

3.3.1 Width of loading docks and parking areas

Issue – compliance is Australian Standards

NSW Roads & Maritime Services (RMS) advised that the layout of parking areas, loading docks and access driveway associated with the project (including grades, turn path, lifts, site distance requirements, aisle widths and parking bay dimensions) should be in accordance with Australian Standard 2890.1 - 2004 and Australian Standard 2890.2 - 2002 for heavy vehicle usage.

Response

The project has been designed to comply with the requirements of Australian Standards for heavy vehicle usage. Section 14.2.2 of the Environmental Assessment states that the car park has been designed in accordance with Australian Standard 2890.1 - 2004. Section 6.3.7 of the Environmental Assessment states that the access, circulation and manoeuvring areas for service vehicles would comply with Australian Standard 2890.2 – 2002.

Issue – driveway width

RMS has advised that the width of the proposed driveway should meet Council requirements

Response

As indicated above, the width of the driveways would be designed to comply with relevant Australian Standards.

3.3.2 Traffic Management Plan and Road Occupancy Licence

Issue – Council approval of Traffic Management Plan

RMS advised that the Traffic Management Plan must be submitted to Council for review and approval, for vehicle entries/exits at O'Connell Street under the control of traffic signals for two way traffic.

Response

The Construction Traffic Management Plan would form part of the CEMP and would be prepared in consultation with RMS and the City of Sydney. The plan would be submitted to the Director-General for approval as part of the CEMP.

Issue – RMS approval of Traffic Management Plan

RMS advised that a Road Occupancy Licence and a Traffic Management Plan would need to be submitted to RMS for review and approval, for the special delivery platform used for the Ausgrid Substation which will require temporary road closure and removal of parking.

Response

The Statement of Commitments reflects that if temporary road closures are required, traffic control measures specified in Australian Standard 1742.3: 2002 Traffic Control Devices for Works on Roads and the RTA's Traffic Control at Work Sites would be detailed in a traffic control plan and subsequently implemented.

Ongoing consultation would be undertaken with RMS during preparation of the CEMP and throughout construction. This would involve obtaining relevant approvals and licences which may be required, including the Road Occupancy Licence.

The Construction Traffic Management Plan would be submitted to the Director-General for approval as part of the CEMP

3.3.3 Vehicle movements

Issue – construction vehicles

RMS advised that all demolition and construction vehicles are to be contained wholly within the site and vehicles must enter the site before stopping. All vehicles are to enter and exit the site in a forward direction.

Response

Demolition works have been approved as part of Stage 2A(i) of the City East Zone Substation and do not form part of Stage 2A(ii).

In general, construction vehicles would be contained wholly within the site and would enter the site before stopping. However, during some stages of construction, it may not be practicable for vehicles to be wholly contained within the site or to enter and exit in a forward direction, such as:

- During initial establishment and demobilisation of larger equipment such as a dozer (possibly D10) and large excavators up to 70 tonne, the delivery vehicles would not be wholly within the site. The RTA's operating conditions, Specific Permits for Oversize and Overmass Vehicles and Loads Guidelines 2007 would apply as the delivery vehicle and loads would exceed the statutory dimension limits.
- During construction of the temporary loading platforms and installation of the shoring to O'Connell Street and Bligh Street, construction vehicles including concrete trucks, concrete pumps, piling rigs, mobile cranes would not be contained wholly within the site.
- During concrete pours for the construction of the temporary loading platform and associated structures, concrete boom pumps and concrete trucks;

Generally, the works associated with the construction of the temporary loading platform would be completed under a Road Occupancy Licence.

If vehicles are required to reverse into or out of the site, this would occur under full pedestrian and traffic control.

In some instances, partial and/or temporary road closures along Bligh Street or O'Connell Street may be required during some stages of construction to enable heavy vehicle manoeuvres and to accommodate construction procedures.

All traffic movements would be undertaken in accordance with the Construction Traffic Management Plan.

Issue – Cost of development

The submission advised that works associated with the development are to be at no cost to RMS.

Response

Works associated with the project would be undertaken at Ausgrid's expense.

3.4 Environment Protection Authority

3.4.1 Noise

Issue – need for an environment protection licence

The Environment Protection Authority (EPA) notes that the project would extract over 30,000 tonnes per annum of material and requires an Environment Protection Licence

(EPL) under the *Protection of the Environment Operations Act 1997* (POEO Act) as an extractive industry.

Response

Schedule 1 of the POEO Act defines a land based extractive industry as:

'*the extraction, processing or storage of extractive materials, either for sale or re-use, by means of excavation, blasting, tunnelling, quarrying or other such land-based methods.*'

An EPL is not required for the project as it does not involve extracting materials 'for sale or re-use'.

Issue – Out of hours works

The EPA notes that there appears to be no readily apparent reason for extensive out of hours construction activities, including tunnelling.

The EPA believes that the extended working hours are considered reasonable as there are no residential premises in close proximity to the site.

Response

The City East Cable Tunnel (Stage 2D of the Sydney CityGrid Project) will be excavated using a tunnel boring machine launched from a site adjacent to the intersection of Riley and Albion Streets, Surry Hills. The tunnel below Bligh Street that is part of Stage 2A(ii) would connect to the City East Cable Tunnel at a point below the intersection of Bligh and Bent Streets.

To minimise the risk to program and costs of construction, the tunnel below Bligh Street is required to be completed prior to completion of the City East Cable Tunnel. Construction of the tunnel below Bligh Street is on the critical path for the overall Sydney CityGrid Project and subsurface works are required to be undertaken 24 hours per day to ensure the tunnel meets the overall program.

Section 6.7.1 of the Environmental Assessment reflects that ancillary activities that may occur outside the standard construction hours include, but may not be limited to, oversize truck movements and deliveries of certain plant and equipment on an occasional basis. Works may also be undertaken outside these hours in the event of a direction from police or other relevant authority for safety reasons, or emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

The CEMP would outline specific activities that may require works outside the standard construction hours. For example, construction would involve large concrete pours that are unable to be stopped part way through and this activity may extend beyond the standard construction hours.

It is noted that the EPA believes the extended working hours are considered reasonable.

Issue – Construction hours for noise intensive works

The EPA does not support a 7 am commencement time for noise intensive works and requests that these works be limited to 9am - 12pm Monday to Saturday and 2pm - 5pm Monday to Friday.

Response

The Statement of Commitments reflects that noise intensive works, such as the use of rock breakers, is proposed to occur between 9am – 12 pm Monday to Saturday and 2pm – 5pm Monday to Friday.

3.4.2 Conditions of Project Approval

Issue – recommended conditions of approval

The EPA recommended that conditions of approval be included relating to:

- A Construction Noise and Vibration Management Plan (CNVMP) must be prepared and implemented. The submission lists information that should be included in the CNVMP.
- All construction work at the premises, other than below ground tunnelling works and noise intensive activities such as rock breaking, may be conducted between 7am and 7pm Monday to Friday and between 7am and 5pm Saturdays and at no time on Sundays and public holidays. Below ground works may be conducted 24 hours per day.
- Noise intensive activities such as rock breaking must be conducted between 9am and 12pm on Monday to Saturday and 2pm and 5pm Monday to Friday and at no time on Sunday or public holidays.
- The construction noise objective is to manage noise from construction activities so it does not exceed the background LA90 noise level by more than 10dB(A) for works during standard construction hours and by more than 5dB(A) for works outside standard construction hours.
- Vibration caused by construction and received at any sensitive receiver outside the proposal must be assessed against the guidelines contained in the DECC publication "Environmental Noise Management - Assessing Vibration: a technical guideline" and in accordance with the CNVMP.
- Regenerated noise from construction works must not exceed the following criteria measured at the nearest sensitive receptor: (a) 40dB(A) between the hours of 6pm and 10pm; and (b) 35dB(A) between 10pm and 7am.

In addition, the EPA suggested inclusion of conditions relating to construction noise management such as conditions 31 - 35 in the Major Project Application: City West Cable Tunnel Director-General's Environmental Assessment Report Section 75I of the EP&A Act.

Response

Ausgrid agrees with the intent of the EPA's recommended conditions of approval relating to noise and vibration management and would liaise with the Department of Planning and Infrastructure to refine specific conditions when negotiating the terms of the Minister's Conditions of Approval.

Issue – Dust emissions during construction

The EPA recommends the addition of the following condition to mitigate impacts caused by dust:

- The proponent must ensure that construction work is carried by such practicable means as may be necessary: (a) to minimise dust emissions on the premises, and (b) to prevent dust emissions from the premises.

Response

As detailed in the Statement of Commitments, a CEMP would be prepared that would include a range of sub plans that would ensure that appropriate measures are implemented to control dust emissions from the site. Reasonable, feasible and practicable measures would be implemented that would aim to minimise the potential for dust emissions on the site, and prevent dust emissions from the site.

3.5 PPS Nominees

PPS Nominees are the owners of 6 O'Connell Street (refer to Figure 3-1).

3.5.1 Noise and vibration

Issue – input to management plans

PPS Nominees would like to have input to the following management plans prior to the approval being implemented:

- CNVMP
- Construction Traffic Management Plan
- Construction Air Quality Management Plan

Response

The Statement of Commitments reflects that a Community Information Plan would be prepared in accordance with the requirements of MCoA 4.3 of the Concept Approval. This would set out the community communications and consultation processes to be undertaken during Stage 2A(ii) and would include specific consultation regarding issues such as construction noise and vibration, traffic management, and air quality management.

The Statement of Commitments has been amended to reflect that Ausgrid would establish a Community Liaison Group (CLG) for the project that would include representatives from the community in the vicinity of the site. Information would be provided to the CLG regarding measures to be implemented to manage potential

construction noise and vibration, traffic and air quality impacts. The CLG's comments would be taken into consideration when preparing the CNVMP, Construction Traffic Management Plan, and Construction Air Quality Management Plan.

3.5.2 Views

Issue – impact of the project on views from 6 O'Connell Street

Views are currently available to the south west of Sydney from the upper levels of the building at 6 O'Connell Street. The proposal will interrupt these views. Due consideration has not been given to the potential for the loss of views from adjoining buildings.

Response

The building at 6 O'Connell Street is one of two high rise buildings that make up the northern portion of the streetscape. Number 6 O'Connell Street includes a two to three level stone podium framed entry portal element defining the street with the tower setback behind. Floors within this building have views over the Harbour Bridge (over Circular Quay) and the high rise have city and water views to the south, east and west.

Under the long established principle of view sharing, views are not necessarily protected permanently and can be built out by subsequent development. As part of a previous development application, the City of Sydney granted consent to a 205m high commercial building at the site. This building would have impacted on the south-westerly views from 6 O'Connell Street.

The proposal would not impact on the most prominent views from the building at No 6 O'Connell Street.

3.6 ACE Insurance Limited

ACE Insurance Limited own the property at 28 – 34 O'Connell Street (refer to Figure 3-1).

Ausgrid has been consulting with ACE Insurance Limited since early 2011 to negotiate an adjoining owners agreement for Stage 2A(i) of the City East Zone Substation. Many of the issues raised in ACE Insurance Limited's submission for Stage 2A(ii) have been raised during this process, negotiated and agreed.

As required by the adjoining owners agreement, Ausgrid and ACE Insurance Limited would meet regularly to discuss issues arising during construction. As part of this consultation, ACE Insurance Limited would be provided with, and have the opportunity to comment on, information such as drawings that relates to aspects of the project that have the potential to impact on the building at 28 – 34 O'Connell Street.

3.6.1 Excavation/construction work hours

Issue – works creating excessive noise and vibration should be undertaken outside business hours

Although the general construction work hours appear to be relatively standard for the CBD, noise intensive works are proposed during most of the working day. This is not acceptable to ACE Insurance and works creating excessive noise and vibration should be limited to specific times outside business hours.

Noise and vibration monitoring should be conducted at pre-approved locations for the duration of the project and the results should be made available on request. A mechanism put in place to ensure any issues or disputes in relation to noise and vibration are dealt with expediently.

Response

The proposed construction hours are consistent with those applied to other projects in the CBD and are supported by EPA (refer to Section 3.4). As there are a number of receivers in the vicinity of the site that are sensitive to noise and vibration impacts, such as the Radisson Hotel, it is not considered appropriate to undertake noise intensive works outside the proposed construction hours.

As outlined in Chapter 12 of the Environmental Assessment, construction noise levels are expected to generally comply with noise criterion. In the instances where excavation activities are predicted to exceed the noise criterion, mitigation measures would be implemented to ensure the noise is reduced where practicable. These mitigation measures would be detailed in a CNVMP that would include a construction noise monitoring program that would identify monitoring points and reporting frequencies. This approach has been agreed by ACE Insurance in the adjoining owners agreement.

Complaints and/or issues raised by stakeholders would be managed in accordance with process that would be detailed in the CEMP.

3.6.2 Easement

Issue – easement over 28 - 34 O'Connell Street

There is an easement over 28 - 34 O'Connell Street to enable access to the car park of the site and for which Ausgrid obtains benefit. Clarification is sought as to whether this easement is still required. If the current easement is not required, clarification is sought as to how the current access shutter is to be enclosed. ACE Insurance requests that it be consulted regarding this aspect.

Response

Ausgrid intends to maintain this easement and during construction appropriate barriers and scaffolding would be erected to cordon off the construction work. The opening to the car park would be closed off with appropriate masonry construction and fire rating to comply with relevant buildings codes. The wall would be left as a clean surface, or receive a paint treatment in a colour selected by the owners of 28-34 O'Connell Street.

3.6.3 Air quality

Issue – air quality monitoring

The proposal does not include an active air quality monitoring regime which ACE Insurance believe would be appropriate during construction and operation.

Response

Potential air quality impacts would be monitored visually during construction. The Statement of Commitments reflects that an Air Quality Management Plan would be prepared and would:

- Establish a protocol to handle dust complaints that includes recording, reporting and appropriate actions for expected types of complaints
- Include a reactive management program detailing how and when operations are to be modified to minimise the potential for dust emissions, should emissions exceed the relevant criteria.

During negotiation of the adjoining owners agreement, Ausgrid has discussed ACE Insurance's concerns relating to air quality monitoring and the potential for dust to settle on windows and foyer areas, resulting in these areas needing to be cleaned more frequently. As part of the reactive management program required by the Statement of Commitments, it has been agreed that the cleanliness of adjacent buildings, such as ACE Insurance, would be monitored visually and Ausgrid would pay costs associated with cleaning the windows and other agreed areas more frequently, if required.

3.6.4 Hoardings and site access

Issue – information is required on hoardings

During construction a Class B structural hoarding would be provided to protect the public using O'Connell Street. Information is required regarding the composition of the hoarding as a clear line of sight and clear access is required into the entrance of 28 O'Connell Street and the entrance to the basement car park.

Response

The position of the hoardings would be detailed in the CEMP. Hoardings would be designed to ensure that lines of sight are sufficient to ensure that road and pedestrian safety is maintained. As indicated in the Statement of Commitments, a Construction Traffic Management Plan would be prepared in consultation with RMS and City of Sydney Council as part of the CEMP and this would include measures to manage potential impacts associated with maintaining safe access to adjoining properties.

Ausgrid has discussed this issue with ACE Insurance during negotiation of the adjoining owners agreement. Ausgrid and ACE Insurance would meet regularly during the works to discuss issues arising during construction. ACE Insurance would be provided with a copy of drawings showing the proposed location of the hoardings for their review and comment.

Issue – the Arup traffic assessment does not describe impacts during construction

The Arup traffic assessment relates to operation of the project and does not describe impacts during construction.

Response

Arup's assessment is limited to potential traffic impacts during operation of the project. Section 14.2 of the Environmental Assessment describes GHD's assessment of the potential traffic impacts during construction of the project.

Issue – deliveries and site access should take place prior to 7am and after 7pm

ACE Insurance requested that deliveries and site access be minimised and take place only during certain hours of the day, being prior to 7am and after 7pm to ensure that roadways in the CBD are not congested.

Response

Due to the nature of the construction works and proximity of the site to residential receivers such as the Radisson Hotel, deliveries and access to the site would not be limited to the working hours requested by ACE Insurance. Construction is proposed to occur between 7am – 7pm Monday – Friday and 7 am – 5 pm on Saturdays, and deliveries would be scheduled to occur within these hours where possible. Oversize vehicle movements associated with the transport of equipment to the site would be likely to occur outside standard construction hours.

As indicated in Section 3.4, EPA supports the proposed hours of construction.

3.6.5 Insurances

Issue – confirmation is required that Ausgrid will hold appropriate insurances for the project

Confirmation is required that Ausgrid will hold appropriate insurances for the project, including Professional Indemnity, Works and Public Liability Insurance at levels to ensure any damage to new or existing properties would be adequately addressed.

Response

Ausgrid's contractors would obtain insurance cover that would be commensurate with the type of works being undertaken. This has been discussed and agreed with ACE Insurance in the adjoining owners deed.

3.6.6 Electric and magnetic field (EMF) assessment

Issue – further assessment is required prior to construction of the substation

The EMF assessment undertaken for the Environmental Assessment notes that it is preliminary and ACE Insurance believe further assessment is required prior to construction of the substation. Testing should be undertaken prior to occupation and use of the substation.

Response

The Statement of Commitments reflects that potential EMF impacts would be considered further during detailed design and this would involve implementing the following measures:

- Consistent with the principles of prudent avoidance, and to the extent feasible, during detailed design consideration would be given to the configuration and phasing of the 11kV and 132kV transformer connections and the 11kV capacitor cabling to achieve a degree of field cancellation and further minimise EMF.
- Further work would be undertaken during detailed design to minimise EMF impacts in accordance with the principles of prudent avoidance, which includes those outlined in Appendix D of Australian Standard AS2067-2008.

The Statement of Commitments has been refined to reflect that Ausgrid would undertake pre-operation magnetic field measurements to establish that magnetic field levels surrounding the site are within International Commission on Non-ionising Radiation Protection (ICNIRP) guideline level of 2000mG.

3.6.7 Statutory controls

Issue – development potential

The table of compliance in the Environmental Assessment notes that the street frontage height on both O'Connell Street and Bligh Street exceeds applicable parameters, and the site setbacks exceed those set out in the development control plan. There is concern that the proposal may adversely limit the development potential of 28 O'Connell Street due to the need for rock anchors.

Response

This issue was raised by ACE Insurance during negotiation of the adjacent landholder agreement and Ausgrid has advised that the project would not limit development potential of 28 O'Connell Street. Rock anchors would be installed beneath the building at 28 O'Connell Street as part of construction of the project. As construction proceeds, the rock anchors would become redundant as they would not be required for structural support. As the rock anchors could be removed if required, they would not constrain future development of 28 O'Connell Street.

The project design does not rely on support from the adjoining land at 28 O'Connell Street. Similarly, adjoining development should not rely on the project for structural support.

3.6.8 Community consultation

Issue – the consent should include a community consultation regime

ACE Insurance considers that the consent should include an appropriate set regime of community consultation and provision of adequate information so that disruption and inconvenience can be minimised.

Response

The Statement of Commitments reflects that Community Information Plan would be prepared in accordance with the requirements of MCoA 4.3 of the Concept Approval. This would set out the community communications and consultation processes to be undertaken during Stage 2A(ii).

Ausgrid has discussed this issue with ACE Insurance during negotiation of the adjoining owners agreement. Ausgrid and ACE Insurance would meet regularly during the works to discuss issues arising during construction. ACE Insurance would be provided with information for their review and comment that relates to activities that have the potential to impact on the building at 28 – 32 O'Connell Street. This process would aim to provide advance notice of construction activities so there is an opportunity to minimise potential disruption and inconvenience to ACE Insurance.

3.6.9 Architectural plans

Issue – further detail is required on the façade treatment

Further detail is required on the façade treatment (artwork stone louvres) prior to commencement of work to verify its suitability, particularly in relation to maintenance, health and safety.

Response

Potential health, safety and maintenance issues associated with the stone louvres would be considered and addressed during a construction hazard assessment implication review (CHAIR) process that would be undertaken during the detailed design phase.

Ausgrid will provide adjacent landholders such as ACE Insurance with additional detail on the façade treatment as part of the CLG process and schedule of regular meetings.

Issue – further detail is required relating to the ground floor metal cladding

The architectural plans do not contain sufficient detail in relation to the ground floor metal cladding façade treatment.

Response

Ausgrid will provide adjacent landholders such as ACE Insurance with additional detail on the ground floor metal cladding as part of the CLG process and schedule of regular meetings.

Issue – further detail is required relating to the external garden adjacent to the roof of ACE Insurance's building

Further detail is required on the external garden adjacent to the roof of ACE Insurance's building. There is concern regarding the potential impact of the landscaped area and vegetation on 28 O'Connell Street.

Response

The Environmental Assessment includes detailed drawings and sections of the proposed landscaping. The level of the terrace for the project is approximately 3.4 metres below that of the parapet of 28 O'Connell Street. Plants have been carefully selected, and include evergreen species trees (palms) and low level ground cover. No vines or climbing plants are proposed. As such, there is unlikely to be any impact on 28 – 34 O'Connell Street from the landscaped area that would form part of the project.

Further information on the design of the landscaped area would be provided to stakeholders as part of the CLG process.

3.6.10 Architectural statement

Issue – the site should have one vehicular access point

The project involves separate vehicular access for the substation and the commercial tower. It is considered that this would substantially disrupt traffic and vehicular movements. One entrance should be permitted in accordance with the City of Sydney's development control plan.

The northern vehicular entrance features a single lane with traffic light controls. ACE Insurance is concerned that this limited access with automated control may result in excess congestion along O'Connell Street, particularly during peak times. Further consideration should be given to the vehicular arrangements prior to consent.

Response

Separate vehicle access points are required for the substation and integrated commercial tower building because access to the substation must be restricted to authorised personnel only. The driveway providing access to the substation would be used infrequently for maintenance purposes and is located towards the southern end of the site on O'Connell Street.

Access to the car park for the commercial tower would be controlled by signals to manage two way traffic. Vehicles entering the car park would have priority to minimise the potential for queuing on O'Connell Street.

As discussed in Section 14.2 of the Environmental Assessment, the project is not predicted to have a significant impact on the surrounding road network in the morning and evening peak periods. The existing building at the site (Kindersley House) has 43 car parking spaces and a loading dock and would have generated very similar traffic movements to those expected during operation of the project. It is considered that there would be negligible additional impact as a result of the project compared to traffic conditions when Kindersley House was previously fully tenanted.

3.6.11 Noise and vibration assessment

Issue – further assessment of operational noise and vibration impacts is required

Further assessment is required on operational noise and vibration impacts and provision of this information should be a condition of consent.

The background noise measurements are three years old and the validity of this data is questioned.

The Environmental Assessment includes general recommendations to control noise and vibration breakout. It is considered that control measures should be stipulated in the consent and a management plan should be issued to all stakeholder groups for review and approval.

Response

The Statement of Commitments reflect that potential operational noise impacts would be considered further as the design progresses. During detailed design and procurement, plant and equipment would be selected to ensure that the operational noise emissions would comply with criteria calculated in accordance with the Industrial Noise Policy (EPA, 2000).

The background noise measurements were undertaken in February 2010 and are a little over two years old. As there have not been any substantive changes to the land use in the immediate vicinity of the site since February 2010, these noise measurements are considered to be representative of the noise environment at the site.

As required by the Statement of Commitments, a CNVMP would be prepared that would detail measures to be implemented to manage potential noise and vibration impacts. This plan would be part of the CEMP that would be approved by the Department of Planning and Infrastructure prior to commencement of construction. A Community Information Plan would also be prepared in accordance with the requirements of MCoA 4.3 of the Concept Approval. This would set out the community communications and consultation processes to be undertaken during the project and would include specific consultation regarding issues such as noise and vibration.

3.6.12 Traffic impact assessment

Issue – the assessment does not consider construction traffic impacts

The assessment does not consider the traffic movements during construction of the project.

Estimates of traffic movement numbers do not appear to consider waste collection vehicles or other routine service providers which are likely to impact on the volume of traffic at the southern end of O'Connell Street.

Response

Section 14.2 of the Environmental Assessment describes potential traffic impacts during construction of the project.

The construction traffic impact assessment was based on peak traffic movements associated with removal of spoil from the site. There would be a small number of additional vehicles associated with ancillary activities, including waste management, during construction of the project. The expected vehicle movements associated with these ancillary activities and their potential impacts would be addressed in the Construction Traffic Management Plan.

3.6.13 Wind tunnel tests

Issue – there is the potential for increases in ground level wind speed to impact on trade of the ground floor tenant at 28 O'Connell Street

The wind tunnel tests indicate that the project would result in wind speeds to O'Connell Street that exceed those suitable for outdoor dining, however there is no recommendation for treatment of this issue. This is unacceptable as it would impact on trade of the ground level cafe tenant at 28 O'Connell Street and a reasonable solution should be devised prior to the commencement of works.

Response

For a location to meet the threshold for the outdoor dining rating, the wind speed should be below about 2m/s – 2.5m/s 95% of the time. Locations 11 and 12 are in the vicinity of 28 O'Connell Street and are estimated to be at or below the 2m/s threshold approximately 87% of the time and 93% of the time respectively (refer to Figure 5 of Appendix U of the Environmental Assessment).

The 5% wind speed at Location 11 and 12 is estimated to be 2.7m/s and 2.2m/s respectively. This indicates that there would be a marginal exceedence of the outdoor dining threshold and the wind speed would be similar to the existing conditions in the vicinity of the site (refer to Figure 4 of Appendix U of the Environmental Assessment). It is considered that there would be no significant change in the wind conditions in the vicinity of 28 O'Connell Street as a result of the project, as the estimated wind speeds are exceptionally calm in the proposed configuration relative to other locations in the Sydney CBD that include premises with outdoor dining areas.

3.6.14 Integrated water and infrastructure management plan

Issue – the schedule of utilities should identify parties that may be impacted by service interruptions

The schedule of utilities does not identify the parties to be impacted by service interruptions or how a method will be developed and agreed with the affected party. A mechanism is required to ensure that a suitably detailed proposal is provided to affected parties to ensure disruption is minimised and associated costs are accommodated by Ausgrid.

Response

The Statement of Commitments has been amended to reflect that stakeholders that would be affected by interruptions to services and utilities during construction would be identified and consulted.

3.7 Telado Pty Limited

This submission relates to a property at 44 - 48 Hunter Street that has a 7.3m wide frontage to the site which represents 3% of the perimeter of the site (refer to Figure 3-1). Ausgrid has been consulting with the land holder since early 2011 as part of negotiations for the adjoining landholder's agreements and the majority of the issues raised in this submission have been the subject of extensive consultation.

3.7.1 Geotechnical issues

Issue – further information is required on predicted ground movements

Further information is required on lateral ground movements throughout the excavation period. This should include detailed analysis on predicted outcomes.

Response

Telado requested geotechnical analysis of lateral ground movements as part of the negotiations for the adjoining owners agreement and this was provided by Ausgrid in October 2011. The report indicated lateral movements of Telado's property associated with the excavation would be minor. Telado's advisor queried aspects of the report which were subsequently addressed by Ausgrid. Ausgrid would provide further detailed analysis of lateral ground movements prior to commencement of bulk excavation of the site.

Issue – the environmental risk assessment does not discuss geotechnical risks in detail

The risk assessment does not discuss lateral movements, the need for lateral support of the basement excavation faces, risks associated with inadequate support, or risks associated with temporary support being required during excavation. Telado request confirmation that permanent support for such ground loading will be transferred to the project's concrete structure within the basement, as permanent rockbolts or anchors are not allowed beneath 44-48 Hunter Street. Telado also request that trial pits be dug to identify whether any underpinning is required under the property and if required, it should be carried out in a safe manner prior to the commencement of bulk excavation works and pursuant to an agreed licence arrangement if required.

Response

The environmental risk assessment was undertaken to satisfy the Director-General's requirements and focused on identifying environmental risks. It was not intended, or required, to address whole of project risks, or present a detailed discussion of geotechnical issues or risks.

The excavation would not rely on rock anchors beneath 44-48 Hunter Street for permanent support.

Information was provided to Telado in October 2011 regarding ground support for the project. The common boundary with 44-48 Hunter Street is 7.3m long and the need for underpinning of the foundations of the building on this property would be assessed by trial pits in advance of excavating adjacent to the common boundary.

Issue – vibration monitoring points should be installed within 44 - 48 Hunter Street

Monitoring points should be installed within 44-48 Hunter Street to detect lateral ground movement and be measured to 1mm accuracy at agreed intervals throughout the demolition, excavation and construction periods.

Response

Demolition of Kindersley House is approved as part of Stage 2A(i) and does not form part of Stage 2A(ii).

As indicated in the Statement of Commitments, a CNVMP would be prepared as part of the CEMP and would include measures to monitor compliance with noise and vibration objectives and respond to complaints. The CNVMP would nominate the location of vibration monitoring points and these locations would be adjusted throughout the construction period in response to the type of construction activities being undertaken. As such, monitoring may not be undertaken at all locations for the full duration of the construction phase. The monitoring points would be selected based on advice from personnel with expertise in vibration management.

Survey monitoring points would be established at appropriate locations adjacent to the site to measure settlement and lateral ground movements.

Issue – there is considered to be a risk of damage to the structure at 44-48 Hunter Street

There is a risk of damage to the structure at 44-48 Hunter Street due to settlement. The predicted effect of ground movements and settlement should be confirmed and reported to Telado following further examination, research and structural analysis prior to work being undertaken.

Response

Ausgrid provided geotechnical analysis on predicted ground movement at 44-48 Hunter Street to Telado in October 2011. The report indicated ground movements at Telado's property associated with the excavation would be minor. Telado's advisor queried aspects of the report which were subsequently addressed by Ausgrid. Ausgrid will provide further information on ground movement and structural assessment of adjacent buildings prior to commencement of bulk excavation adjacent to the common boundary with 44-48 Hunter Street.

Issue – dilapidation surveys should be undertaken at defined intervals

Dilapidation inspections should be undertaken at agreed intervals during demolition, excavation, construction and completion of the project.

Response

A pre-demolition dilapidation report has been prepared for 44-48 Hunter Street. Telado and Ausgrid and Telado have agreed to the findings of the pre-demolition dilapidation report.

Further dilapidation surveys would be conducted post demolition, post bulk excavation, post tunnelling, and post construction completion.

Issue – no rock bolts should remain that would limit future development potential of 44-48 Hunter Street

A condition is required that following completion of construction, no rock bolts would remain in or under 44-48 Hunter Street that in any way affects future excavation or limits future redevelopment potential. This would also include restrictions on the loading of 44-48 Hunter Street of any potential new building due to the deep excavation for the project.

Response

Rock anchors would be installed under 44-48 Hunter Street to provide ground support during construction and these would remain in the ground following completion of construction as is normal practice. As construction proceeds, the project would not rely on the rock anchors for support and the rock anchors would become redundant. The project has been designed such that the foundation does not rely on any permanent support from 44-48 Hunter Street.

The presence of rock anchors would not significantly impact future excavation or limit development potential of 44-48 Hunter Street and the rock anchors could be removed if required. The foundation loading of any future new building on 44-48 Hunter Street should not rely on support from the project site; therefore no additional constraint would be imposed by the project.

3.7.2 Electrical services and EMF

Issue – magnetic fields from the project should not exceed 40mG at the boundary with 44-48 Hunter Street

Telado requests that a condition is imposed on the development that exposure to magnetic fields at the property do not exceed 40mG under ultimate (85th percentile) loading conditions.

Response

The EMF assessment undertaken for the Environmental Assessment indicates that magnetic fields across the bulk of the substation itself would be less than 50mG, except for the areas in proximity to the transformer connections and capacitors and those areas directly above or beside underground cables or cable risers connections.

This level of exposure is substantially lower than the International Commission on Non-ionising Radiation Protection (ICNIRP) guideline level of 2000mG.

Ausgrid does not propose to adopt Telado's requested magnetic field limit of 40mG as it is not based on a relevant guideline level, such as ICNIRP.

The Statement of Commitments reflects that potential EMF impacts would be considered further during detailed design and the following measures would be implemented:

- Consistent with the principles of prudent avoidance, and to the extent feasible, during detailed design consideration would be given to the configuration and phasing of the 11kV and 132kV transformer connections and the 11kV capacitor cabling to achieve a degree of field cancellation and further minimise EMF.
- Further work would be undertaken during detailed design to minimise EMF impacts in accordance with the principles of prudent avoidance, which includes those outlined in Appendix D of Australian Standard 2067-2008.

The Statement of Commitments has been refined to reflect that Ausgrid would undertake pre-operation magnetic field measurements to establish that magnetic field levels surrounding the site are within International Commission on Non-ionising Radiation Protection (ICNIRP) guideline level of 2000mG.

3.7.3 Mechanical services

Issue – services for 44-48 Hunter Street should be protected

Further consideration should be given to the air conditioning units, sheet metal ductwork and ventilation wells on 44-48 Hunter Street. Ausgrid should provide a detailed plan on how these services would be protected. Confirmation is required that the project would not obstruct the two ventilation wells.

Response

Ausgrid has viewed the 7.3m long section of 44-48 Hunter Street that has frontage to the site and metal duct work is not present at this location.

Ausgrid would provide Telado with a plan for review and comment that would outline methods proposed to be implemented to protect mechanical services, such as air conditioning units and ventilation wells.

Issue - air discharges and outside air intakes from the project should be designed to comply with Australian Standard 1668.2:1991.

The location of all mechanical services plant for the project which may have an adverse impact on 44-48 Hunter Street should be confirmed. Confirmation and evidence is required that any air discharges and outside air intakes from the project have been designed to comply with Australian Standard 1668.2:1991.

Response

Ausgrid would provide Telado with a prior to commencement of construction of the substation for review and comment that would outline measures to ensure the

mechanical services plant for the project would not adversely impact on 44-48 Hunter Street. Air discharges and outside air intakes for the project would be designed to comply with Australian Standard 1668.2:1991.

3.7.4 Acoustic and vibration review

Issue – stage 2A(i) noise and vibration assessment

A copy of the noise and vibration assessment for Stage 2A(i) is requested.

Response

Ausgrid has provided Telado with a copy of the Environmental Assessment for Stage 2A(i) which includes a noise and vibration assessment.

Issue – construction hours

The City of Sydney's construction hours for works in the central business district are proposed, however Telado requests that the construction hours prescribed in Table 4.1 of the Interim Construction Noise Guideline (DECC, 2009) are applied.

Response

While the proposed construction hours would involve works outside the standard construction hours identified in the Interim Construction Noise Guideline (DECC, 2009) these extended working hours are considered to be justified they are consistent with the City of Sydney's standard construction hours in the CBD. Assessments indicate that during general construction works, the predicted noise levels would comply with the evening and extended Saturday construction noise criterion calculated in accordance with the Interim Construction Noise Guideline (DECC, 2009). Furthermore, as indicated in Section 3.4, the EPA's submission reflects that the proposed construction hours are appropriate.

General scheduling for noise intensive activities including the bulk excavation works would be provided in the Construction Noise and Vibration Management Plan (CNVMP).

Issue - a schedule detailing construction activities should be provided

Ausgrid should provide a schedule detailing construction activities so the expected noise and vibration exceedences can be associated with a particular time period which would provide Telado with adequate notice to advise staff and tenants.

Response

The Construction Noise and Vibration Assessment undertaken as part of the Environmental Assessment indicates that noise and vibration exceedances would primarily be associated with bulk excavation and compliance would be achieved during other stages of construction. As outlined in the Environmental Assessment, bulk excavation for the substation basement is expected to take approximately 8 months and noise intensive activities such as the use of rock breakers would be undertaken in the following hours: Monday to Saturday 9 am to 12 pm and Monday to Friday 2 pm to

5 pm. The restricted working hours for noise intensive activities would ensure that respite periods are provided.

The Community Information Plan would set out the community communications and consultation processes to be undertaken during the project and would include specific consultation regarding issues such as noise and vibration. Information regarding potential noise and vibration impacts would also be provided to stakeholders such as Telado as part of the CLG process.

Issue – two vibration monitoring points should be installed within 44-48 Hunter Street

Two vibration monitoring points should be installed within 44-48 Hunter Street, one close to the foundations and the second within a higher level of the property. The monitoring points should have warning and halt alarms.

Response

As indicated in the Statement of Commitments, a CNVMP would be prepared as part of the CEMP and would include measures to monitor compliance with noise and vibration objectives and respond to complaints. The CNVMP would nominate the location of vibration monitoring points and these locations would be adjusted throughout the construction period in response to the type of construction activities being undertaken. Monitoring may not be undertaken at all locations for the duration of construction. The specific monitoring locations would be selected based on advice from personnel with experience in vibration management.

Issue - the estimated duration of construction scenarios in Section 6 of the Wilkinson Murray report should be clarified.

There is no correlation between the estimated duration of construction scenarios in Table 2-1 and the different construction scenarios defined in Section 6 of the Wilkinson Murray report. What height above ground was the colour map produced that was used to generate the construction noise Table 6.1 in this report?

Response

Table 6-1 of the Wilkinson Murray Construction Noise and Vibration Assessment summarised predicted noise levels during four broad stages of construction. The estimated duration of these stages are:

- Excavation – It is estimated that bulk excavation, construction of the shaft and tunnel beneath Bligh Street would take approximately 16 months
- Building construction – It is estimated that construction of the building (substation and integrated commercial tower), inclusive of fit out and commissioning would take approximately 30 months.
- Façade – this scenario assumed that construction of the façade did not take place concurrently with construction of the building. Construction of the façade is estimated to take 4 months.

- Construction and façade – this scenario was based on the assumption that the building construction and façade occurred concurrently. Construction of the façade is estimated to take 4 months.

These durations are indicative and would be refined during construction planning.

The predicted noise levels in Table 6.1 of the Wilkinson Murray report were based on points on varying points depending on the stage of construction, with excavation noise levels based on at, or below ground levels and construction and façade stages based at approximately 20 metres above ground level.

Issue – temporary noise barriers

The Wilkinson Murray report suggests that temporary noise barriers will be installed on site, however these measures would not be sufficient for level 2 and above. A façade noise map should be provided for 44-48 Hunter Street to evaluate the effectiveness of the barriers.

Response

The CNVMP would detail specific measures to be implemented to manage noise impacts in accordance with the Minister's Conditions of Approval and this would include installing temporary noise barriers between the site and street frontages. As these barriers would be in the order of 3m high, they would not be effective at reducing noise levels in the upper levels of surrounding buildings.

Construction noise is expected to have a minor impact on 44-48 Hunter Street given that this property only has a 7.3m wide frontage to the site. 44-48 Hunter Street is primarily a commercial building and the northern portion of the building adjacent to the frontage to the site is typically used for service and amenity functions, such as toilets, stair wells, and utility rooms. As such, the service and utility areas of 44-48 Hunter Street would effectively separate the office areas from the construction noise.

Issue – it should be clarified why the noise and vibration from tunnelling has not been assessed on 44-48 Hunter Street

It should be clarified why the noise and vibration from tunnelling has not been assessed on 44-48 Hunter Street given that Figure 6.2 of the Wilkinson Murray Report shows noise and vibration exceedances in the vicinity of this property. Clarification is required of the height above ground the noise contours were produced for the noise modelling from tunnelling.

Response

Figure 6.2 of the Wilkinson Murray summarises the predicted noise levels at sensitive residential receivers nearest to the tunnelling activities that would be undertaken at night. 44-48 Hunter Street was not identified as being a receiver that is likely to be impacted by night time construction of the tunnel as it is not a residence.

Issue – regenerated noise levels

Depending on the duration of regenerated noise levels from rockbreakers, Telado recommend that a ground borne noise vibration criterion is applied for offices,

acknowledging that ground borne noise criteria is only applicable to residential premises after hours.

Response

Ground-borne noise refers to noise produced by vibration of floor slabs and other building elements, which radiates noise into the interior of a building. The Interim Construction Noise Guideline (ICNG) (DECCW 2009) addresses ground-borne noise as follows:

Ground-borne noise is noise generated by vibration transmitted through the ground into a structure. Ground-borne noise caused, for example by underground works such as tunnelling, can be more noticeable than airborne noise. The following ground-borne noise levels for residences indicate when management actions should be implemented. These levels recognise the temporary nature of construction and are only applicable when ground-borne noise levels are higher than airborne noise levels. The ground-borne noise levels are for evening and night-time periods only, as the objectives are to protect the amenity and sleep of people when they are at home.

- *Evening (6 pm to 10 pm)* *Internal: $L_{Aeq\ (15\ min)}$ 40 dBA*
- *Night-time (10 pm to 7 am)* *Internal: $L_{Aeq\ (15\ min)}$ 35 dBA*

As the ground-borne noise levels in the ICNG specifically relate to periods when people are likely to be asleep in residences, it is not considered appropriate to apply the guideline levels to commercial premises.

Issue – CVNMP should be provided for Telado's review and comment

A CNVMP should be provided for Telado's review and comment prior to construction commencing.

Response

The Statement of Commitments has been amended to reflect that Ausgrid would establish a CLG for the project that would include representatives from the community in the vicinity of the site. Information would be provided to the CLG regarding measures to be implemented to manage potential construction noise and vibration impacts. The CLG's comments would be taken into consideration during preparation of the CNVMP.

3.7.5 Operational noise assessment

Issue – will the new parking levels be underground

Further clarification is required as to whether the proposed new parking on levels 3 and 4 would be underground, or if the car park would be open or enclosed.

Response

Architectural drawings provided in Appendix G of the Environmental Assessment indicate that the car park on levels 3 and 4 would be below ground.

Issue – noise and vibration from transformers

A detailed noise and vibration assessment is required for the transformers as they are likely to have an adverse impact in terms of ground borne noise and vibration.

Response

Section 7 of Arup's Operational Acoustic Project Application Report (Appendix M of the Environmental Assessment) assesses potential noise and vibration impacts associated with the transformers.

The Statement of Commitments reflect that potential operational noise impacts would be considered further as the design progresses. During detailed design and procurement, plant and equipment would be selected to ensure that the operational noise emissions would comply with criteria calculated in accordance with the Industrial Noise Policy (EPA, 2000).

Issue – 44-48 Hunter Street has not been defined as a potential commercial receiver

The operational noise assessment has not defined 44-48 Hunter Street as a potential commercial receiver. An assessment is requested that defines the noise and vibration criteria for this property. If this property is not selected as a receiver, Telado recommend the following criteria in accordance with *AS/NZS 2107 (2000) Acoustics - Recommended design sound levels and reverberation times for building interiors* or internal noise levels ranging from 30dBA as satisfactory noise levels for boardrooms to a maximum of 45dBA for general office areas. The applicable criteria at the boundary of 48 Hunter Street should be less than 65dBA at all times.

Response

This issue is addressed in Section 12.2.4 of the Environmental Assessment which reflects that during detailed design, plant and equipment would be selected such that the project complies with criteria established in accordance with the Industrial Noise Policy (EPA 2000) and design levels identified in AS2107. This may involve acoustically treating some noise sources to prevent noise emissions from adversely impacting the surrounding properties which include 44-48 Hunter Street. This may include selecting the quietest plant practicable, or treating the plant with enclosures, barriers, duct lining and silencers, etc as required to comply with regulatory sound level requirements.

Experience with similar projects indicates that it would be possible to achieve regulatory requirements with appropriate treatment of the plant.

Issue – transformer vibration analysis

Information on the relative location of the transformers to the boundary wall is required to establish noise and vibration impacts from the transformers. A detailed transformer vibration analysis is required to define the isolation pads and slab attenuation system.

Response

The assessment undertaken as part of the operational noise and vibration assessment confirmed that the vibration levels were likely to be below the threshold of perception. Furthermore, the proposed City East Zone Substation transformer would be located on pads on a suspended concrete floor.

This issue is addressed in Section 12.3.2 of the Environmental Assessment which states that a more detailed vibration assessment would be undertaken once the type of transformers being installed in the City East Zone Substation is confirmed during the detailed design process.

Issue – operational noise and vibration assessment

A detailed operational noise and vibration assessment needs to be conducted once the plant selection is finalised.

Response

This issue is addressed in Section 12.3.2 of the Environmental Assessment which states that during detailed design, plant and equipment would be selected such that the project complies with criteria established in accordance with the Industrial Noise Policy (EPA 2000) and design levels identified in Australian Standard 2107.

3.8 Kingsmede

This submission was made by Kingsmede; the owners of 25 Bligh Street which is known as 'Bligh Chambers' and adjoins the northern boundary of the site (refer to Figure 3-1).

3.8.1 Inappropriate site for a major electricity substation

Issue – EMF

The proposed car parking are on levels 3 and 4 would be subject to high levels of EMF when the substation is operating at peak loads. The Environmental Assessment recommends installation of barriers and other field reduction measures. There are reservations that the project has not been designed to a standard that provides certainty that EMF would not result in health impacts.

Response

As stated in the EMF assessment undertaken for the Environmental Assessment, potential impacts on human health due to EMF would be managed in accordance with international guidelines and the principles of prudent avoidance. The issue of EMF and health effects has been extensively reviewed over the past 30 years by Australian and international inquiries and expert panels have been established to try to determine whether or not human exposure to EMF is related to adverse health effects. To date, adverse health effects due to EMF have not been established.

In the absence of a current Australian standard, the EMF assessment for the project has referred to the current international (ICNIRP) guideline level of 2000mG. Modelling

indicted that a small area that would be accessible to the public in the vicinity of the 11kV risers in the level 3 car park and level 4 car park may experience magnetic fields that may exceed 2000mG. Exposure to magnetic fields in excess of 2000mG would be short term and limited to the period people are walking or driving in the immediate vicinity of the 11kV risers. In accordance with the principles of prudent avoidance, during detailed design further consideration would be given to options to reduce the magnetic fields in the public car parking areas on Levels 3 and 4.

Internationally, the World Health Organisation has addressed the notion of prudence or precaution on several occasions, including in its 2007 publication Extremely low frequency fields Environmental Health Criteria, Vol 238, which states:

"…..*the use of precautionary approaches is warranted. However, it is not recommended that the limit values in exposure guidelines be reduced to some arbitrary level in the name of precaution. Such practice undermines the scientific foundation on which the limits are based and is likely to be an expensive and not necessarily effective way of providing protection*."

It also states:

"*Provided that the health, social and economic benefits of electric power are not compromised, implementing very low-cost precautionary procedures to reduce exposure is reasonable and warranted*."

The Statement of Commitments reflects that potential EMF impacts would be considered further during detailed design and the following measures would be implemented:

- Consistent with the principles of prudent avoidance, and to the extent feasible, during detailed design consideration would be given to the configuration and phasing of the 11kV and 132kV transformer connections and the 11kV capacitor cabling to achieve a degree of field cancellation and further minimise EMF.
- Further work would be undertaken during detailed design to minimise EMF impacts in accordance with the principles of prudent avoidance, which includes those outlined in Appendix D of Australian Standard AS2067-2008.

The Statement of Commitments has been refined to reflect that Ausgrid would undertake pre-operation magnetic field measurements to establish existing magnetic field levels surrounding the site.

Issue – risks of fire and explosions

The Environmental Assessment does not give sufficient weight to the risk of fires and possible explosions that can occur in substations. In the event of a fire or explosion there would be significant risk to adjoining buildings, office workers and the general public. Placing an office tower over a facility where fire and explosions are a potential risk is problematic and contrary to the principles of prudent avoidance.

Response

Design of the substation and integrated commercial development specifically considered the risks associated with operation of substations.

The City East Zone Substation would use sulfur hexafluoride (SF_6) gas as an insulating medium in the five gas insulated transformers and other high voltage (132 kV) switchgear. Research into practices in a number of other countries where substations are integrated with commercial developments indicated that SF_6 is the preferred insulating medium.

Alternative transformer insulation mediums to SF_6 gas were considered during development of the design and these included traditional mineral oil and FR_3 oil (vegetable based biodegradable oil). A risk assessment on the alternatives indicated that for a substation integrated with a commercial development in the CBD, the potential risk of fire precluded the use of mineral oil. While FR_3 oil has a much higher flash/ fire point and combustion is not self-propagating, the remaining low fire risk would still require mitigation measures to be designed into the building such as blast walls around the transformers, a fire suppressant deluge system, oil containment tanks and structural strengthening, in order to meet the requirements of the Building Code of Australia.

SF_6 is non-flammable, is a Class 2.2 dangerous good, and is not considered to be potentially hazardous with respect to off-site risk under *State Environmental Planning Policy 33 – Hazardous and Offensive Development.* Ausgrid will follow best practice guidelines to reduce or eliminate any leakage of SF_6gas during installation, operation, maintenance and decommissioning of the transformer and switchgear equipment. The equipment will be procured from a leading manufacturer which will ensure it is designed and manufactured to minimise leakage during operation.

Issue – EMF and separation distances

The EMF assessment acknowledges the benefits of separation distance as a means of reducing exposure to EMF. The proposed substation should therefore be located at a site that offers greater separation from buildings occupied by large numbers of people, such as office towers and public spaces.

Response

The presence of substations in urban environments is common in Australia and in other countries around the world, including the USA where a ground level substation is being built as part of the redevelopment of the World Trade Centre in New York. Furthermore the zone substation is not dissimilar to distribution substations which are contained within large office buildings and shopping centres.

Ausgrid has extensive experience operating substations in locations such as the Sydney CBD that are in close proximity to office towers and public spaces.

Issue – site selection

It appears that the site has been selected primarily because it minimises the length of cabling required to connect the facility to the electricity network. This is considered to be inadequate justification for locating the substation alongside office buildings. This approach has been taken with respect to the City South Substation which is to be located north of Belmore Park and separated from buildings by streets on three sides.

Response

The preferred location for the City East Zone Substation was selected based on the need for a substation in the northern section of the CBD, preferably in the vicinity of Phillip, Bent, Bligh and O'Connell Streets in order to facilitate the upgrade of the electricity network. Ausgrid investigated potentially suitable available sites in this area. Sites of the required size and configuration are extremely limited. The site at 33 Bligh Street met Ausgrid's criteria.

Ausgrid operates a number of other substations in close proximity to office buildings within the Sydney CBD including the Dalley Street Substation. The City South Substation located in Campbell Street, Sydney, has a commercial building (Roden Cutler House), directly above it, and adjacent buildings are used for commercial and retail purposes. This development has been operating since 1975.

The Belmore Park Zone Substation is currently being constructed adjacent to the intersection of Campbell Street and Pitt Street and Ausgrid has approval to construct a commercial development above this substation.

3.8.2 Castlereagh Street northerly vista

Issue - Vistas

The project would adversely impact on the northerly vista from Castlereagh Street towards 25 Bligh Street due to inadequate setback and a trebling of building height on the site. Any new development on 33-35 Bligh Street should be setback to align with No. 37 Bligh Street and include the 8 metre front setback in the Sydney City LEP 2005 for office towers above a height of 45 metre to 50 metre.

Response

As Bligh Street is offset from the alignment of Castlereagh Street, the building at 25 Bligh Street would remain part of the northern vista from Castlereagh Street.

As indicated in Section 3.1, the design for the substation and commercial tower was selected following a design review process in accordance with the Director-General's requirements and the requirements of MCoA 3.2 of the Concept Approval. This included an invited competitive design alternatives process that was based on the principles outlined in the Sydney LEP 2005.

In choosing the design as the winning competition entry, the selection committee noted that the scheme was generally in compliance with all controls excluding Development Control Plan - building setbacks, service access to basement and shared vehicular access (due to substation constraints), and LEP – Maximum floor space ratios (the scheme would require 10% FSR bonus). The selection committee noted that precedent exists along Bligh and O'Connell Streets to vary the building setbacks from those presented in the Development Control Plan.

The selection committee, in making their recommendation, considered that the design demonstrated design excellence and successfully addressed the challenges of the site and achieved an iconic legacy.

Under Section 75R(3) of the EP&A Act, environmental planning instruments (other than State environmental planning policies) do not apply to or in respect of an approved project. As such, Ausgrid is not required to comply with local environmental planning instruments or plans.

3.8.3 Bulk and scale

Issue – Contribution of the substation to FSR calculations

The substation should be included in the calculation of floor space area as it comprises electrical equipment that is not for the purposes of servicing the building. If the substation is included, the FSR would increase to at least 20:1. The bulk of the building is exacerbated by the inadequate street setbacks of the office tower and large expanses of masonry side walls.

Response

The bulk and scale of the proposed building was assessed in terms of the FSR development standards set out in LEP 2001 and Draft LEP 2009 and building bulk controls set out in DCP 1996 and Draft DCP 2011. The selection committee chose the design as the winning competition entry and noted that the scheme was generally in compliance with controls excluding Development Control Plan - building setbacks, service access to basement and shared vehicular access (due to substation constraints), and LEP – Maximum floor space ratios (the scheme would require 10% FSR bonus).

As indicated above, under clause 75R(3) of the EP&A Act, environmental planning instruments, such as the LEP 2005, do not apply to projects assessed under Part 3A.

Issue – impact of the built form

25 Bligh Street is a relatively large office tower which is dwarfed in comparison to the project. Inadequate front setbacks to the tower, combined with narrow street widths, create an overbearing and canyon like effect at street level in Bligh Street and O'Connell Street.

Response

The proposed building has been designed as a collection of sculptural forms sitting upon each other. The visual gaps between these elements break down the vertical form of the tower, removing a sense of enclosure or overpowerment which would be achieved with a singular vertical form.

The podium facade has been designed along appropriate alignments, both vertical and horizontal to continue the enclosure of the streetscape and provides a continuous sense of enclosure at pedestrian level.

Chapter 8 of the Environmental Assessment summarises built form and urban design assessments undertaken for the project. This reflects that the design is the outcome of a design review process that included an invited competitive design alternatives process in consultation with City of Sydney Council. The selection committee considered that the submission put forward by Fitzpatrick and Partners provided a

unique landmark building which would add value and quality to the mix of buildings in the CBD, whilst meeting the specific requirements and proposed usage of the site. The scheme would achieve design excellence including an iconic legacy.

The brief for the invited competitive design alternatives process required that entries address design principles, including Design Principle 1:

Generate a high quality for the site and introduce a building form that respects and integrates well with its immediate context, including the heritage significance of the surrounding buildings and space, and provides a distinctive contribution to the area and the city skyline.

Section 8.3.2 of the Environmental Assessment outlines how the project has responded to this design principle and reflects that

The distinctly different treatment of the multi-storey substation enclosure, which forms the base of the new development, compared to the high rise tower section, including the separation between the two components created by the high level sky lobby. This enables the overall building to create an urban dialogue with both the medium rise and the high rise buildings in its locality. This aspect is reinforced by the return of the substation screen into the setback of the stair tower, emphasising the mass of the lower element and its relatively sympathetic scale against the lower historic building when compared with the uninterrupted sheer façade massing of the high rise building behind it

3.8.4 Adverse view and natural light impacts

Issue – impacts on views to and from 25 Bligh Street

The tower component of the project commences at a height of more than 45m above street level and has a minimal 0.2m to 1m setback to O'Connell Street and a setback of between 2.6m to 5.65m to Bligh Street. As a consequence the tower portion of the building would have a significant impact on views currently available to 25 Bligh Street above level 15 of the building.

The building at 25 Bligh Street currently has views south down Castlereagh Street. The project would take out the entire view of Castlereagh Street and its interface with buildings lining the eastern side of Castlereagh Street. The quality of the existing streetscape would be significantly degraded. A complying front setback would maintain a reasonable proportion of the view.

Response

The design for the City East Zone Substation was the outcome of a design competition undertaken in accordance with the Sydney City LEP. The selection committee, in making their recommendation, considered that the design demonstrated design excellence, successfully addressing the challenges of the site and achieving an iconic legacy.

During development of the design, consideration was given to potential impacts on any significant views to the harbour, parklands or landmarks. Silhouette studies showed

that glimpses of part of the building can be seen from many vantage spots throughout Sydney. The studies further show that the building silhouette sits comfortably with the city skyline, enhancing and defining existing view corridors and vistas.

As indicated in Section 8.2.3 of the Environmental Assessment the building at 25 Bligh Street (known as Bligh Chambers or the Mulpha Building) would still have excellent daylight access and would retain its primary views to the north and east. It is also noted that the building at 25 Bligh Street is built to the site boundary and does not provide a side setback to the site.

3.8.5 Substation building - streetscape and heritage impacts

Issue – transformer bays

No evidence or independent assessment has been submitted to justify the dimensions of the transformer bays. If smaller bays were provided, there would be greater scope for introducing a more attractive design of the substation building, with increased building setback to Bligh Street and a more active frontage at street level. If it is not possible to reduce the size of the transformer bays, then consideration should be given to locating at least one of the backup transformers to another site.

Response

Ausgrid has extensive experience designing, operating and maintaining substations and the indicative dimensions of the transformer bays for the project have been developed based on this expertise. In terms of the basic transformer layout there are numerous construction and operational constraints that must be factored in to size and configure the transformer bays. This is due to the need to accommodate transformer installation, cable access, ventilation risers, structural columns, lifts, transformer cooling pipes, equipment hatches, fires stairs and other services. The design of a substation is complex and must meet operational standards.

The final dimensions of the transformer bays will be confirmed during detailed design.

Issue – building setback

The redevelopment of the site provides an opportunity to improve the streetscape at the southern end of Bligh Street and enhance the heritage context of 31 Bligh Street. By providing a minor increase in setback to Bligh Street for the substation building so that it aligns with 37 Bligh Street, a more consistent building line can be achieved with greater prominence given to the heritage item at 31 Bligh Street in the streetscape. The resulting increased forecourt could then be integrated into Richard Johnson Square as a functional extension of this square and to open up views to 31 Bligh Street.

Response

It is not appropriate that Richard Johnson Square is designed as a forecourt to any office tower. The square is a public space and should be designed as such, with no deference to the design aesthetic and approach of neighbouring buildings.

The historical context of 31 Bligh Street in the streetscape is just as important as its heritage form and materiality. This was analysed in detail within the competition entry which showed that the building at 31 Bligh Street has never sat flush to the streetscape and has always been a recessive element. The historic setback in 1930 is shown in Figure 3-2.

This visual affect which accentuated the building has been removed by the creation of a forecourt to the Mulpha Building to its north. As such, a significant setback on the south within 33 Bligh Street would dis-associate 31 Bligh Street from the streetscape, visually placing it as a building in space and removing its heritage context.

Whilst the original context of the building at 31 Bligh Street could not be recreated in materiality, scale or form, a balance must be achieved in how the building is seen in the streetscape. As such, detailed design studies were undertaken prior to the competition submission, where the angle and alignment of the substation facade was set such that the full front facade, the southern corner and a portion of the southern facade of 31 Bligh Street would be visible in most situations.

Seeing the edge and front of the facade of 31 Bligh Street allows the extent of the building to be fully understood without it being overtly exposed and isolated from its context. Similarly, the materiality of the facade of the zone substation, separated from the tower by a significant gap creates an appropriately scaled, textured and coloured form as a foreground or backdrop to which to view 31 Bligh Street.

This approach was accepted and supported by the selection committee that chose the design. The ground level alignment is shown in Appendix B.

Figure 3-2 Historic 1930 photograph showing that 31 Bligh Street was set back from the Bligh Street frontage

Issue – the number or size of transformers should be reduced

Reducing the size or number of transformers would provide an opportunity to create a more impressive building lobby and adequate space for retail premises at street level to activate the street and adjoining public square.

Response

As indicated above, the Ausgrid has extensive experience and expertise designing, operating and maintaining substations and the indicative dimensions of the transformer bays for the project have been developed based on this experience.

The City East Zone Substation is an essential component of the Sydney CityGrid Project and a total of five transformers are required within this substation to meet Ausgrid's operational and licensing requirements. Reducing the number of transformers will not be considered as this would compromise the overall objectives of the Sydney CityGrid Project.

Issue – façade and setbacks

The façade architectural treatments protrude into the streetscape of Bligh and O'Connell Streets. Increased front setbacks would remove the protrusion of the

facades so that they are more recessive in the streetscape and do not draw attention to the substation building.

Response

The facades would not protrude into the streetscape. The facade position, scale, texture and materiality have been carefully assessed and chosen to complement the streetscape, both in terms of alignment, scale, texture and colour.

Attention is not drawn to the substation. The design may draw attention from its careful use of materials, scale, texture and light, and the input of a recognised artist in providing significant sculpture elements to the city. The use of the building is undefined, and as such will not draw any more attention than any other accessible building which provides a positive architectural statement.

The selection committee, in making their recommendation, considered that the substation façade concept celebrated rather than hid the substation component, whilst incorporating art for public benefit.

3.9 NSW Office of Water

3.9.1 Groundwater

Issue – groundwater

The project will involve bulk excavation for the substation basement, shaft and cable tunnel. The Environmental Assessment indicates that the quantity of groundwater inflows will be determined during the detailed design phase for the basement, however the preliminary analysis indicates that the volumes of groundwater will be low. Given the expected minor inflows anticipated during construction, the NSW Office of Water (NOW) considers it appropriate for this information to be provided prior to excavating.

Response

The Statement of Commitments has been revised to reflect that the Water Quality Management Sub-Plan would include information on the quantity of groundwater expected to flow into the excavation during construction. This plan would be prepared prior to bulk excavation commencing.

3.9.2 Statement of Commitments

Issue – water quality sub-plan

The Statement of Commitments reflects that a Water Quality Management Sub-Plan will be prepared as part of the CEMP for the project. NOW requests a copy of the sub-plan and results.

The results of the predicted groundwater inflows will also need to be provided to the NOW with a commitment by the proponent to consult with NOW and seek appropriate licences under the relevant NSW water legislation.

Section 4.2.3 of the Environmental Assessment indicates that the Statement of Commitments require the proponent to consult with NOW during construction planning to determine whether a licence is required under the *Water Act 1912* is required. Ausgrid would need to provide NOW with copies of:

- The sub-plan and results
- The results of the geotechnical investigations and analysis relating to groundwater

Response

As outlined in Section 20.3 of the Environmental Assessment, a Water Quality Sub-Plan would be prepared as part of the CEMP. The Statement of Commitment reflects that this sub-plan would include the following information requested by NOW:

- It would be prepared in consultation with NOW
- Estimated pumping volumes, flow rates and water quality would be included to enable NOW to determine whether a licence is required under Part 5 of the *Water Act 1912*
- Details regarding geotechnical investigations and analysis relating to groundwater would be included.

The Statement of Commitment has also been revised to reflect that NOW would be provided with a copy of the Water Quality Sub-Plan and the results of groundwater monitoring.

It is considered that these amendments to the Statement of Commitments address the intent of NOW's submission.

3.9.3 Recommended conditions of approval

Issue – conditions of approval

NOW recommended six conditions of approval relating to:

- A licence under Part 5 of the *Water Act 1912* must be obtained prior to commencement of any excavation works that require dewatering.
- Any licence application under Part 5 of the *Water Act 1912* must be accompanied by a groundwater and excavation monitoring program developed to the satisfaction of NOW.
- Accurate information on the quality and quantity of groundwater inflows must be provided to the NOW prior to construction.
- The proponent shall provide NOW with a copy of the Water Quality Management Sub-Plan and results prior to construction.
- The proponent shall provide the NOW with a copy of the results of the geotechnical investigations and analysis relating to groundwater prior to construction.All groundwater inflows must be adequately treated prior to entering the stormwater system to protect the receiving water source quality.

Response

Ausgrid agrees with the general intent of the conditions recommended by NOW and would liaise with the Department of Planning and Infrastructure to refine specific conditions when negotiating the terms of the Minister's Conditions of Approval.

3.10 Transport for NSW

Issue – potential impacts on Sydney Metro Network Line 1

Transport for NSW (TfNSW) reviewed the Environmental Assessment and found that the basement of the proposed development at 33 Bligh Street falls within the Zone of Influence of the Metro running tunnels (as defined by the 'Development Guidelines within the vicinity of Sydney Metro Network Line 1', document reference no.CBD−2100−PBACH−R−GN−0159). However, encroachment of the proposed basement is expected to be of a low to medium risk to the Metro running tunnels, as a consequence of interpreted geological conditions and the vertical separation between the tunnel alignment and the furthest extent of the basement. Notwithstanding the above, TfNSW request that as part of any approval for the proposed works that Ausgrid enter into a deed agreement with TfNSW, to ensure that the ability for the future metro to be developed is not comprised.

TfNSW requested the following condition of approval:

Prior to issue of any construction certification, the owners of the site of the approved development must enter into an agreement acceptable to Transport for NSW that addresses the potential impacts of the development on the metro corridor, for the relevant works and the commencement of any excavation below the existing surface level. The owners of the site of the approved development must:

- *Allow the design construction and maintenance of the approved development for the future operations of metro railway tunnels in the vicinity of the approved development, especially in relation to noise, vibration, stray currents and electromagnetic fields.*
- *Provide relevant design documentation for review by Transport for NSW, including but not necessarily limited to:*
  - *Relevant basement excavation plans which include reduced levels (RLs);*
  - *Foundation arrangements including proposed location of piles; and*
  - *Structural load calculations of transfer of loads from proposed building/s and associated structures to foundation design.*

In addition, prior to the issue of any Occupation Certificate, provide Transport for NSW with drawings, reports and other information related to the design, construction and maintenance of the approved development to allow Transport for NS W to fully understand the interaction between the approved development and metro corridor.

Response

Ausgrid has consulted with TfNSW and has no objection to the intent of the requested conditions of approval. As the final depth of the excavations would be approximately

10m-12m from the metro corridor, Ausgrid does not believe it is necessary for the agreement to be in place prior to issue of the construction certificate. Ausgrid would liaise with TfNSW to confirm the timeframe within which the agreement is required to be finalised. On this basis, Ausgrid does not object to the intent of the recommended conditions, however would seek to refine the text during negotiation of the MCoA with the Department of Planning and Infrastructure.

3.11 City of Sydney Council

The City of Sydney (CoS) Council did not object to the project. The submission noted that if their comments on the project are not taken into account and any amendments made to the development, the Department of Planning and Infrastructure should satisfy itself that adequate justification has been provided for the form of development currently proposed.

As indicated in Section 2.3.2, the design for the substation and commercial tower was selected following a design review process in accordance with the Director-General's requirements and the requirements of MCoA 3.2 of the Concept Approval. This included an invited competitive design alternatives process that was based on the principles outlined in the Sydney Local Environmental Plan (2005). The design was selected by the six member selection committee which included representatives from the City of Sydney, Government Architect's office, Investa and Ausgrid. The submission by Fitzpatrick and Partners was selected as the preferred option as it provided a unique landmark building that would add value and quality to the mix of buildings in the CBD, whilst meeting the specific requirements relating to the proposed use of the site. The committee considered that this design best achieved design excellence as it featured:

- A bold, crisp design that presented as heroic and resonated landmark quality to provide a positive architectural statement.
- An innovative design with an interesting and elegant façade that would provide an iconic and lasting legacy.

As the design is the outcome of a design review process that was undertaken in accordance with the requirements of MCoA 3.2 of the Concept Approval. Ausgrid considers that the form of the development is justified.

3.11.1 Heritage and urban design

Issue – building setbacks

Council raised concern about the way the tower meets the ground, its interface with the public domain and its relationship with adjoining buildings.

The Bligh Street wall would sit forward of the former NSW Club building at 31 Bligh Street. Consideration should be given to setting the building back to reveal more of the façade of the former NSW Club House, particularly as viewed from the corner of Hunter and Bligh Street. In the photomontage the column from the tower appears to

come forward of the former NSW Club building and thus over scales it. The column should be recessed into the entry.

Response

The proposed setback was the outcome of a design evolution process, which included a competitive design competition. The setback of the NSW Club building was analysed in detail as part of the competition entry and showed that the building has never sat flush to the streetscape, but always as a recessive element (refer to Figure 3-2).

A significant setback of the proposed building would disassociate 31 Bligh Street from the streetscape, visually placing it as a building in space and totally removing its heritage context. Detailed design studies were undertaken prior to the competition submission, where the angle and alignment of the substation façade was set such that the full front façade, the southern corner and a portion of the southern façade of 31 Bligh Street would be visible in most situations. This approach was accepted and supported by the selection committee.

The selection committee noted that there appears to be no historical argument for a setback to the building at 31 Bligh Street as all early plans and photos indicate a building built to the street edge.

Issue – pedestrian amenity

Consideration should be given to improving pedestrian amenity and activation on O'Connell Street. There are potential pedestrian and vehicular conflicts on O'Connell Street as the driveway to the car park is next to the pedestrian entry to the escalators.

Response

The design would provide a high level of pedestrian amenity by enabling street level activation on both street frontages as well as a new through site connection between Bligh Street and O'Connell Street. Public art would be provided at or close to ground level and include the substation façade sculptures.

During the morning and afternoon peak periods when pedestrian traffic is at its busiest, up to 28 vehicles per hour are expected to access the car park during operation of the project. This is equivalent to a vehicle movement every two minutes. There are many similar driveway arrangements at other locations along O'Connell Street and pedestrians expect to interact with vehicles at each of these locations.

Issue – façade treatment

The proposed façade sits forward of the adjoining buildings along O'Connell Street. The façade treatment of stone louvres has the effect of narrowing the street section and is inconsistent with the predominant building line along O'Connell Street. Although projections of a decorative nature (such as cornices, eaves, sills, mullions and architraves) are generally acceptable (up to 450 mm), this should not be extended for whole facades up to the street wall height of the building.

Response

The building structure is required to be built to the property boundary along O'Connell Street to accommodate the internal requirements of the substation. As the façade would be attached to the exterior of the building structure, it would extend beyond the property boundary. During detailed design, the façade treatment would be refined such that it does not extend further than 450 mm beyond the site boundary. Ausgrid will liaise with Council to agree an acceptable outcome that maintains the architectural intent while not compromising the functional ability of the substation.

Issue – internal café space

Council raised concern over the lack of internal space and 'back of house' area for food preparation and storage proposed for the café on the Bligh Street frontage. Some internal space would demonstrate some commitment to the delivery of activation to Bligh Street and Richard Johnson Square and would enhance activation and use of the café in all weather conditions.

Response

A back of house area for the café on Bligh Street is provided on Level 4 (basement) where space is dedicated for food preparation. Connection to the ground floor from this basement level is via a dumb waiter lift. The location of this space on Level 4 is shown in Architectural Plan PA-04 in Appendix G of the Environmental Assessment.

Issue – substation facades

Both facades to the electrical substation appear to be the same. The sandstone artwork for the O'Connell Street façade does not relate to the vertical expression of the adjoining buildings 28-34 O'Connell Street and 16-18 O'Connell Street.

Response

In choosing the design, the selection committee recommended that:

- Alternatives to detailing the substation façade should be investigated. This would include reconstituted stone if the "sandstone" elements become too fine, as it would allow different fixing and customised profiles, and could be colour matched to a sandstone finish.
- Alternative solutions for the O'Connell Street substation façade are investigated. The panel felt that this elevation did not have to be a replica artwork of the Bligh Street elevation, but could be a solution more consistent with the adjoining facades.

During detailed design, refinements would be made to the detailing of the facades so that the Bligh and O'Connell Street facades are not the same.

Issue – public art strategy

A public art strategy has not been provided. The substation façade is described as 'artwork stone louvres'. It is more a decorative screen than a public art work. The design intent of the art work refers to the materialist of the sandstone rather than an interpretation of the context.

Response

The stone louvres are considered to represent public artwork. When evaluating the competition entries, the selection committee found that the proposed design had many artistic possibilities and that the façade concept celebrates rather than hides the substation component, whilst incorporating art for public benefit.

During the design competition, Council's representative on the selection committee advised that design work proposed on the louvres would be considered public art. The selection committee also noted that the artwork façade was both striking and unique and offers a new and exciting contribution to public art in Sydney.

The Public Artwork Strategy is attached in Appendix A and includes a statement from artist Gary Christian and a statement from Urban Art Projects. The artwork stone louvres, or sculpture walls pay homage to the city's history of stone by gracing the facades with the easy rhythm and natural majesty of our earliest landscapes.

Issue – design modifications

Council recommended that the design be modified to:

- Setback the stone façade of the electrical substation on Bligh Street to reveal more of the elevation of the former NSW Club.
- Ensure that the column from the sky tower, is located within the recessed entry on Bligh Street (behind the line of the street wall) so as not to overwhelm the former NSW Club and the streetscape with its (super) scale.
- Setback of the stone façade of the substation on O'Connell Street to match the predominant build-to line. Projecting the stone façade 450 mm for the entire length of the street wall adds to the bulk of the building and it literally appears to 'stick out' from the rest of the buildings that comprise the street.
- Provide some internal space to the proposed café on Bligh Street to ensure its use and activation of Richard Johnson Square in all weather conditions.
- Provide a glass line at ground level for O'Connell Street with doors as a 'line of defence' after hours instead of the proposed fencing/security gate.
- Reduce the conflicts between pedestrians and vehicles along O'Connell Street by co-locating the driveways to the southern boundary.

Response

As indicated in Section 3.1, issues associated with the building setback and potential for the project to contribute to ground level activation were considered by the selection committee when choosing the design. As the design is the outcome of a design review process that was undertaken in accordance with the requirements of MCoA 3.2 of the Concept Approval. Ausgrid considers that the current form of the development is justified.

3.11.2 Traffic issues

Issue – Construction Traffic Management Plan

As the roads authority for all roads surrounding the site, the detailed Construction Traffic Management Plan must be submitted to Council for approval.

Response

The Construction Traffic Management Plan would form part of the CEMP and would be prepared in consultation with RMS and Council. The plan would be submitted to the Director-General for approval and as such, the Council would not approve the Construction Traffic Management Plan.

Issue – substation driveway width

Council note that the Traffic Report (Appendix N of the Environmental Assessment) states that it is proposed to provide an 11 metre wide driveway crossover for the Ausgrid trucks. However, the architectural plan (PA – 05) and the Public Domain Plan (11042 – LPA01) show a much smaller driveway.

Response

The draft subdivision plans provided in Appendix F of the Environmental Assessment reflect that the driveway serving the substation would be 6.4 m wide at the site frontage. An 11 metre crossover at the kerb side would be required to accommodate to accommodate access for larger vehicles.

Issues – relocation of services

Council noted that the proposed driveways will result in the need to relocate a post box and a pay phone and that these do not appear to be shown on any of the plans and should be resolved with the relevant service providers.

Response

Potential impacts on existing services and infrastructure would be considered further during detailed design and this would involve liaising with service providers regarding the need to relocate services and utilities.

Issue – substation driveway

The 11 metre driveway shown in the traffic report does not show the driveway of the adjacent building. Council is concerned that these two driveways may actually connect and form a near 20 metre crossover which is unacceptable.

Response

The draft subdivision plans provided in Appendix F of the Environmental Assessment reflect that the driveway serving the substation would be 6.4m wide. During detailed design, consideration would be given to alternatives measures that would reduce the width of the crossover whilst not compromising Ausgrid's access requirements.

Issue – driveway crossover

The proposal to provide a driveway crossover for infrequent maintenance and delivery of transformers is not supported. The access should be maintained as a standard kerb and gutter and an alternative solution should be found to allow maintenance vehicles to enter the site.

Response

As indicated in Section 14.2.2 of the Environmental Assessment, a separate driveway crossing and entrance is required for the substation as access to this facility is required to be limited to Ausgrid's authorised personnel only. The substation would not be permanently staffed and this access point would be used infrequently for maintenance purposes.

The substation is required to be accessed a special delivery platform that would be used to deliver transformers, both for their initial installation and for upgrade and replacement. As Ausgrid requires access to the substation for scheduled and unscheduled maintenance, a designated access point is considered necessary. During detailed design, consideration would be given to alternatives measures that would reduce the width of the crossover whilst not compromising Ausgrid's access requirements.

3.11.3 Public domain

Issue – lighting

The proposed works as part of the Public Domain Concept Plans for O'Connell Street do not indicate public domain lighting. This will need to be provided as part of the public domain scope to meet Australian Standard 1158 as per Section 6.3.10 of the Environmental Assessment which notes: "Lighting is also proposed throughout the public domain for security and access requirements".

Response

All lighting in relation to the public domain would be considered during the detailed design process and would comply with the requirements of Australian Standard 1158.

Issue – paving levels

It is unclear what impact any increases in the forecourt levels following the upgrades to Richard Johnson Square would have on elements such as stairs at the southern extent of the site and levels around the café.

Response

Section 6.3.9 of the Environmental Assessment reflects that public domain improvements to Richard Johnson Square do not form part of the project and would be undertaken separately by Council. The Public Domain Concept Plan prepared by Aspect shows the proposed design and finishes within the site boundary and provides an indicative scheme for public domain improvements to Richard Johnson Square.

Issues associated with changes in forecourt levels would be considered during the detailed design process and in consultation with Council who would be undertaking the public domain improvements to Richard Johnson Square.

Issue – schedule of upgrades

Council believes that the upgrade of Richard Johnson Square should not be undertaken as separate to this project but should be completed in line with the proposed building and associated forecourt/public domain works. This would result in less disruption of the public domain, avoid the need for temporary, sacrificial work as currently proposed and fulfil Design Principle 2 of the Director-General's requirements dated 12 August 2011.

Council is also not aware of a Voluntary Planning Agreement that is proposed part of this development.

Response

Ausgrid has previously discussed the public domain improvements to Richard Johnson Square with Council's representatives. It has been agreed that there would be a contribution from the project to the public domain improvements that would be undertaken by Council as a separate project.

Ausgrid confirms that a Voluntary Planning Agreement is not proposed for the project.

Issue – condition surveys

Council has requested that the draft Statement of Commitment relating to the preparation of condition surveys be carried forward into the final Statement of Commitments.

Response

The final Statement of Commitments detailed in Chapter 4 contains a commitment relating to conditions surveys.

3.11.4 Floor space ratio

Issue – FSR uplift justification

Council does not believe an acceptable justification has been provided for the uplift in FSR. Council does not agree that the proposal opens up the streetscape to highlight the neighbouring heritage items and that the public art façade is more than a decorative screening element to a substation.

Response

Section 3.1 reflects that the project was chosen by a selection committee as part of a design review process that was conducted in accordance with MCoA 3.2 of the Concept Approval. This included an invited competitive design alternatives process that was based on the principles outlined in the Sydney Local Environmental Plan (2005).

In choosing this design, the selection committee recognised that the project would involve a 10% uplift in FSR. The selection committee concluded that it is a bold, crisp design that presents as heroic and resonates landmark quality, providing a positive architectural statement. It was considered to be an innovative design with an interesting and elegant tower façade that would provide an iconic and lasting legacy.

The selection committee also stated that the artwork façade has many artistic possibilities, and that it celebrates rather than hides the substation component, whilst incorporating art for public benefit.

As the design is the outcome of a design review process that was undertaken in accordance with the requirements of MCoA 3.2 of the Concept Approval, Ausgrid considers that the form of the development is justified. In choosing this design, the selection committee noted that there appears to be no historical basis for a setback to the building at 31 Bligh Street as all early photographs indicate a building built to the street edge at 33 Bligh Street.

Issue – allocation of heritage floor space

Any consent issued by the Department should require the allocation (purchase) of heritage floor space in accordance with the provisions of Sydney LEP 2005.

Response

As the project is assessed under Part 3A of the EP&A Act, the requirements of the LEP do not apply, including the allocation of heritage floor space.

It is noted that the Department of Planning and Infrastructure has not allocated heritage floor space for other projects within the City of Sydney that have been assessed under Part 3A of the EP&A Act, such as redevelopment of Barangaroo and the Carlton Brewery Development.

3.11.5 Wind analysis

Issue – street trees

The wind conditions generated by the development should not inhibit the growth of street trees.

Response

The wind tunnel testing indicated that the wind environment around the site is generally satisfactory for pedestrian sitting or standing. The general wind amenity of the site is similar to wind conditions at other locations in the CBD such as Martin Place, Bent Street and Hunter Street. As street trees grow in these areas, it is unlikely that the project would create wind conditions that would inhibit the growth of street trees.

Issue – café and outdoor seating area enclosure

Enclosure of the café and outdoor seating area by 1.5 metre high impermeable screens is not supported. Alternate mitigation measures should be provided.

Response

The selection committee considered the café and outdoor seating enclosure are as part of the overall public domain. In choosing the design, the selection committee noted that the public domain has been dealt with in a well thought out manner with the celebration of the substation artworks, outbound building café and landscaping of Richard Johnson Square in a complementary manner. As such, the current design is considered to be acceptable.

3.11.6 Land owners consent

Issue – landowners consent and leasing arrangements

Council note that parts of the façade will overhang the public way and there would be an encroachment beyond the property boundaries on the lower levels. Separate contact should be made with Council's Properties Unit to ascertain the requirement for landowners consent and/or for any leasing arrangements to be put in place for the use of airspace above or areas under Council owned land.

Response

Ausgrid would liaise with Council's Properties Unit to ascertain landowner consent and/or leasing arrangements for the facades that would overhang the property boundaries.

3.11.7 Tree removal

Issue – tree removal should be discussed with Council's Tree Management Unit

Any proposal to remove trees should be discussed with, and approved by, the City's Tree Management Unit.

Response

Section 6.6.1 of the Environmental Assessment reflects that installation of the hoardings and associated overhead protection for pedestrians as part of Stage 2A(i) would require the removal of street trees along O'Connell Street. As Stage 2A(ii) is likely to use hoardings and overhead protection installed during Stage 2A(i), it is unlikely that additional street trees would need to be removed. However if construction planning indicates that additional street trees are required to be removed along O'Connell or Bligh Street, the contractor would implement reasonable and feasible measures to refine the construction method to minimise the number of trees that would be impacted. Any trees removed would be replaced with advanced stock and the species would be selected in consultation with Council.

3.11.8 Health and building

Issue – conditions of consent

Council recommended that any approval of the development should be subject to a number of conditions in relation to:

- Design modifications
- Schedule of conservation works
- Heritage interpretation strategy
- Sites in the vicinity of a heritage item
- Archaeological investigation
- Archaeological monitoring and reporting
- Commemorative plaque
- Floor space ratio
- Associated roadway costs
- Vehicle footway crossing
- Footpath damage bank guarantee
- Alignment levels
- Public domain plan
- Stormwater and drainage
- Preservation of survey marks
- Public domain works
- Photographic record/dilapidation report
- Landscaping of the site
- Paving materials

Response

Ausgrid does not support all of the recommended development conditions in their current form however recognises that the intent of some of them are acceptable. Ausgrid would negotiate the Minister's Conditions of Approval with the Department of Planning and Infrastructure.

4. Statement of Commitments

As required by MCoA 3.1c of the Concept Approval, Ausgrid provided project specific commitments for environmental mitigation, management and monitoring as part of the Stage 2A(ii) Environmental Assessment. These commitments were presented in Table 23.1 of the Environmental Assessment. The draft Statement of Commitments has been reviewed and amended to address to address issues raised in submissions, if required. The final Statement of Commitments is provided in Table 1, and changes to the draft Statement of Commitments are displayed in blue.

The Statement of Commitments is additional to Ausgrid's obligations under the Concept Approval.

Table 1 Statement of Commitments

Key issue	Commitment
Noise and vibration	Construction would generally be carried out during the following hours: • Monday to Friday 7 am to 7 pm • Saturdays 7 am to 5 pm • No work on Sundays or Public Holidays Noise intensive activities such as rock breaking would be undertaken during the following hours: • Monday to Saturday 9 am to 12 pm • Monday to Friday 2 pm to 5 pm • At no time on Sundays or Public Holidays Construction of the cable tunnel is proposed to occur 24 hours per day, however surface works associated with the tunnelling (such as truck movements) would be limited to the standard construction hours. Other activities that may occur outside the standard construction hours include, but may not be limited to, oversize truck movements and deliveries of certain plant and equipment on an occasional basis. Works may also be undertaken outside these hours in the event of a direction from police or other relevant authority for safety reasons, or emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

Key issue	Commitment
	A noise and vibration management sub-plan would be prepared as part of the CEMP and would: • Identify potentially affected receivers, activities to be carried out, ancillary facilities, and associated sources of noise at each premises; • Quantify the background noise level for the nearest sensitive receivers; • Identify the construction noise, ground-borne noise and vibration objectives; • Provide an assessment of potential noise levels during construction against the objectives; • Identify reasonable and feasible mitigation measures to reduce noise and vibration levels where the objectives would be exceeded; • Describe noise and vibration management methods and procedures that would be implemented; • Detail procedures for notifying sensitive receivers of construction activities that are likely to affect their noise and vibration amenity; • Measures to monitor compliance with noise and vibration objectives and respond to complaints.
	The following general management measures would be included in the noise and vibration management sub-plan: • Where feasible and practicable, dampened and/or smaller rock hammers would be used; • Where reasonable and feasible, plant and equipment such as excavators, cranes and trucks would be fitted with silencers and low noise mufflers (residential standard), • Where practicable, plant would be located and orientated to direct noise away from sensitive receivers; • Where possible, deliveries would be carried out within standard construction hours; • Plant and equipment would be selected to minimise noise emission, in-so-far-as possible whilst maintaining efficiency of function. All plant and equipment would be maintained in good order; • Mobile plant and trucks operating on site for a significant portion of the project would have reversing alarm noise emissions minimised in-so-far-as possible, recognising the need to maintain occupational safety; and • Solid hoardings and/or site sheds would be erected on work site boundaries to function as noise barriers.

Key issue	Commitment
	A condition survey would be undertaken of surrounding buildings, services and structures prior to commencement of construction. This would include inspecting surrounding heritage listed buildings and considering whether the predicted ground movements from the geotechnical model would be likely to affect the structural integrity of the buildings. This would assist to determine whether the vibration criteria for residential buildings should be applied to the heritage listed buildings. If adverse impacts on the structural integrity of a heritage building are considered likely, measures would be developed to minimise the potential for damage and this may involve strategies such as refining the construction method or providing temporary structural support. A post construction condition survey would also be undertaken. Any damage attributable to the project would be repaired at Ausgrid's expense. If contact cannot be made or agreement reached despite reasonable effort, Ausgrid would not prepare a condition survey for that property.
	During detailed design and procurement, plant and equipment would be selected to ensure that the operational noise emissions would comply with criteria calculated in accordance with the Industrial Noise Policy.
Non-indigenous heritage	During excavation of the existing basement floor slab, the residual ground surface would be inspected by an archaeologist to identify the potential for the site to contain any items of non-indigenous heritage archaeological significance. Any items non-indigenous heritage significance would be recorded by the archaeologist and managed in consultation with the NSW Heritage Council.
	The archaeologist engaged for the project would meet the Heritage Council Excavation Director Criteria for works on State Significant Sites.
	Following completion of Stage 2A(i), a Schedule of Conservation Works to be undertaken in conjunction with the approved works would be prepared by a heritage architect in consultation with the NSW Heritage Council. The schedule would detail conservation works designed to minimise further damage to fabric as well as to reinstate an appropriate level of finish, and would include specification notes.
	Branches of the Bennelong Drain in the vicinity of the site would be marked on all key engineering drawings, especially where the drain is adjacent to excavation shoring where rock anchors may be used. The CEMP would also include drawings showing the location of the branches of the Bennelong Drain relative to construction works.
	If any unexpected historical relic(s) are encountered during the course of construction, all work likely to affect the relic(s) would cease immediately and the NSW Heritage Council would be notified in accordance with Section 146 of the *Heritage Act 1977*.
Indigenous heritage	If any unexpected Aboriginal object(s) are encountered during the course of construction, all work likely to affect the object(s) would cease immediately and the OEH would be informed in accordance with Section 91 of the *National Parks and Wildlife Act 1974*. Consultation would also occur with the Metropolitan Local Aboriginal Land Council regarding an appropriate course of action.

Key issue	Commitment
Air quality	A construction air quality management plan would be prepared as part of the CEMP and would include the following measures to manage potential impacts on air quality: • Manage and dispose of any hazardous materials such as asbestos in accordance with relevant guidelines, including Code of Practice for the Safe Removal of Asbestos (National Occupational Health and Safety Committee 2002) and Australian Standard AS-2601 1991 – Demolition of Structures; • During tunnel construction, all air would be ventilated through a filter unit such that discharged air meets the requirements of the Protection of the Environment Operations (Clean Air) Regulation 2002 (as amended); • Exposed surface areas would be managed via dust mitigation measures; • Wheels of all site plant and vehicles would be cleaned so that material with potential to generate dust is not spread on surrounding roads; • Sealed roads around construction sites would be swept to remove deposited material with potential to generate dust, if necessary; • Water would be used to suppress particles potentially generated during the erection of barriers, screens and other ancillary structures; • Water may be used to suppress dust emissions during dry windy periods (as required); • The height from which dust generating material is dropped would be minimised; • Loaded trucks carrying spoil would be covered at all times; • Cutting/grinding of materials on site would be kept to a minimum, but if necessary equipment and techniques to minimise dust would be used; • Earthworks would be kept damp, as required, especially during dry weather; • Spoil stockpiles would be damped as necessary; • Potentially dusty materials would be handled as little as possible; • Construction plant and vehicles would be well maintained and regularly serviced. Visible smoke from plant would be avoided. Defective plant would not be used; • Engines would be switched off when vehicles are not in use and refuelling areas would be away from areas of public access; and • Where practicable and feasible, loading and unloading would take place within the site.
	The air quality management plan would also: • Establish a protocol to handle dust complaints that includes recording, reporting and appropriate actions for expected types of complaints; • Include a reactive management program detailing how and when operations are to be modified to minimise the potential for dust emissions, should emissions exceed the relevant criteria; and • Address the monitoring, management and control of air pollutants including gaseous substances generated during construction.
	All the ventilation systems for the substation and tower, including natural and mechanical air relief, air intakes and air discharges would be designed to comply with AS1668.2. In particular all exhaust air and spill air shall be discharged to atmosphere in such a manner as not to cause danger or nuisance to occupants in the building, occupants of neighbouring buildings or members of the public.

Key issue	Commitment
Soil and water	A Water Quality Management Sub-Plan would be prepared as part of the CEMP for the project. The sub-plan would be prepared in accordance with 'Managing Urban Stormwater: Soils and Construction' (Volume 1, 4th Edition, the 'Blue Book', Landcom, 2004) and would detail specific measures to be implemented to manage soil, surface and groundwater impacts during construction. It would identify opportunities for on-site reuse of groundwater and surface water, and include a program for monitoring the effectiveness of the sediment control system.
	The Water Quality Management Sub-Plan would be developed in consultation with NOW to ensure the output from the treatment system is suitable for discharge to the stormwater system and the measures implemented would allow construction to comply with Section 120 of the POEO Act. It would detail the treatment process to be implemented and the associated monitoring program to verify that the treated water meets water quality objectives developed in accordance with guidelines developed by the Australian and New Zealand Environment and Conservation Council (ANZECC) and the Agricultural and Resource Management Council of Australia and New Zealand (ARMCANZ).
	The NSW Office of Water would be consulted during preparation of the Water Quality Management Sub-Plan and the following information would be provided to allow NOW to determine whether a license is required under Part 5 of the Water Act 1912; • Estimated pumping volumes, flow rates and water quality data; and • Details regarding geotechnical investigations and analysis relating to groundwater. NOW would be provided with a copy of the Water Quality Management Sub-Plan and the results of groundwater monitoring undertaken in accordance with the sub-plan.
	Consultation with Sydney Water Corporation and/or the City of Sydney would be undertaken to determine whether there are any capacity limitations within the stormwater system that would influence the location of the connection for the water discharged from the treatment system.

Key issue	Commitment
Traffic and access	A construction traffic management plan would be prepared in consultation with RMS and City of Sydney Council as part of the CEMP and would include the following measures to manage potential impacts on the traffic and transport network: • General signposting of Bligh Street and O'Connell Street in the immediate vicinity of the site with appropriate heavy vehicle and construction warning signs; • If temporary road closures are required, traffic control measures specified in "AS1742.3: 2002 Traffic Control Devices for Works on Roads" and RTA's "Traffic Control at Work Sites" would be detailed in a traffic control plan and subsequently implemented; • Development of a suitable vehicle detour route, if required during specific construction activities; • Installation of specific warning signs and safety devices at entrances to the construction site to warn existing road users of entering and exiting construction traffic; • Preparation of a pedestrian management plan that details measures to be implemented to minimise impacts on pedestrian movement and maintain pedestrian safety. Specific consideration would be given to activities undertaken within Richard Johnson Square, footpaths, emergency access points to adjacent buildings, vehicle access and egress to the site, and the need for protective gantries above footpaths; • In addition to relevant Australian Standards and RMS guidelines, all traffic management would also conform to Workcover NSW "Code of Practice for Working Near Traffic and Mobile Plant"; • Barriers approved by RMS and/or City of Sydney Council would be provided between the construction sites and trafficable areas. Pedestrian and cycle diversions would be required during the works; • Consult with Council regarding management measures to be implemented during works that would impact on Council controlled roads; • Management of the transportation of construction materials to maximise vehicle loads to therefore minimise vehicle movements; • Inducting truck and vehicle operators on the requirements of the traffic management plan; and • An event specific traffic management plan would also be prepared if there are any special events in the CBD that would potentially be impacted by traffic movements associated with the project. The time and duration of these events would be clearly noted and construction delivery processes would be rearranged to cater to the affected days.

Key issue	Commitment
	Prior to the commencement of construction, condition surveys would be prepared for sections of Bligh, O'Connell and Hunter Streets in the vicinity of the site that are likely to be used by construction traffic. Any road/ footpath damage, aside from that resulting from normal wear and tear, would be repaired to the pre-existing standard at Ausgrid's cost.
	A community information plan would be continued following the demolition phase (Stage 2A(i)) and during the construction period to ensure that the local community is aware of the construction activities including construction traffic accessing the site. The awareness program would identify communication protocols for community feedback on issues relating to construction vehicle driver behaviour and other construction related matters.
Storage of dangerous goods	All dangerous goods (as defined by the Australian Dangerous Goods Code) and combustible liquids, would be stored and handled strictly in accordance with: • All relevant Australian Standards; • A minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and • The DECC's Environment Protection Manual Technical Bulletin Bunding and Spill Management (EPA 1997).
Spoil and waste management	A spoil and waste management sub-plan would be prepared as part of the CEMP and would identify how spoil and other waste material would be handled, stockpiled, reused and disposed. It would address the principles of the waste hierarchy and relevant health and safety as well as environmental legislation and would include measures such as: • All waste would be managed in accordance with DECC's Waste Classification Guideline (2008); • Arrangements to reduce the volume of materials being brought onto site such as packaging. In addition, required construction materials would be ordered in the correct quantities to minimise waste; • Reuse or recycling of demolition and excavation materials would be undertaken wherever practicable. Stockpile areas would be allocated for construction and demolition waste to allow separate stockpiling of recyclable and non-recyclable materials. In addition, colour coded and clearly marked containers for different recyclable materials would be provided; • Records would be kept of all waste volumes and destinations; • Sites for disposal of surplus spoil would be selected according to the rate of development activity and the volumes of material generated elsewhere; • Ongoing training would be provided for construction personnel to ensure correct sorting of waste and recyclable materials and promote the principles of the waste hierarchy. Waste minimisation and management would be included in tool box sessions and site management planning; and • Any synthetic mineral fibres would be bagged or wrapped in plastic and handled per Worksafe Australia's Synthetic Mineral Fibres – National Standard and National Code of Practice.
EMF	Consistent with the principles of prudent avoidance, and to the extent feasible, during detailed design consideration would be given to the configuration and phasing of the 11kV and 132kV transformer connections and the 11kV capacitor cabling to achieve a degree of field cancellation and minimise EMF.

Key issue	Commitment
	Further work would be undertaken during detailed design to minimise EMF impacts in accordance with the principles of prudent avoidance, which includes those outlined in Appendix D of Australian Standard AS2067-2008.
	Ausgrid would undertake pre-operation magnetic field measurements to establish magnetic field levels surrounding the site are within permitted level.
Greenhouse gas emissions	To minimise SF_6 emissions Ausgrid would adhere to the responsible use principles outlined in ENA Industry Guideline for SF_6 Management (Energy Network Association, 2008). Ausgrid would follow best practice guidelines to reduce or eliminate any leakage of SF_6 gas during installation, operation, maintenance and decommissioning of the transformer and switchgear equipment.
Infrastructure and utilities	To minimise impact on existing infrastructure and utilities at the site the following mitigation measures would be implemented: • Dial-before-you-dig searches would be undertaken prior to the commencement of construction works • A qualified services locator would be engaged to visit the site and undertake potholing to determine the presence and location of existing services • Service providers would be consulted and develop procedures to be implemented during connection to services and/or temporary relocation of services, if required. • Stakeholders that would be affected by interruptions to services and utilities during construction would be identified and consulted.
Urban design	During development of the detailed design, the following issues would be considered: • Features to be included to ensure the commercial tower would be designed to achieve a minimum 5 Star Green Star rating; • Impact of reflectivity due to the external glazing. As a minimum, the external glazing would have a normal specular reflectivity of visible light of 20% or less to minimise adverse glare impacts; • The visual presentation of the façade louvre composition masking the mass of the substation on both Bligh and O'Connell Street frontages may appear too monolithic and unified when viewed from a distance. This issue would be resolved through close collaboration with the artist during design development • The underside of the decorative façade screen to the Bligh and O'Connell Street frontages is of relatively low height when compared with the higher ground floor recesses of adjoining buildings, particularly on O'Connell Street. Opportunities to reduce this impact would be considered. • There is potential for the vertical edge of Richard Johnson Square against the Hunter Street frontage to be visually and spatially disruptive when viewed from Hunter Street. This would be mitigated through careful design for the upgraded Richard Johnson Square to create an appropriate setting for the monument and improve public amenity, subject to approval by Council.

Key issue	Commitment
Wind impacts	The detailed design would be prepared to include the following: • A canopy above the ground level outdoor café and seating area would be provided. • 1.5m high impermeable portable screens would be provided within and around the ground level outdoor café and seating area. • An internal wall would be provided within the ground level lobby at the top of the escalators between Bligh Street and O'Connell Street. • Impermeable balustrades would be provided along the perimeter of the outdoor terrace area on the Sky Lobby Level. • A strategic planting scheme similar to that presented in the Wind Environment Statement would be provided for the outdoor terrace area on the Sky Lobby Level.
Detailed design investigations	Detailed design of the basement excavation and cable tunnel structure would be undertaken based on the results of geotechnical investigations to minimise potential impacts associated with ground settlement and stability.
	RailCorp and NSW Transport would continue to be consulted during development of the detailed designs for the basement excavation and cable tunnel to ensure that potential impacts associated with their rail corridors are mitigated to an acceptable level. This would include consideration of the location and impact of associated items such as rock bolts and rock anchors.
Fire safety	A Fire Safety Engineering and Evacuation Strategy would be prepared prior to the occupation of the tower.
Hazards and risks	Services potentially affected by construction activities would be identified to determine requirements for diversion, protection and/or support.
	Construction safety sub plans would be prepared to manage hazardous incidents and public safety during the construction of the project.
Consultation	A Community Information Plan would be prepared in accordance with the requirements of MCoA 4.3 of the Concept Approval. This would set out the community communications and consultation processes to be undertaken during Stage 2A(ii) and would include specific consultation regarding issues such as: • Noise and vibration • Traffic and access • Dust.
	A Community Liaison Group would be formed to provide information to the community in the vicinity of the site. This would be subject to willingness to participate. The Community Liaison Group would contain representatives of local businesses, residents, Council and other interested parties.
Cumulative impacts	Ausgrid would minimise cumulative impacts through precise management of projects and communication with other authorities. This would involve consultation with organizations constructing other projects in the immediate vicinity of the City East Zone Substation, to identify potential cumulative impacts and opportunities to minimize these impacts.

5. Conclusions

Ausgrid has reviewed the submissions received on the Environmental Assessment that formed part of the application for Project Approval for Stage 2A(ii) of the City East Zone Substation and integrated commercial tower. This Submissions Report addresses the issues raised in submissions and describes a change to the project that is assessed in the Environmental Assessment.

Stage 2A(ii) of the City East Zone Substation was described in Chapter 6 of the Environmental Assessment and involves subsurface construction works and construction and operation of the City East Zone Substation and the integrated commercial tower located above the substation. The substation would be in the basement and lower levels and the commercial tower would be above the substation.

The Statement of Commitments has been reviewed and amended to address issues raised in submissions (where required) and ensure that potential environmental impacts are appropriately managed.

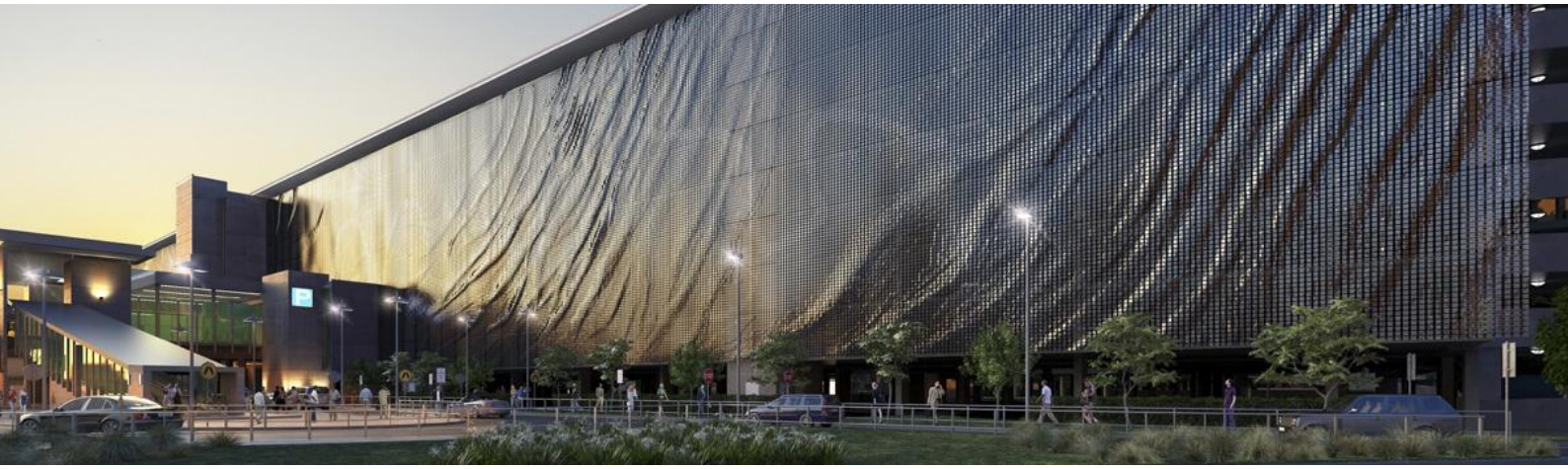
The project would be constructed in accordance with a CEMP that would include a suite of sub-plans to address construction related issues raised in submissions.

While the project is likely to result in short term localised adverse construction impacts, on balance, it would lead to significant long-term benefits as part of the broader Sydney CityGrid Project. Based on this, the environmental impacts are considered to be justified.

Appendix A

Public Artwork Strategy

CITY EAST ZONE SUBSTATION &
INTEGRATED COMMERCIAL DEVELOPMENT
33 BLIGH ST



DESIGN STATEMENT
INVESTA C/O FITZPATRICK AND PARTNERS
7 SEPTEMBER, 2011

UAP Ref: B2304A

URBANARTPROJECTS

DELIVERY STATEMENT

PROJECT OVERVIEW

The redevelopment of the former Kindersley House at 33 Bligh Street, Sydney will combine a power substation and commercial office tower. Fitzpatrick and Partners has won the design competition for a major development project at 33 Bligh Street, Sydney. The tower's design features include 54m high atrium and an art facade conceived by Gary Christian in collaboration with Fitzpatrick & Partners.

Fitzpatrick & Partners have delivered sketch concepts and images of the artist's model to UAP for the Art Facade for 33 Bligh Street and have a workshop conducted on 24 August to resolve feasibility, material solutions and report on cost planning to move the project forward to the next stage.

PROJECT CONTACTS

Ray Cambridge, Fitzpatrick & Partners p: 61 2 8274 8200 e: rayc@fitzpatrickpartners.com

UAP DELIVERY TEAM

Ben Tait, CEO
Carmel Haugh, Australian Business Relations
Jamie Perrow, Design Manager
Jason Kahl, Production Manager

DELIVERY METHODOLOGY

General

UAP has undertaken initial studies into the existing façade design on behalf of the artist Gary Christian, and Fitzpatrick & Partners. Prior to UAP's involvement several materials have been considered including stone, reconstituted stone, precast concrete and glass reinforced concrete. UAP has been approached by the team to provide advice on materiality options, framing systems and general delivery methodology from its current stage through to completion.

On the 24th August UAP hosted a brief introductory workshop driven by Fitzpatrick & Partners by way of introduction into the project. During this briefing, key parameters surrounding the art façade where tabled.

- **The artistic intent**

  Abstract progression on traditional sandstone façade/cladding.

- **The architectural intent**

  Clean 'white boxes' in the building above. The abstract treatment of the building below.

- **The nature of the building**

  Major substation, specialised plant.

- **The substrate**

  Reinforced concrete.

- **Special requirements**

  Ventilation, maintenance, special access, key lines of sight.

- **Budget**

  UAP to respond with a preliminary cost assessment by 23rd September.

Creative Intent

Texture, materiality, and visual 'movement' across the façade are key to achieving the creative intent. UAP acknowledges the importance of this flowing in developing the delivery methodology.

- Achieving a 'hand made' feel.
- Maintaining the irregular layout.
- Minimising the visual impact of the frame.
- Creating a perception of mass in terms of the materiality and design of the individual slabs
- Developing a 'natural' texture that varies uniquely over the full extent of the façade.

Materiality

On assessing the above criteria in conjunction with the artist, UAP proposes Glass Fibre Reinforced Concrete (GRC) as the preferred material for the façade. GRC exhibits excellent structural qualities enhanced by the capacity to 'cast in' light weight structural sections, thus forming a composite member. This will allow for greater spans across the sub frame reducing the sub frame's visual impact and improving the open area ventilation.

The ability to mould GRC cost effectively is also an important factor in terms of achieving the 'hand made' or sculptural feel of the work. UAP will work collaboratively with the artist in developing the form moulds in order to achieve the desired outcome.

GRC has high impact strength and chemical resistance, is non-combustible and highly weather resistant. Importantly, GRC can be pigmented with appropriate pigments, and does not need painting which has a favourable impact on maintenance requirements.

The GRC samples provided at the time of this report are indicative of the material only. Proper sampling is underway in collaboration with the artist to experiment and prove up the methodology for achieving the proposed texture. This prototype sample will be complete by the end of September

Texture

It is important to the artist that the texture feels handmade, as if produced intentionally rough in a stone mason's yard. The team has already acknowledged the difficulties in achieving this texture given that it must be produced by the artist's hand or at least under the artist's direct supervision. A solution that requires the artist to interaction with physical production phase on a project of this scale might introduce unnecessary risk; specifically in terms of managing the delivery program.

UAP proposes to achieve this texture by virtually developing it in collaboration with the artists. Using a range of industry standard 3D modelling tools, UAP's design team will be able to model the 'mason's' hand under the direct supervision of the artist.

Vector files can then be extrapolated from the 3D models and fed into CNC machinery to produce sculpted high density foam inserts. These inserts will then be arranged and coordinated into the standard GRC member moulds prior to pouring of the GRC. The HD foam inserts will be sacrificial.

Using the above technology we will be able to achieve the natural hand made effect required of the texture, without the artist having to interact physically with the production of the GRC (other than in an approving and reviewing capacity). It also allows for the production of large scale prototypes for general approval.

Framing

Acknowledging the importance of maintaining the irregular elevational layout of the GRC slabs, UAP has sort to visually demote the frame as much as possible by abstracting the grid work into irregular angles. This will allow the frame to hide behind the artwork rather than detract from the irregular lines inherent in the creative intent.

The overlapping of GRC slabs provides a moment of density behind which UAP would hide the main vertical members of the frame. These vertical

members run on varying angles to align with the overlapping zones of the artwork. Horizontal members in the artwork would most likely remain true to horizontal to facilitate alignment and set out during installation. This could, however, be reviewed during design development.

UAP is proposing a mild steel structure with a powder coated finish, electing to steer away from aluminium structure at this stage in order to assist with green star objectives. We perceive frame members would be in the order of 200 x 70mm, with the 200mm webs perpendicular to the building façade. Design of the frame members would need to take into consideration the live loading imposed during handling and cranage as well as the dead loads acting in its installed state.

A typical frame size of approximately 5m wide by 2.7m high would be an appropriate balance, taking into consideration the width of the building, handleability during fabrication and finally freight and access parameters prior to and during installation.

GRC members will have a cast-in mild steel PFC, continuous along the back edge of it, so as to negate the possibility of birds nesting inside the GRC members. The PFC will have fully welded structural steel pins located so as to align with 3D laser cut holes in the frame members. The system will provide for accurate location of GRC members and avoid error prone human set-out issues during production. This last point will be particularly important in coordinating the overlap zones where two frames abut behind an overlap.

Frame units could then be connected to the structural concrete substrate via a range of methods spanning from cast in ferrules to pre fitted mild steel cleats installed to a surveyor’s set out. This would be developed in collaboration with the builder so as to align with other construction strategies.

Methodology

UAP’s turnkey approach in the delivery of large scale public art is particularly valuable to the project team when the work is highly integrated. By engaging UAP in the earliest phases of the project we are best able to support the artist’s creative intent and manage the risk associated with built-in artwork for the client, builder and the constant group. UAP is commonly engaged under a D&C arrangement which includes a number of key phases from concept through to installation.

UAP is currently in feasibility stage contracted to the client for preliminary services starting with the development of this report and including a preliminary cost plan for the art façade and small scale prototype sampling of GRC for colour, finish and texture.

Going forward we see the next three phases as appropriate.

Design Development

During this phase UAP would be under contract directly with the client of the builder and sub contract all required constants. Typically the artist is one of those consultants with his or her artist fee disclosed and paid by UAP. This allows UAP to form the appropriate relationship with the artist in the context of a D&C arrangement.

UAP’s deliverable in this phase would be full for-construction drawings complete with all required design certificates. We would also develop and construct full scale prototypes that demonstrate successful outcomes in terms of the GRC members and the modularised framing system.

Key to UAP's process is the spirit of collaboration and a model that brings creative and technical support to the artist's agenda. Our model is focused on pushing technical boundaries rather than diminishing creative intent. Additionally we acknowledge industry practice in terms of working closely with the broader consultant group and acting with the builders constraints in mind.

Production

Our proposed system is based on penalised off-site fabrication. During the design development phase we will have established the guidelines that will dictate the way in which workshop drawings will be produced.

The workshop drawings will completely digitise framing layout, the GRC panel layout, the texture layout and the concrete connection cleat set out. We will use CNC process as much as possible so as to minimise error related to human set out in the workshop.

The powder coated mild steel frames will be fabricated separately and simultaneously to the GRC slabs. Frames will be labelled and stored at UAP's facility in Brisbane so until they can be coordinated with GRC deliveries. Frame units will be manufactured in roughly 5m wide by 2.7m high modules which can easily be handled both inside the workshop and on site.

The GRC modules will be cast into prefabricated formwork to a system developed during design development via prototyping. The GRC members will be cast face down and exhibit with vertical faces having slight angles to allow for mould release. CNC cut high density foam block-outs will then be inserted into the mould base to produce the texture effect on the leading edge of the GRC member.

The GRC members will have cast in end caps so that they are completely enclosed. We propose that a structural steel PFC member be cast into the GRC form to produce a composite beam than can easily be connected to the sub frame.

Finally GRC members will be assembled onto their matching frame module ready for freight to site.

Installation

Although too early to comment in a detailed way we see an opportunity to located suitable a suitable crane on top of the podium capable of lifting the frame modules into location from above. Low-loader truck access onto both street frontages will be critical.

Frame to Building cleats would be prefixed to the concrete substrate prior to removal of scaffold. Final clean could be performed from boom lifts of by specialist access teams.

Project References

- 100 Market Street: Westfield, Artist – Danni Marti.
- BDTX Art Façade: Brisbane Airport Corporation, Artist – Ned Kahn.
- 53 Albert Street: DTZ, Nettleton Tribe, Artist – Jennifer Marchant

Gary Christian Po Box 75 Jamberoo NSW 2533 ph: 02 4236 1001 m: 0418 458 818 e:gary@garychristian.com.au www.garychristian.com.au ABN 68 938 143 114

Design Statement

Bligh & O'Connell Street Sculpture Walls

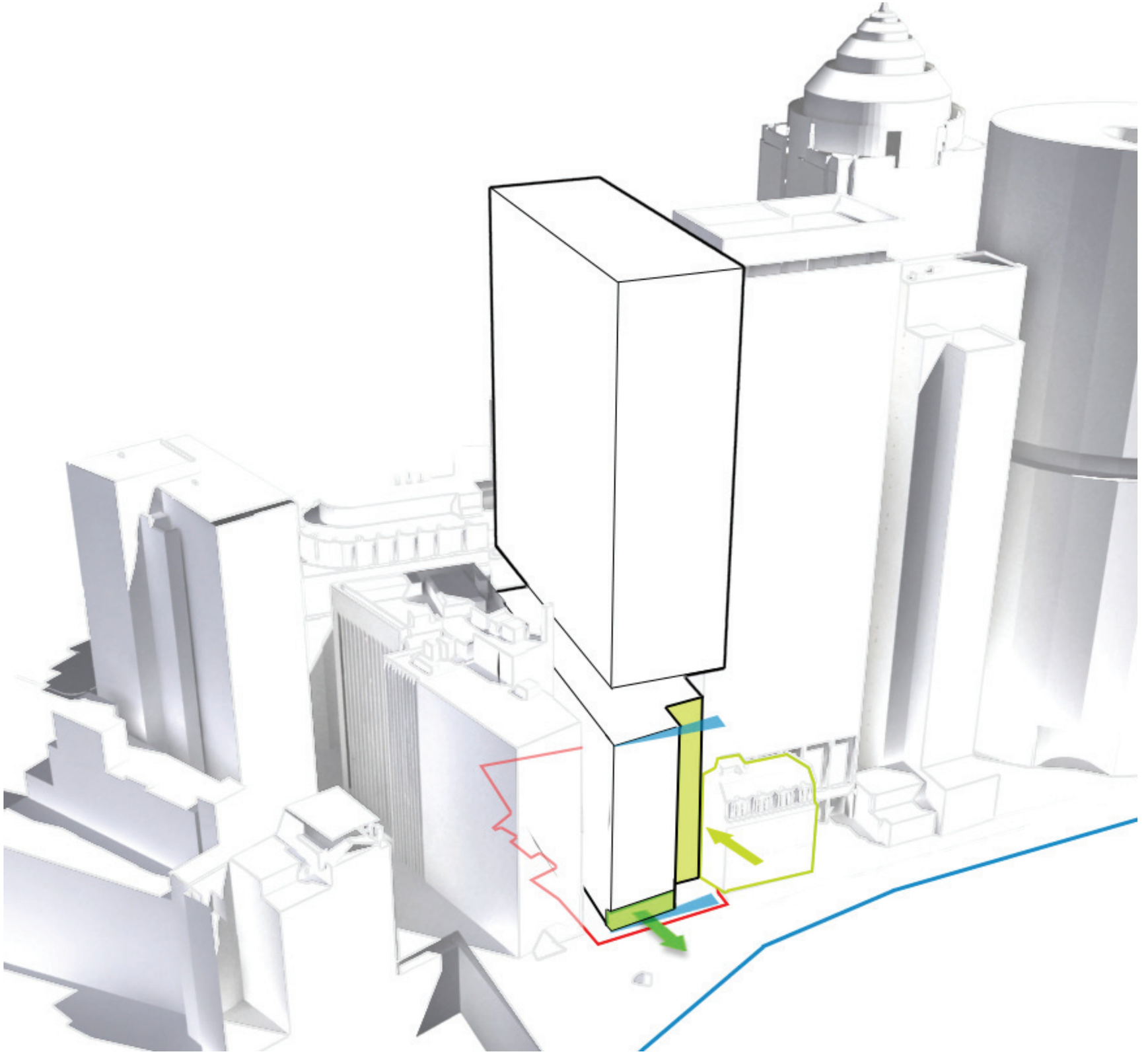
The design intention for the Bligh and O'Connell Street sculpture walls is to pay homage to the city's history of stone by gracing the façades with the easy rhythm and natural majesty of our earliest landscapes. Indeed, many of the buildings in the Bligh and O'Connell Street area have been cut from local sandstone. This impulse echoes the real, but it's important to acknowledge that the design scheme is also due to an unformed idea that shimmers, in my subconscious in an area of the brain that retains the imagery of shapes and experiences acquired over time. The Bligh Street façade has a harmonious rhythm, and hints at the geological slips and fissures of a rock face. O'Connell Street presents a more vertical scheme, but echoes geological patterns that run deep into the earth. Yet, while the façades trace the past memory of Sydney sandstone rock faces, they also live in the present, and look towards the future, for this raw material is the essence of an organically thriving and inspirational cityscape.

There is a strong dynamic to the structure of the design that manages to work within the limitation of the substation venting system. The needs of the substation demand a certain percentage of open area, and the stone slats provide an aesthetically pleasing solution. The slats will be 500 ml deep and 250ml wide, wrapping around the corner to give a rock edge effect. Important also is the texture. The lowest section of the Bligh Street wall will be a smooth saw-cut stone finish, the middle section above, a rougher finish, leading to the top section that echoes a craggy rock face. Standing at street level, looking up, a passerby will be engaged by the interesting play of light and shadow that result from the varying textures. From a distance, the viewer will be caught by the elegant line-drawing simplicity of the design scheme. The building itself will reflect a merging of art and design pertinent to the intellectual and cultural aspirations of a twenty-first century city.

Gary Christian

Appendix B

Ground level alignment



ASHINGTON HOUSE
16-18 O'CONNELL STREET

MULPHA BUILDING
25-29 BLIGH STREET

LOWY INSTITUTE
31 BLIGH STREET

O'CONNELL STREET

ENTRY

cp

G

H

1

2

3

4

O'CONNELL STREET ENTRANCE BELOW

PANEL LIFT DOOR

CAFE

BLIGH STREET

RICHARD JOHNSON MEMORIAL

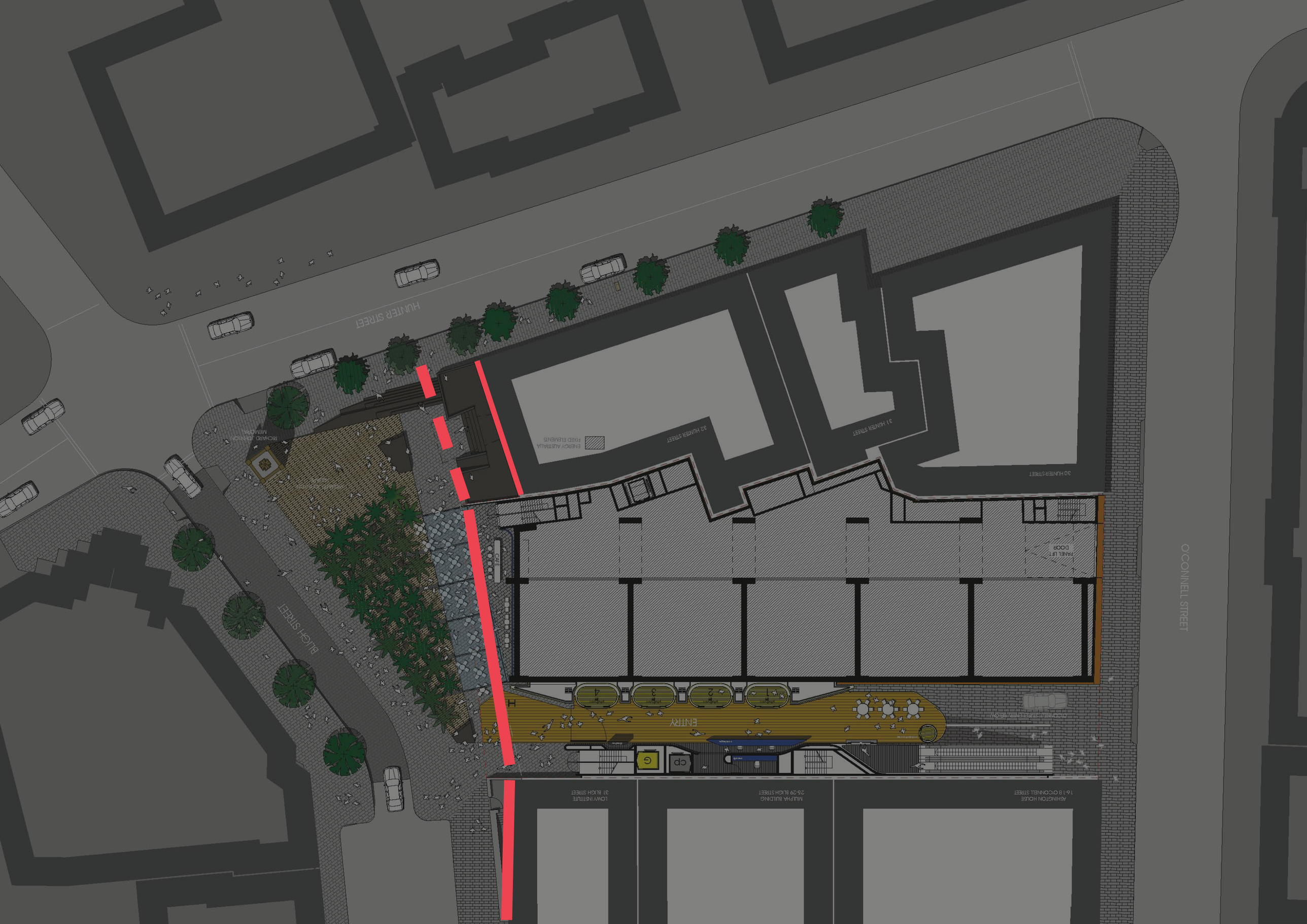
30 HUNTER STREET

31 HUNTER STREET

32 HUNTER STREET

ENERGY AUSTRALIA FIXED ELEMENTS

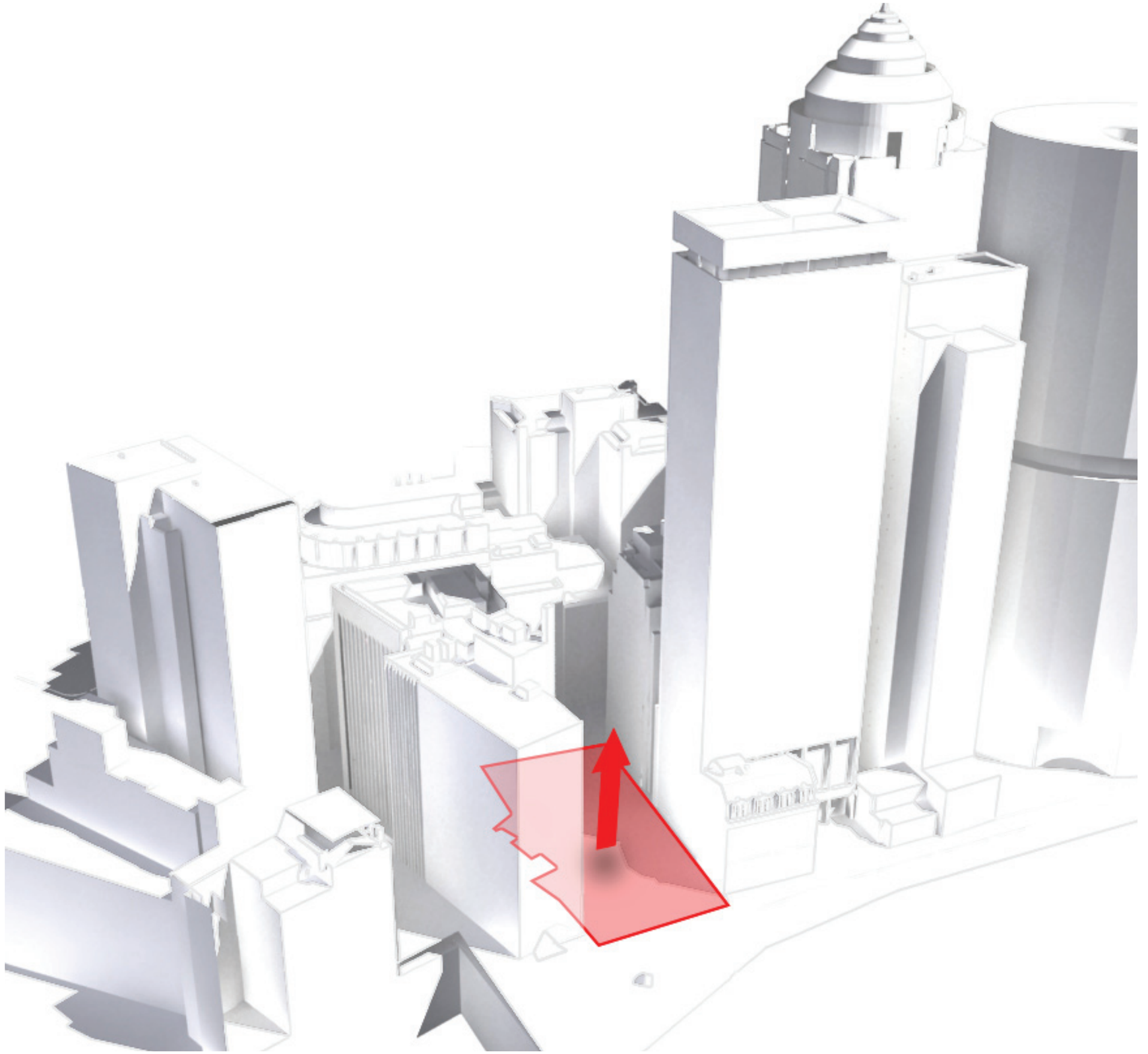
HUNTER STREET

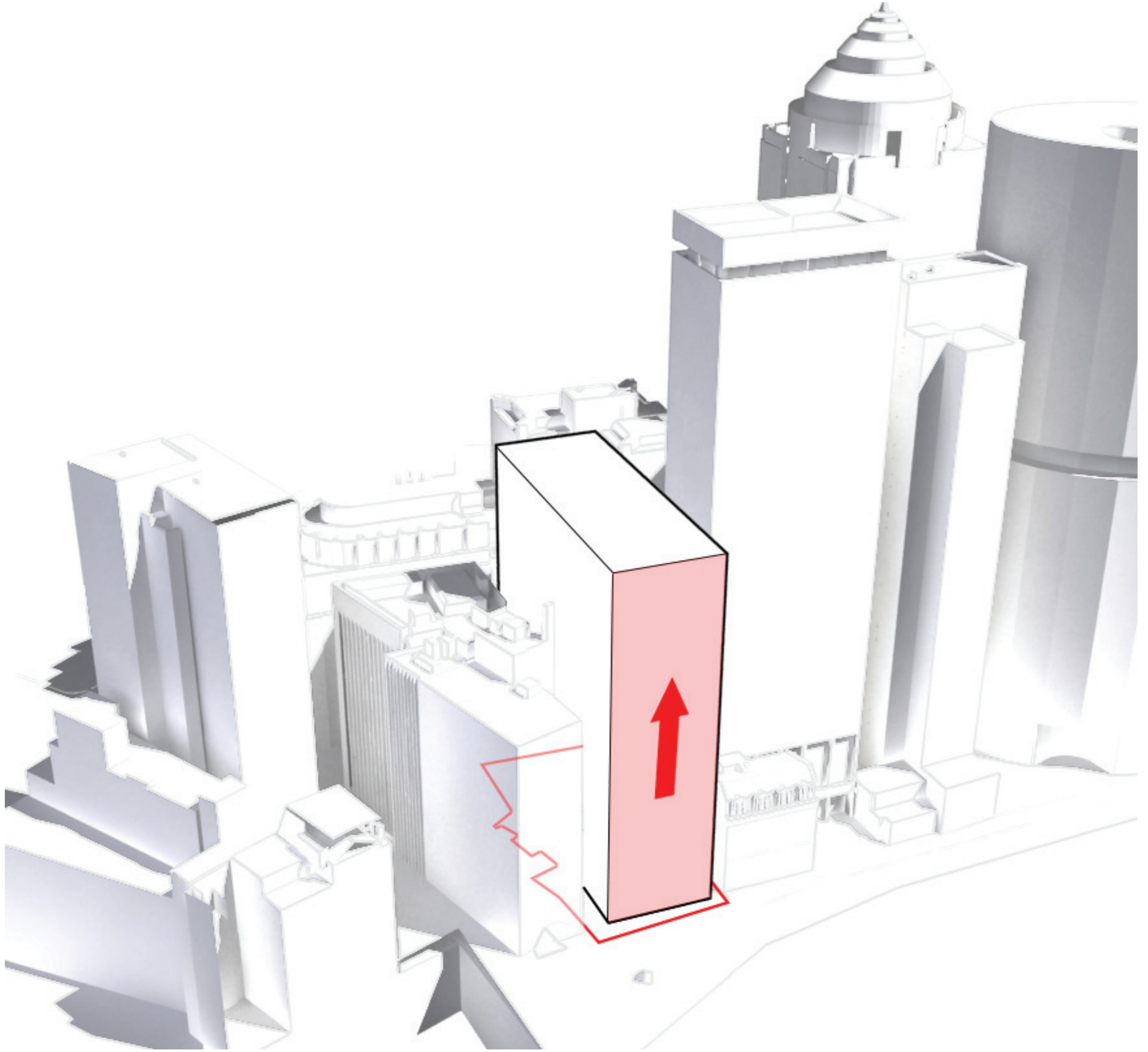

HUNTER STREET
BLIGH STREET
O'CONNELL STREET
RICHARD JOHNSON
MEMORIAL
ENERGY AUSTRALIA
FIXED ELEMENTS
32 HUNTER STREET
31 HUNTER STREET
30 HUNTER STREET
PANEL LIFT
DOOR
CAFE
ENTRY
G
CP
LOWY INSTITUTE
31 BLIGH STREET
MULPHA BUILDING
25-29 BLIGH STREET
ASHINGTON HOUSE
16-18 O'CONNELL STREET

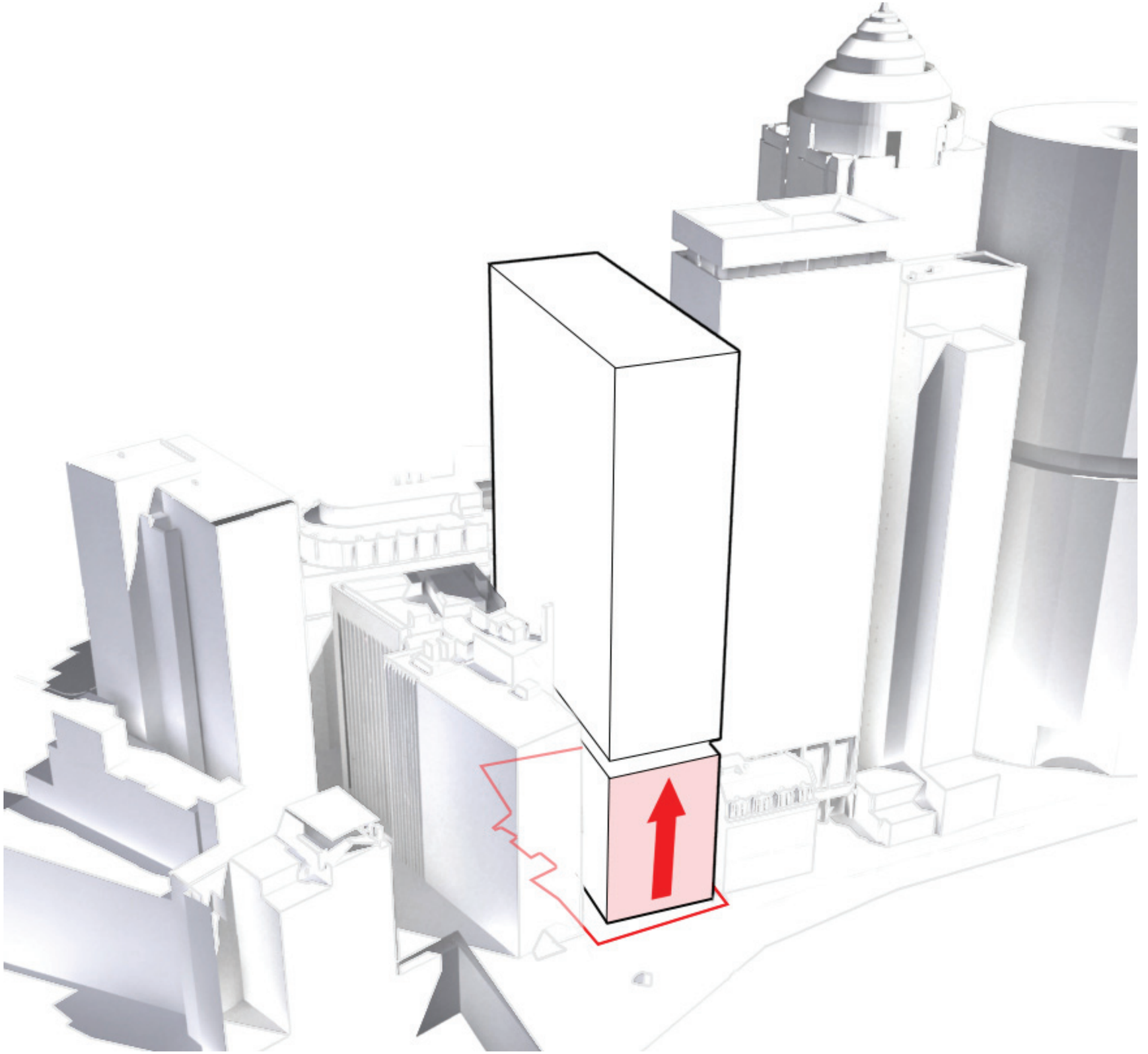
Appendix C

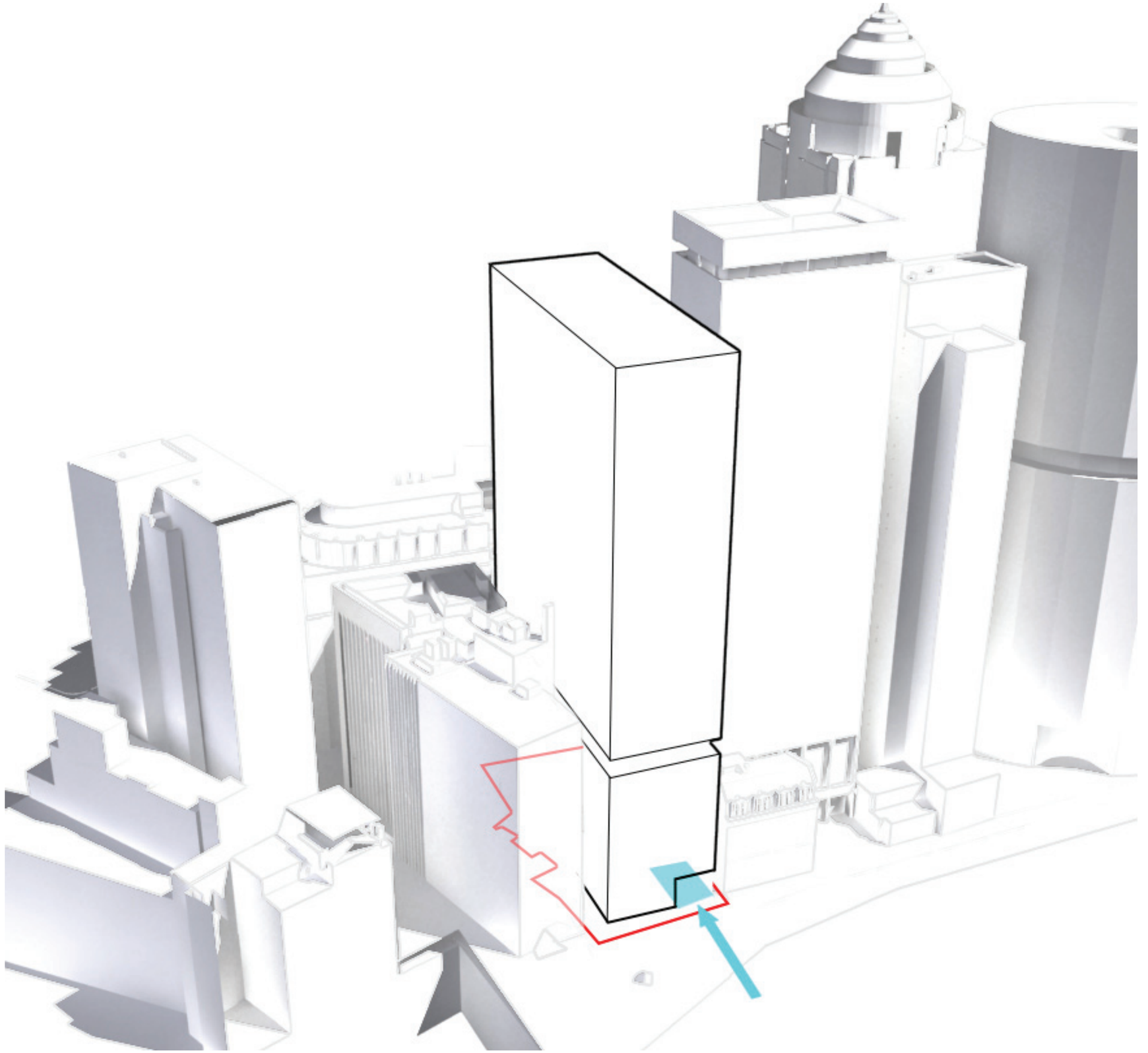
Evolution of the built form

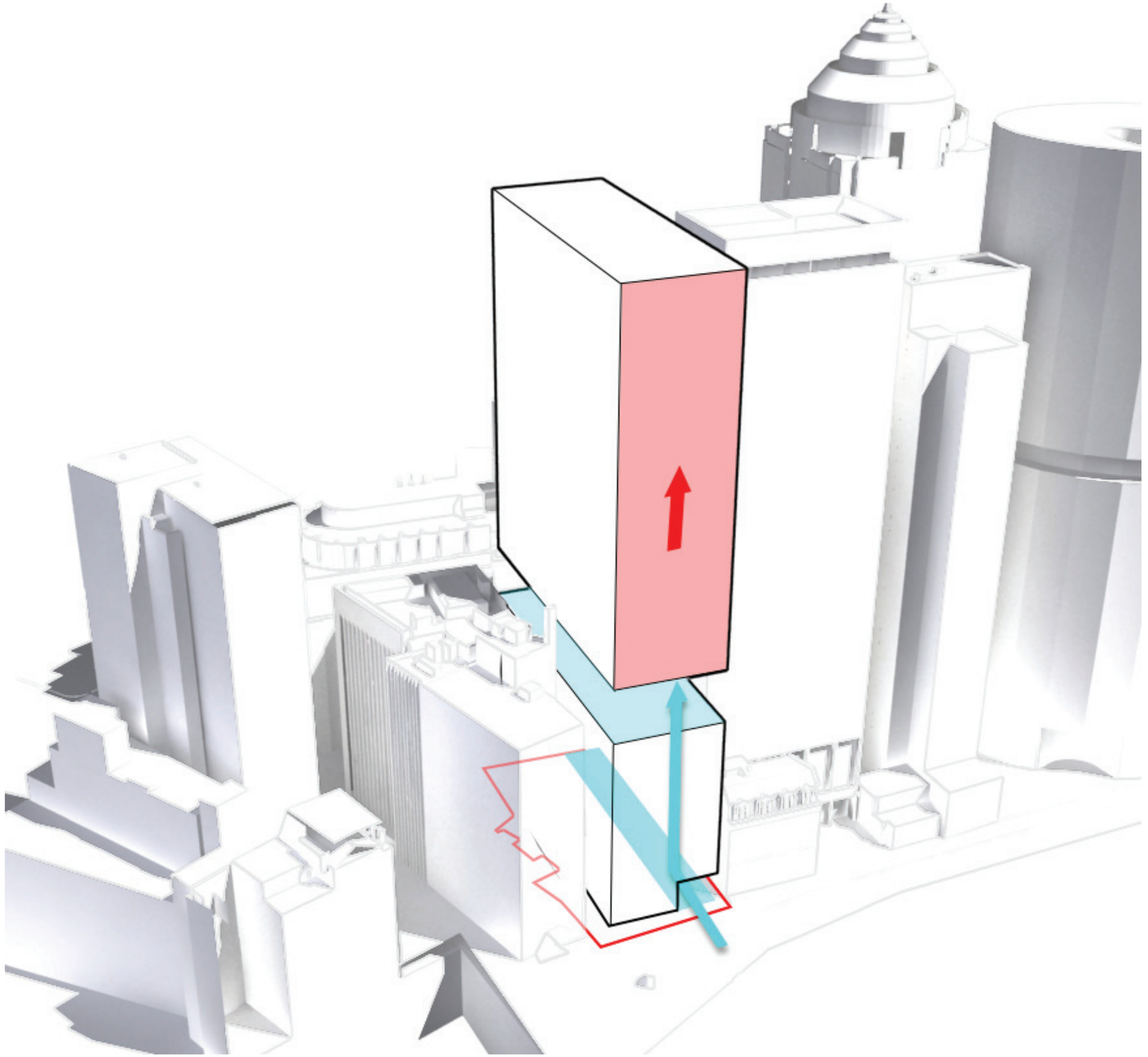
form generation

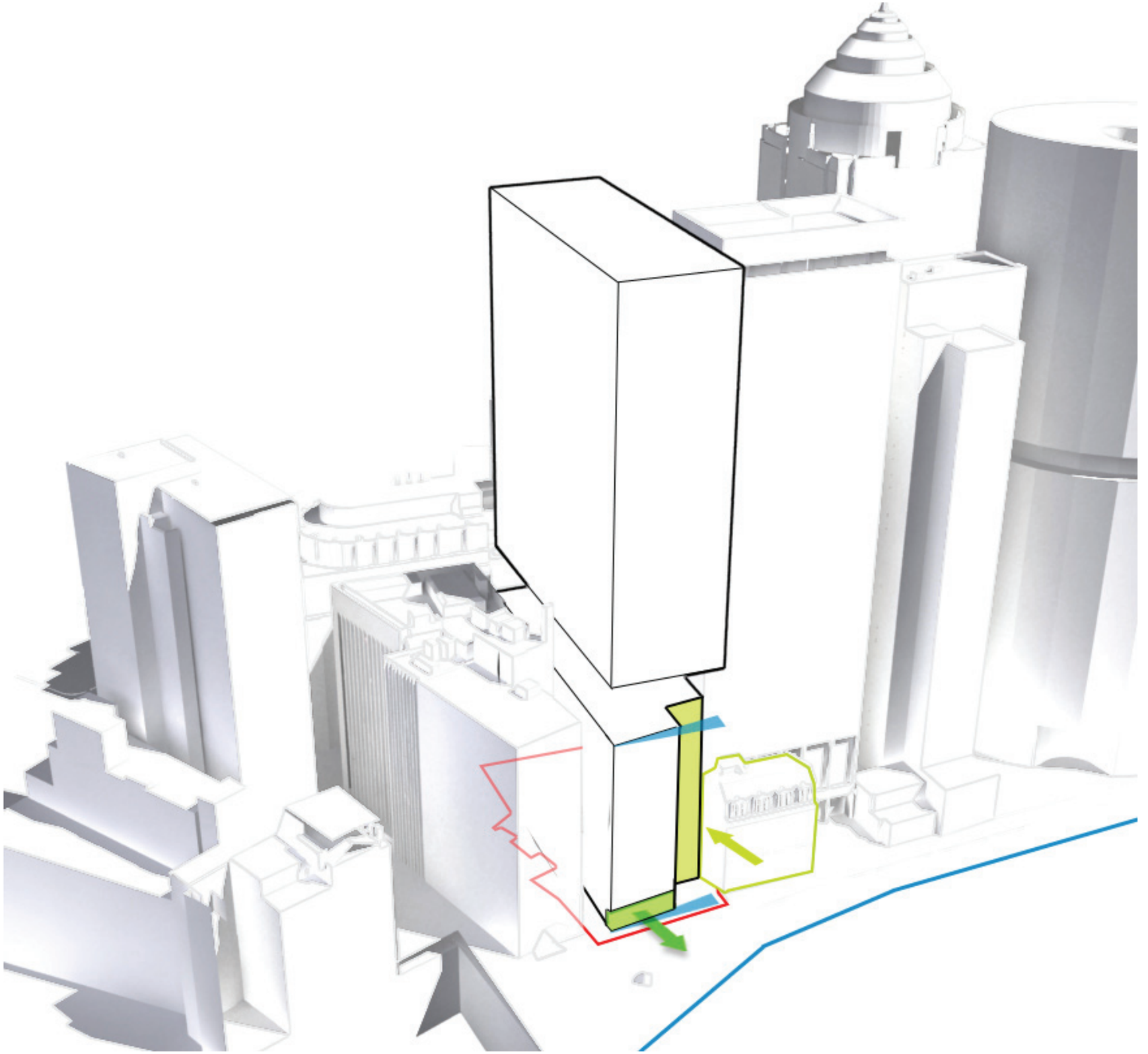


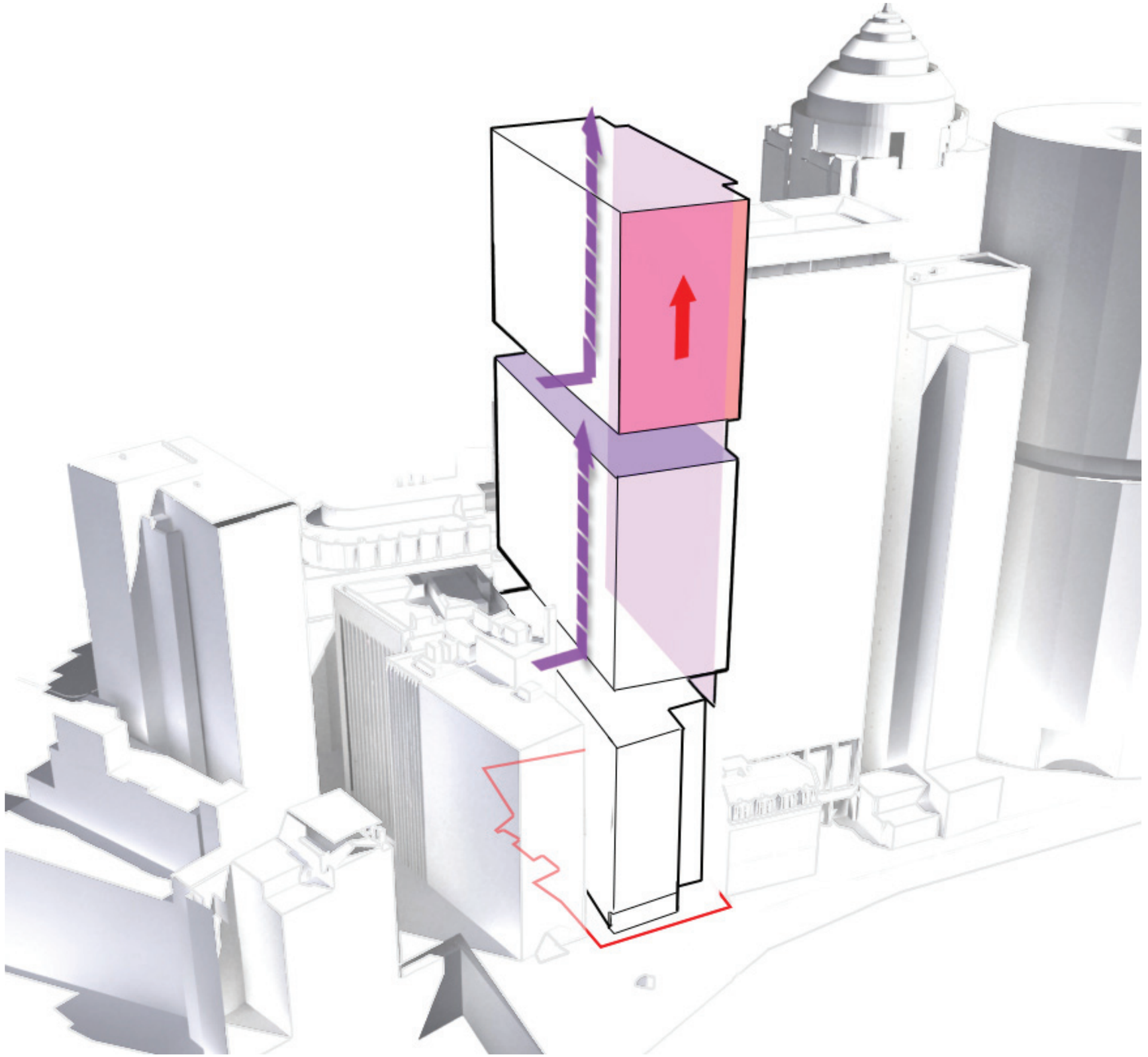


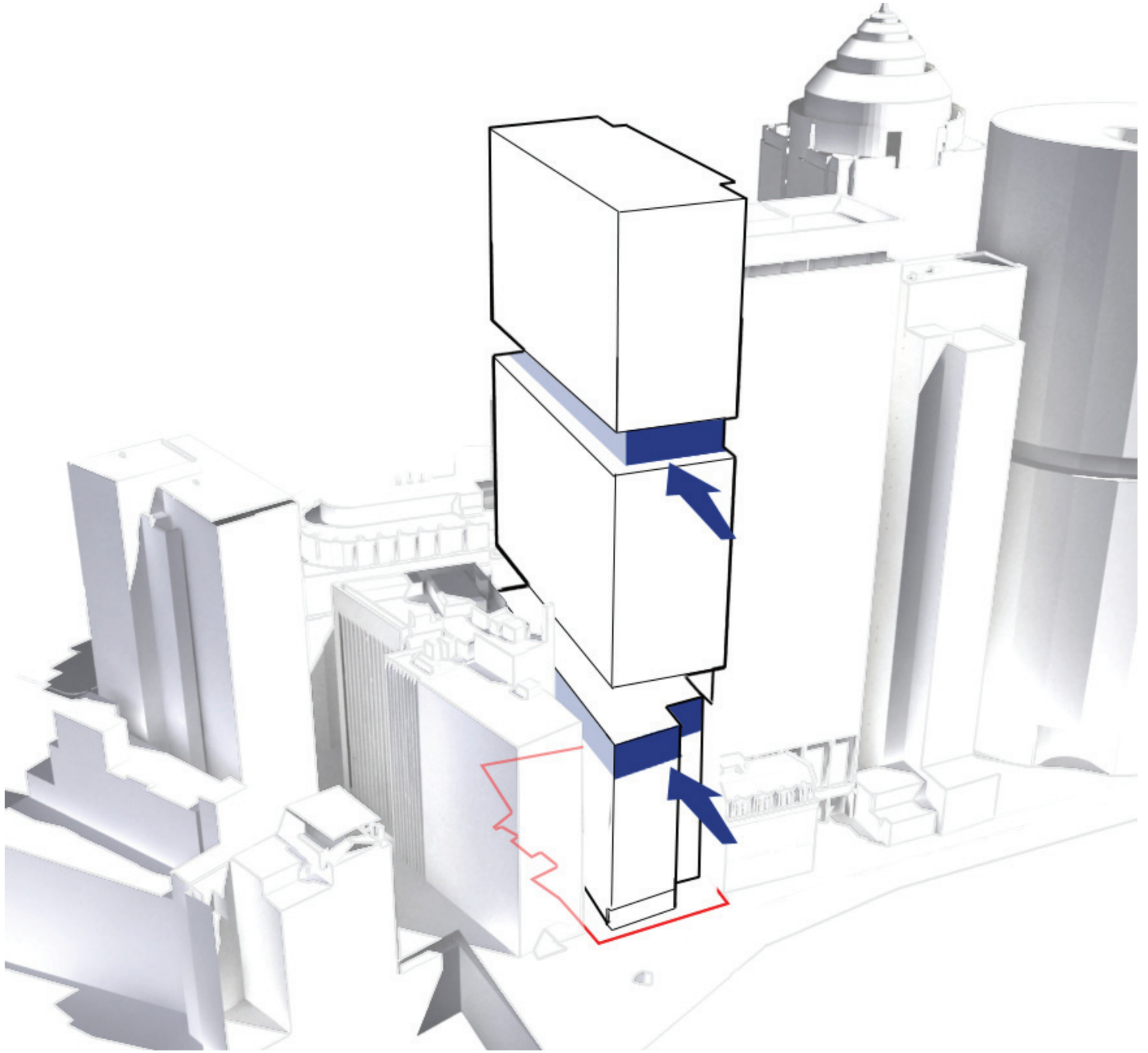


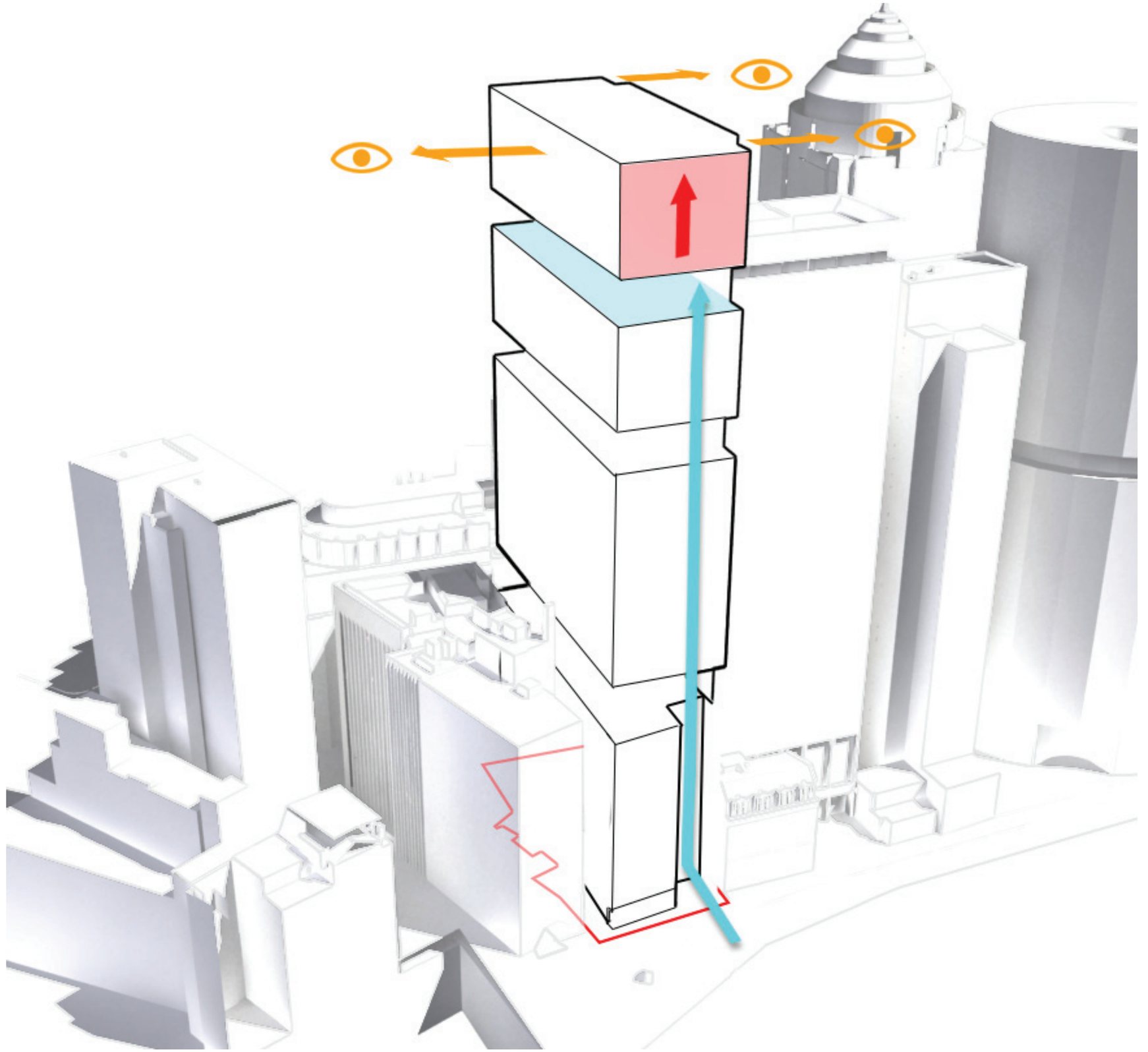


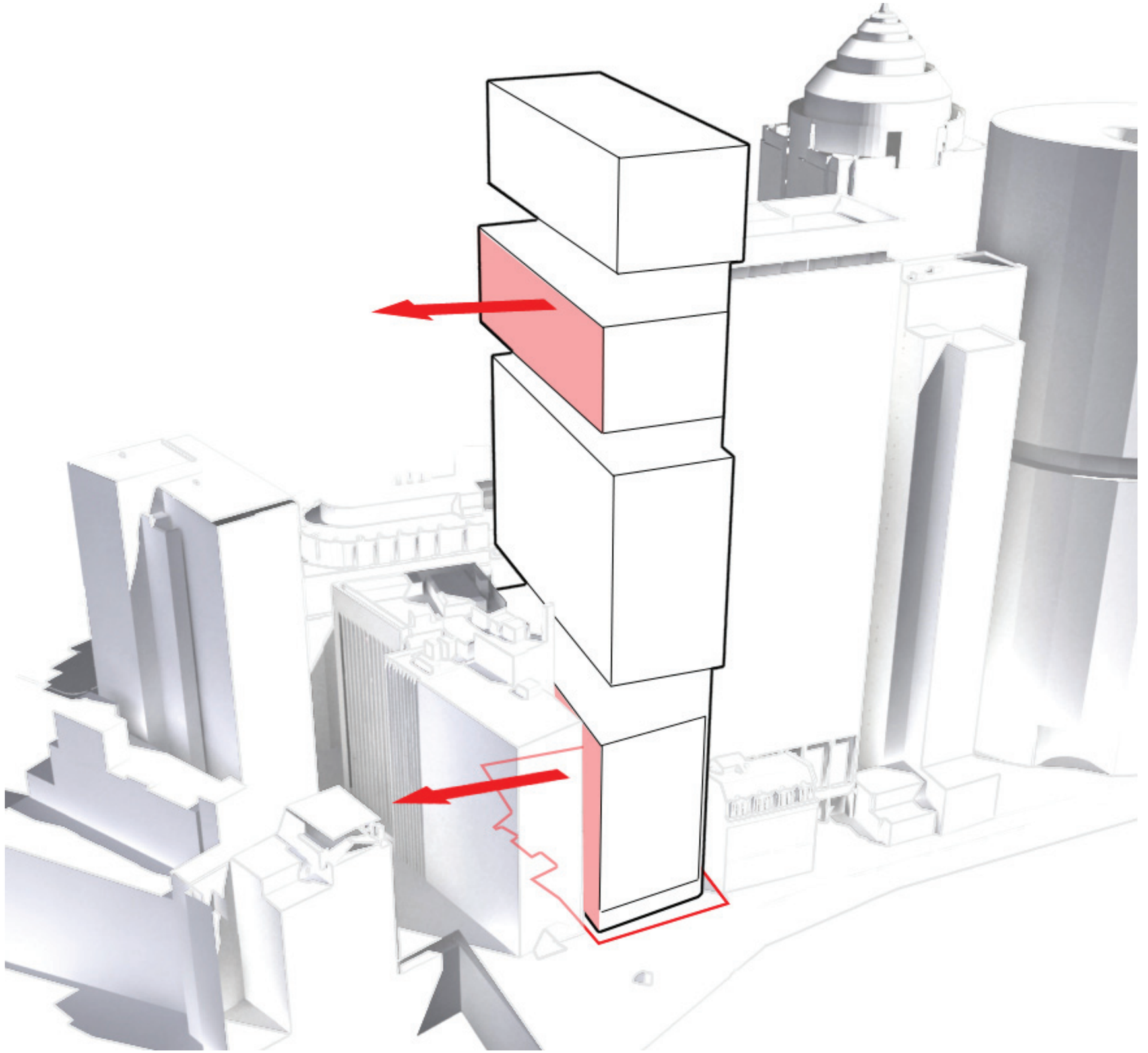




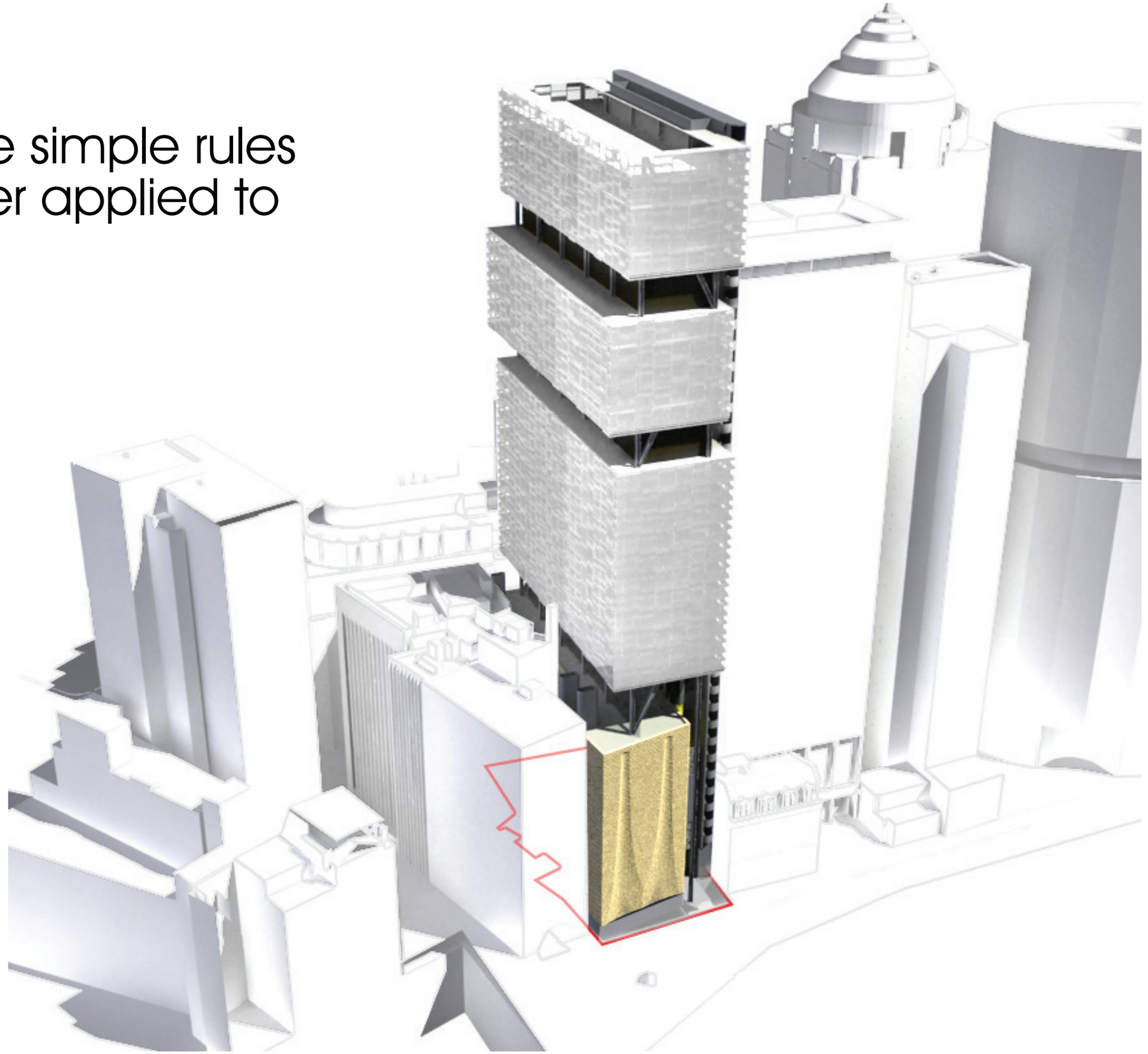








..... generated by the simple rules of logic and order applied to the program



GHD

133 Castlereagh St Sydney NSW 2000

-

T: 2 9239 7100 F: 2 9239 7199 E: sydmail@ghd.com.au

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	Natalie Moore	Pete Carson		David Wunder		25 May 2012