URBIS

PARRAMATTA POWERHOUSE (SSD-10416)

Submission made on behalf of the landowners of 32 Phillip Street, Parramatta

Prepared for Australian Unity Office Fund
July 2020

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Project code	P0024807
Report number	Final

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EXECUTIVE SUMMARY

This submission has been prepared by Urbis Pty Ltd on behalf of the landowners Australian Unity Office Fund (**Australian Unity**) of 32 Phillip Street, Parramatta (**subject site**) in response to Powerhouse Parramatta application (SSD-10416) (**Powerhouse SSDA**) which commenced exhibition on 10th June 2020.

Significantly, the Powerhouse SSDA is immediately adjacent to the north, east and west frontages of 32 Phillip Street, Parramatta. The proposed design and operation of the Powerhouse Parramatta Museum (PPM) has the potential to impact Australian Unity's existing and future development potential, which requires detailed consideration.

This submission has been informed by a detailed review of the Powerhouse SSDA Environmental Impact Statement (**EIS**) material exhibited on the Department of Planning, Industry and Environment (**DPIE**) website.

Australia Unity engaged a specialist team of consultants to advise on the potential impacts of the PPM on the subject site. The specialist consultant team have provided recommendations related to key concerns, which are outlined in this submission.

The key concerns that have been identified in this submission relate to the impacts of the PPM on the subject site relating to:

- **Impact on highest and best use redevelopment potential of 32 Phillip Street;**
- **Impact on heritage context**
- **Impact on activating the Civic Link;**
- **Operational uncertainty;**
- **Construction vehicle access and impact son Dirrabarri Lane;**
- **Wind impacts;**
- **Flooding impacts;**
- **Acoustic and vibration impacts;**
- **Dilapidation impacts;**
- **Impacts of dust;**
- **Excavation impacts;**
- **Hazardous/contaminated materials impacts; and**
- **Hoarding and materials handling impacts**

As discussed in this submission, our client requests the Minister for Planning consider the concerns and requested actions provided in determining the Powerhouse SSDA.

We would welcome the opportunity to meet with assessment officers from DPIE to discuss the content of this submission to ensure that all matters and concerns are taken into consideration in the determination.

CONCERNS AND REQUESTED ACTIONS

1. DPIE should have regard to the impact of the PPM on the highest and best use of the 32 Phillip Street site, and require the PPM to provide for appropriate building separation distance, heights of buildings, overshadowing and visual privacy such that the potential for both sites to contribute to the activation of the precinct is maximized.
2. The PPM project team should be requested to clarify the proposed landscape treatment for the Civic Link.
3. The landscape treatment on the western side of the Civic Link should allow for ground level use of the 32 Phillip Street site to include active uses that address and make the most positive contribution to activating the Civic Link.
4. The landscape treatment of the Civic Link should be open to allow pedestrian movement and visual connections between buildings on both sides of the Civic Link.
5. The landscape solution for the PPM should provide for outdoor dining opportunities including licenced areas along the western edge of the Civic Link fronting the 32 Phillip Street site.
6. The PPM project team should be requested to provide an Operation and Event Management Plan, including but not limited to:
   - Approach to provision of Operator Services
   - Methods of dealing with Public authorities
   - Precinct Interface Management Plan (Operating Phase)
   - Traffic and Pedestrian Management Plan (Operating Phase)
   - Transport and Accessibility (Operations)
   - Security Plan (Operating Phase)
   - Public use of facilities
7. The PPM should be required to work with Australian Unity and building management while developing the Construction Traffic Management Plan (CTMP) to ensure adequate site access is retained throughout the construction period.
8. Australian Unity should be provided an opportunity to review and comment on the final CTMP prior to the issue of a construction certificate and commencement of the works.
9. Heavy vehicles should be required to use the existing and future entry / exit off Wilde Avenue only.
10. The PPM project should be required to include the formalisation of the access arrangements to the 32 Phillip Street from Dirrabarri Lane, whilst maintaining the width of existing pedestrian access along the western boundary of the subject site.
11. A detailed Wind Impact Assessment should be requested using wind tunnel testing to more accurately assess the impact of the PPM on the pedestrian amenity in the surrounding streetscapes as well as the potential for activation of the eastern aspect of the ground floor of 32 Phillip Street frontage to the Civic Link.

CONCERNS AND REQUESTED ACTIONS

12. Australia Unity support the provision of amplified stormwater pipes on either side of 32 Phillip Street site.
13. The flood impacts of the final PPM design should be tested using City of Parramatta Council's more up to date, and peer reviewed, flood model when it becomes available to ensure that there will be no adverse flood impacts on the subject site or the surrounding public domain.
14. The PPM project team should be requested to provide updated flood modelling accounting for an appropriate blockage percentage for stormwater pits.
15. The civil design solution must not increase flood levels adjacent to 32 Phillip Street.
16. The PPM project team should be requested to provide independent auditing and monitoring of, or the establishment of a noise logger to monitor the implementation of controls and mitigation measures to ensure compliance with conditions of consent to mitigate adverse acoustic impacts on the subject site.
17. It is requested that contractors be required to consult with Australia Unity prior to the preparation of detailed CMP.
18. The PPM project team should be required to provide Dilapidation Reports of Council's assets to Australian Unity, in so far as it relates to the footpaths and roads in the vicinity of 32 Phillip Street.
19. Independent auditing and monitoring of the implementation of controls and mitigation strategies should be employed by the PPM project team.
20. A review of past cleaning and maintenance expenses for 32 Phillip Street is required and forecast additional cleaning and maintenance expenses to be paid for by the PPM project.
21. The PPM team should be requested to provide additional dust screening, noting the need to satisfy fresh air and / or ventilation requirements to the carpark and plant rooms on the subject site.
22. Australian Unity should be given the opportunity to review the potential impact of all excavation works, prior to the issue of a construction certificate. Details for any anchors that impact upon the subject site should be provided to Australia Unity to determine any threats or constraints to the property.
23. The site gate location in Dirrabarri Lane must ensure access is maintained to the car park entry ramp to 32 Phillip Street.
24. Clarity is sought from the PPM project team where site gates will be located on Dirrabarri Lane. Site gates should be located away from the base of the carpark ramp to the subject site, to ensure the safety of drivers exiting the carpark at 32 Phillip Street.
25. The PPM project team should be required to confirm the proposed location of the crane, its swing arc to confirm it will not swing over the subject site, and the type of crane.
26. Shade cloth must be included on the scaffolds or screens to provide dust control and privacy screening for the occupants of 32 Phillip Street working near the windows on the Northern elevation of the building.
27. Scaffolding must not impede emergency access / egress to the pump room and substation room in the North East corner of 32 Phillip Street.

INTRODUCTION

Purpose of Submission

This submission has been prepared by Urbis Pty Ltd on behalf of the landowners Australian Unity Office Fund (**Australian Unity**) of 32 Phillip Street, Parramatta (**the site**) in response to Powerhouse Parramatta application (SSD-10416) (**Powerhouse SSDA**) which commenced exhibition on 10th June 2020.

Significantly, the Powerhouse SSDA is immediately adjacent to the north, east and west frontages of 32 Phillip Street, Parramatta. The proposed design and operation of the Powerhouse has the potential to impact Australian Unity's existing and future development potential, which requires detailed consideration.

This submission has been informed by a detailed review of the Powerhouse SSDA EIS material exhibited on the Department of Planning, Industry and Environment's website.

Australian Unity

Australian Unity is a listed property fund that invests in a diversified portfolio of office properties located across Australian metropolitan and CBD markets.

Australian Unity offers investors exposure to a well-located office portfolio, with income returns underpinned by leases to investment-grade tenants and access to the property management expertise of Australian Unity Real Estate Investment.

Australian Unity's portfolio is diversified across metropolitan and CBD markets in Sydney, Adelaide, Melbourne, Brisbane and Canberra.

Consultant Team

This submission has been informed by a detailed review of the Powerhouse SSDA on the existing and potential future state of 32 Phillip Street, Parramatta. Australia Unity engaged a specialist team of consultants to review the Powerhouse SSDA, including:

- Fitzpatrick & Partners (Architecture and Urban Design)
- Molino Stewart (Flooding)
- Windtech Global (Wind)
- Acoustic Logic (Acoustic)
- AT&L (Utilities and Services)
- Cornerstone (Construction Management)
- Urbis (Planning & Transport)

PARRAMATTA POWERHOUSE (SSD-10416)

The Proposal

Environmental Impact Statement (EIS) for a State Significant Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The application seeks approval for:

- Site preparation works, including the termination or relocation of site services and infrastructure, tree removal, earthworks and remediation, and the erection of site protection hoardings and fencing;
- Demolition of existing buildings including the existing Riverbank Carpark, 'Willow Grove', 'St George's Terrace' and all other existing structures located on the site;
- Construction of Powerhouse Parramatta, including:
  - Front and back-of-house spaces;
  - Seven major public presentation spaces;
  - Studio, co-working and collaboration spaces comprising the 'Powerlab', supported by residences (serviced apartments) for artists, students, researchers and scientists, and dormitory beds for school students;
  - Education and community spaces for staff, researchers and the Powerlab Residents, the community, and education and commercial hirers;
  - Commercial kitchen comprising the 'Powerlab Kitchen' used for research and product development, and as a destination, education and event space,
  - Film, photography, and postproduction studio that will connect communities with industry and content that will interpret the Powerhouse Collection;
  - Public facing research library and archive for community, industry, students and researchers to access materials; and
- A mix of retail spaces including food and drink tenancies. Construction and establishment of the public domain within the site, comprising:
  - Hard and soft landscaping works;
  - Publicly accessible event and operational areas; − provision of pedestrian and cycling facilities.
- Operation and use of Powerhouse Parramatta including use of the public domain provided on the site to support programs and functions;
- Maintenance of the existing vehicular access easement via Dirrabarri Lane, the removal of Oyster Lane and termination of George Khattar Lane, and the provision of a new vehicular access point to Wilde Avenue for loading;
- Extension and augmentation of utilities and infrastructure as required; and
- Three (3) business identification signage zones.

Environmental impacts

The EIS is required to undertake an assessment of the environmental impacts of the project in accordance with the Secretary's Environment Assessment Requirements (SEARS) and provide recommended mitigation measures that commit Infrastructure NSW to manage and minimise potential impacts arising from the development.

The key environmental matters that have been addressed in this submission concern the impact of the PPM development on the subject site and are related to the following:

- **Impact on heritage context**
- **Impact on highest and best use redevelopment potential of 32 Phillip Street;**
- **Impact on activating the Civic Link;**
- **Operational uncertainty;**
- **Construction vehicle access and impact son Dirrabarri Lane;**
- **Wind impacts;**
- **Flooding impacts;**
- **Acoustic and vibration impacts;**
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- **Impacts of dust;**
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PARRAMATTA POWERHOUSE (SSD-10416)

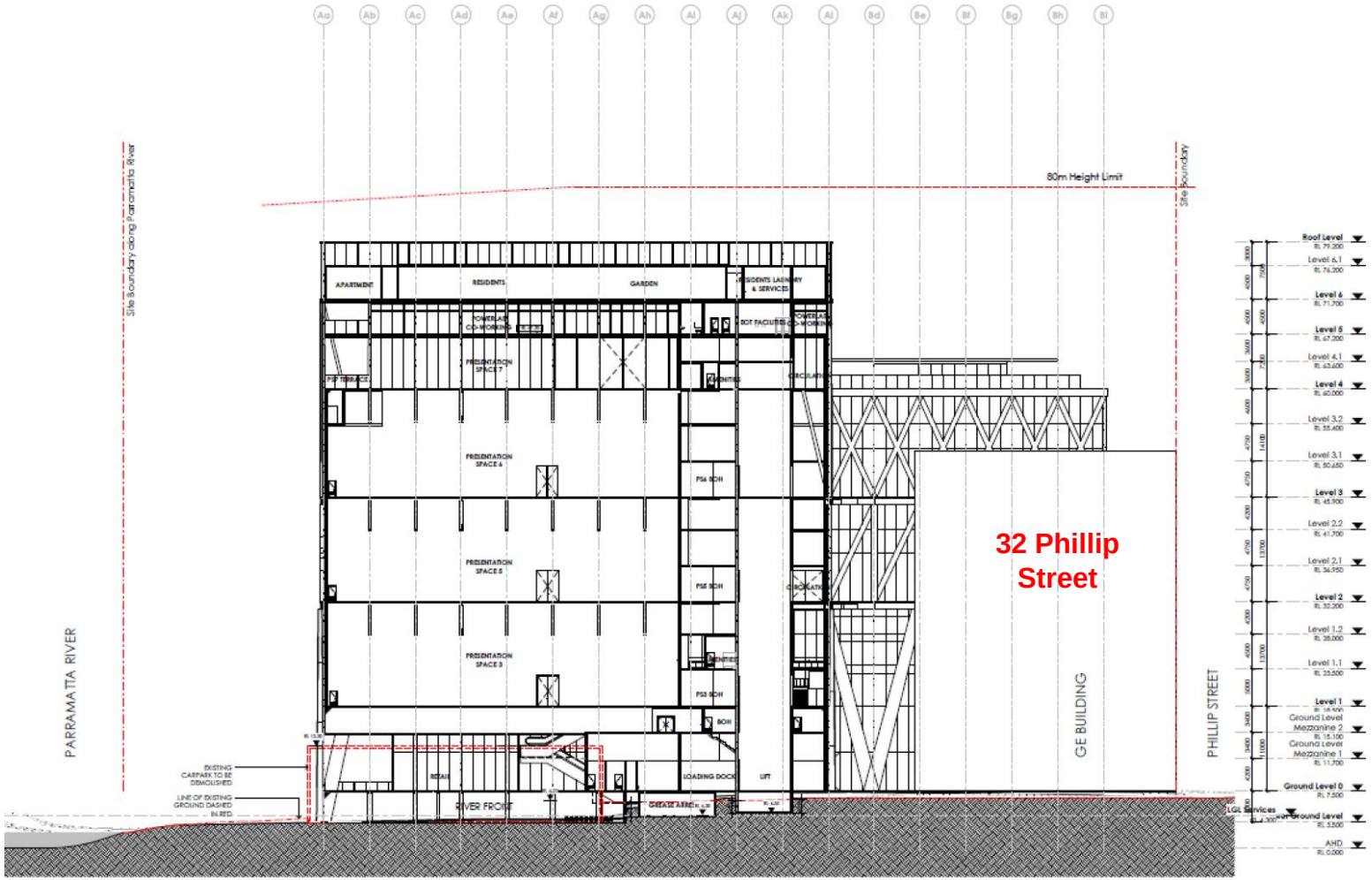


Figure 1 – Cross section through PPM and Subject Site

THE SUBJECT SITE: 32 PHILLIP STREET, PARRAMATTA

Existing Site

The site is at 32 Phillip Street, Parramatta is legally identified as Lot 12 on DP790350 (subject site) and is located within the Parramatta CBD.

The subject site has a primary frontage to Phillip Street of 26.865m and a secondary frontage to Dirrabarri Lane of 29.725m. The area of the site is 1151 square metres.

Existing development on site comprises of a B-grade office property located within the northern portion of the Parramatta commercial precinct and is in close proximity to the Church Street retail strip.

The property comprises eight levels of office space and has recently been fully refurbished under the terms of a new 10-year lease to GE Capital Finance. Each level attracts excellent natural light and offers scenic district and river views and the total net lettable area is 6,759sqm.

The property benefits from existing vehicular access from Dirrabarri Lane to an above-ground car park for tenants of the building.

The car park and loading access to the site is via Dirrabarri Lane, which is part of an easement which provides vehicle access to; the Meriton apartments; the Parramatta Riverfront (for emergency vehicles); The Riverbank car park; and the Council car park.

The existing building also benefits from a NABERS 4-star energy rating and 3.5-star water rating.

The site is well serviced by existing and future transport arrangements, including trains, buses, ferry, the future Civic Link, Parramatta Light Rail and Sydney West Metro.

The location for the PPM adjacent to the subject site presents a variety of impacts on the existing office building. The Architectural Report for the SSDA includes a number of illustrations which help to visualise these impacts.

The proposed PPM takes up the majority of the street block from Dirrabarri Lane to Smith Street with the subject site being cut out of the regular block.

The adjoining heritage listed Willow Grove, which is proposed to be demolished for the PPM, provides a number of mature trees in the front garden of the setback house. The garden is fenced to the street and provides a passive low scale neighbour to the subject site.

The proposed PPM buildings provide a continuation of the proposed Civic Link from Parramatta Square through the PPM site to the river that provides a setback to the subject site.

The short section of Dirrabarri Lane, immediately adjacent to the site, comprises a 9.2 metre wide sealed carriageway with six (6) time-restricted kerbside parallel parking spaces along its western side.
The eastern side of Dirrabarri Lane is signposted with a ‘No Stopping’ restriction.
Footpaths are available on either side of Dirrabarri Lane and they provide pedestrian access from Philip Street to the site, the Meriton apartments, the two (2) car parks, and the riverfront.

THE SUBJECT SITE: 32 PHILLIP STREET, PARRAMATTA

Site Location

Figure 2 –Location of Subject Site

THE SUBJECT SITE: 32 PHILLIP STREET, PARRAMATTA

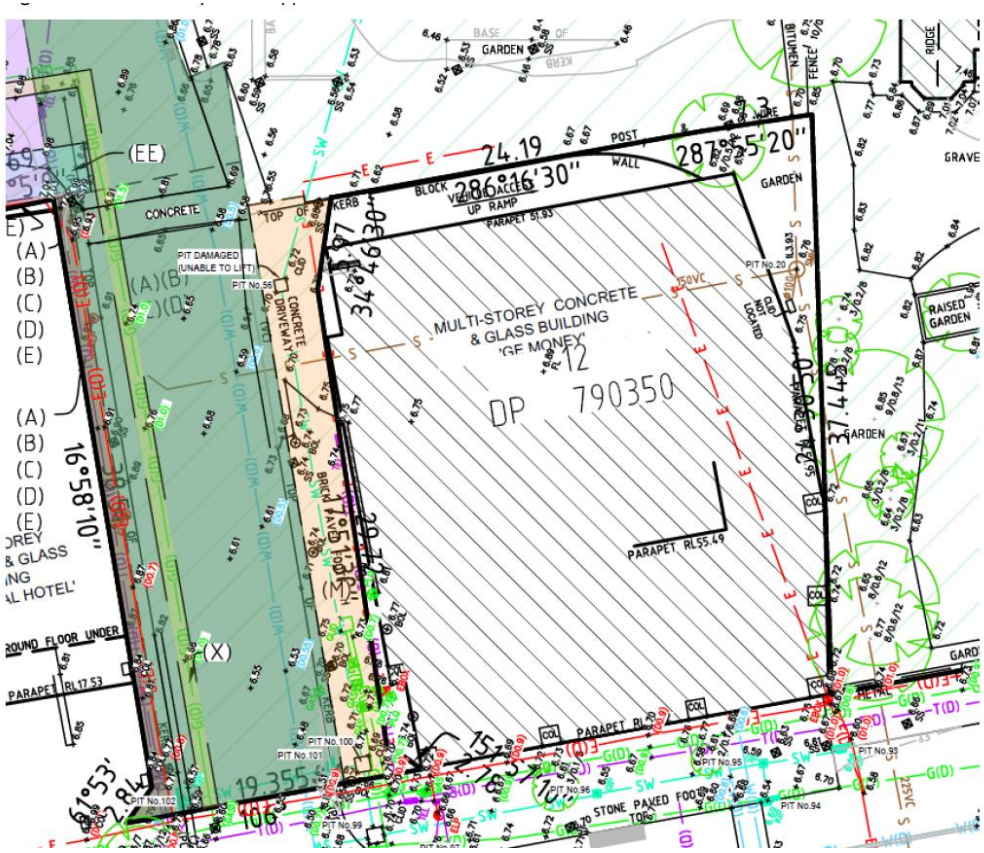


Figure 3 – Part Site Survey – Appendix E of EIS

Figure 4 – North Elevation

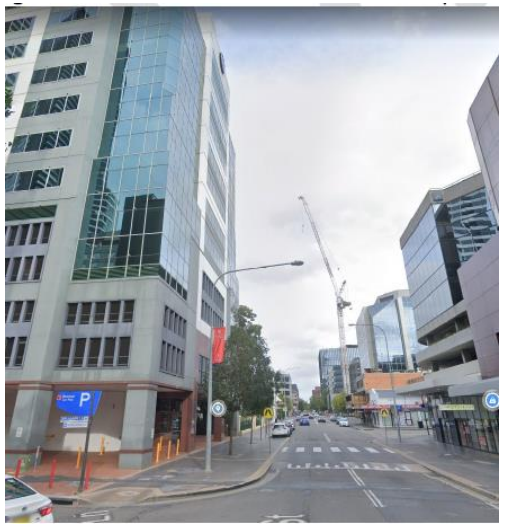


Figure 5 – South West corner from Phillip Street

Figure 6 – View of North West corner from Meriton Towers forecourt

Figure 7 – Loading dock & carpark entry view from Dirrabarri Lane

THE SITE: 32 PHILLIP STREET, PARRAMATTA

Highest and Best use

This submission has had regard to the potential highest and best use of the subject site under the planning framework for Parramatta CBD.

The controls under the existing planning framework are contained within the following:

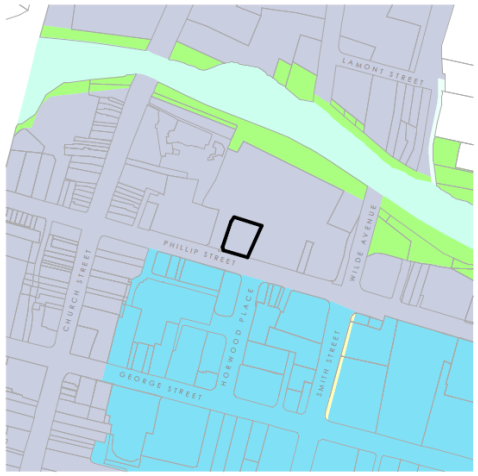
- *Parramatta Local Environmental Plan 2011*
- *Parramatta Development Control Plan 2011*

To manage significant growth and changes in the Parramatta CBD, Council has prepared a Planning Proposal to amend the planning controls. The Planning Proposal broadly seeks changes to the Parramatta CBD boundary, land use mix, primary built form controls, and the mechanisms for infrastructure delivery.

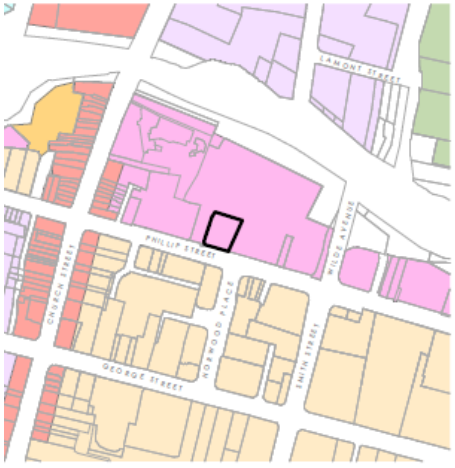
The Parramatta CBD Planning Proposal received a conditional Gateway determination in December 2018, and in March 2020 Council provided an updated planning proposal to the Department of Planning, Industry and Environment that following consultation with government agencies. The CBD Planning Proposal is awaiting a revised Gateway Determination to enable public exhibition of the proposed changes to the planning framework.

Under both planning scenarios, the site has potential for a shop top housing development with ground floor level retail or business premises and residential apartments above or a standalone commercial office building.

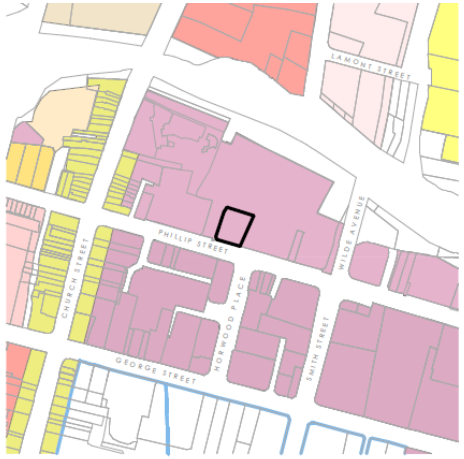
Parramatta LEP 2011



LAND ZONING
MIXED USE (B4)

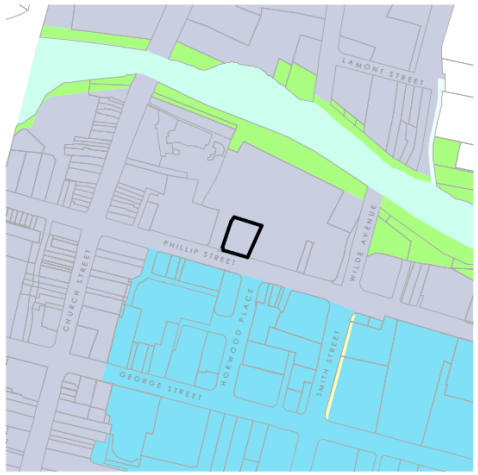


FLOOR SPACE RATIO
4.868:1 (MIXED USE 6.9:1 OR NON-RESI 7.5:1 WITH DESIGN EXCELLENCE)

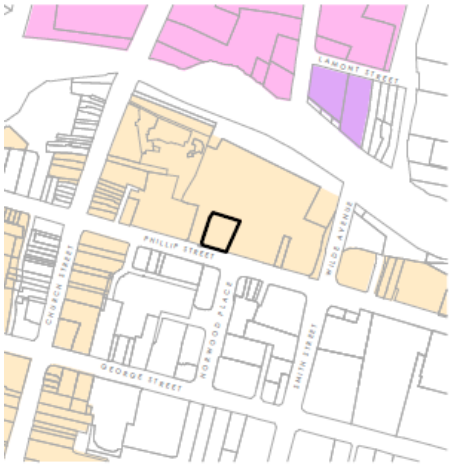


HEIGHT OF BUILDINGS
MAXIMUM 80M (100M WITH DESIGN EXCELLENCE LEP CLAUSE 7.10)

Parramatta CBD Planning Proposal



LAND ZONING
MIXED USE (B4)



INCENTIVE FLOOR SPACE RATIO
10:1 (11.5:1 WITH DESIGN EXCELLENCE LEP CLAUSE 7.10)

INCENTIVE HEIGHT OF BUILDINGS
MAXIMUM RL 211 (204.3M)

KEY CONSIDERATIONS AND CONCERNS

Consideration 1 – Impact on highest and best use of 32 Phillip Street

A built form study of the subject site has been prepared by Fitzpatrick & Partners to understand the impact of PPM on the redevelopment potential of the subject site. A range of options were explored.

Key observations are:

- The subject site is zoned B4 Mixed use, which permits a range of uses, including residential flat buildings, retail, and commercial premises;
- The current controls allow up to 80 metres in height. Subject to a satisfying the design excellence process the following can be granted by the consent authority up to 92 metres for a mixed-use development with shop top housing and 100m for an entirely non-residential development;
- The current controls identify the site on the FSR Map with a maximum of 6:1, however, given the site area is less than 1,800sqm the maximum FSR is 4.868:14:1+ (2:1*(1,151 – 500/1500)):1 = 4.868:1. Subject to a satisfying the design excellence process an FSR of can be granted by the consent authority may be increased;
- Building setback controls under the existing Parramatta DCP 2011 promote a podium and tower built form arrangement;
- Under the Parramatta CBD Planning Proposal the maximum height of building permitted under the incentivized provisions is proposed to increase to 211m - 69 storeys (mixed-use) or 52 storeys (commercial development) and 242.65 metres subject to design excellence; and
- Under the CBD Planning Proposal, the maximum FSR is proposed to increase to 10:1 plus design excellence (up to 11.5:1 FSR).

Two development scenarios based on the proposed controls under the draft CBD Planning Proposal Fitzpatrick & Partners are provided on the following pages of this submission that illustrate the development potential of the subject site:

1. Mixed use development comprising ground level retail uses, above ground car parking and shop top housing above; and
2. Non-residential development comprising ground level retail uses, above ground car parking and commercial office space above.

The PPM project has a significant impacts on the highest and best use of the site under the existing and proposed planning controls. In particular, a redevelopment scenario that includes residential uses is expected to be most impacted.

Given the close proximity of the PPM to the subject site the ability to achieve SEPP 65/Apartment Design Guideline design criteria such as solar access and building separation is likely to be severely impacted due to the proposed height and position of the proposed Powerhouse Parramatta buildings.

In addition to compliance with the relevant design criteria for residential use under SEPP 65/ ADG, the proposed development will have a significant impact on views experienced from 32 Phillip Street to the Parramatta River, district views and to Central Sydney, up to a height above the proposed PPM building.

The PPM appears to have been designed without due regard to the potential of 32 Phillip Street to contribute to the activation of the PPM site, and the precinct. This appears to be a lost opportunity.

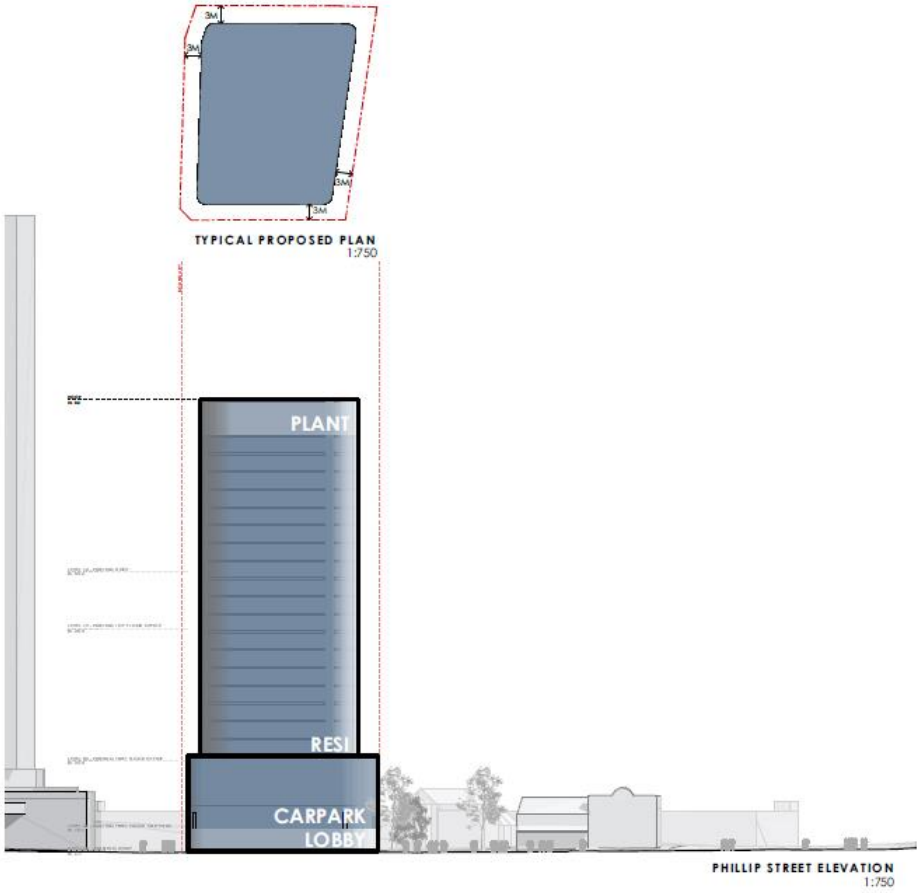
Concern and Requested Action:

1. **DPIE should have regard to the impact of the PPM on the highest and best use of the 32 Phillip Street site, and require the PPM to provide for appropriate building separation distance, heights of buildings, overshadowing and visual privacy such that the potential for both sites to contribute to the activation of the precinct is maximized.**

KEY CONSIDERATIONS AND CONCERNS

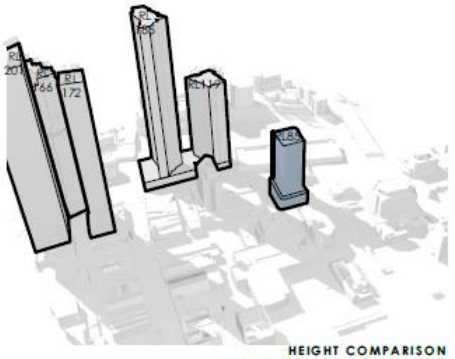
Mixed use development comprising ground level retail uses, above ground car parking and shop top housing above

OPTION V
REBUILD RESI (WITHOUT POWERHOUSE PROPOSAL)

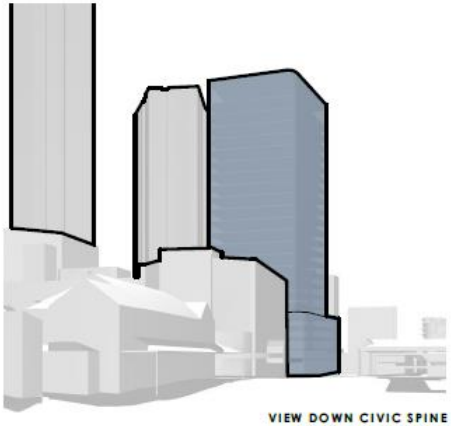


TYPICAL PROPOSED PLAN
1:750

PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO NEARBY DEVELOPMENTS



VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

OPTION V: NEW RESI BUILD TO 11.5:1 FSR (NO POWERHOUSE)		
TOTAL GBA (sqm)	GFA* (sqm)	NLA* (sqm)
781	0	0
781	0	0
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
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781	703	633
781	703	633
781	703	633
781	703	633
1,151	0	0
1,151	0	0
1,151	0	0
1,151	0	0
1,151	691	622
21,375m²	13,343m²	12,009m²
	GFA	
	11.59:1	
	OPTION V FSR	

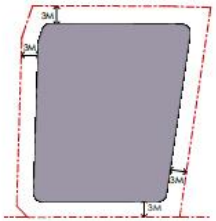
32 PHILLIP STREET 12
DEVELOPMENT OPTIONS

KEY CONSIDERATIONS AND CONCERNS

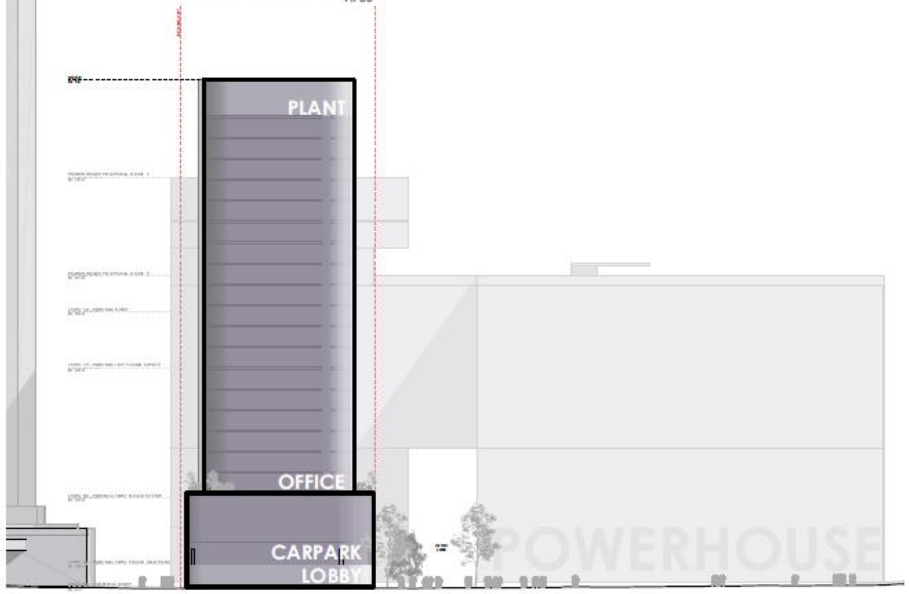
Non-residential development comprising ground level retail uses, above ground car parking and commercial office space above

fitzpatrick+partners

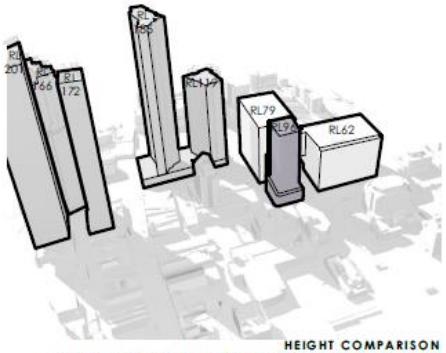
OPTION IV
REBUILD TO MAX FSR



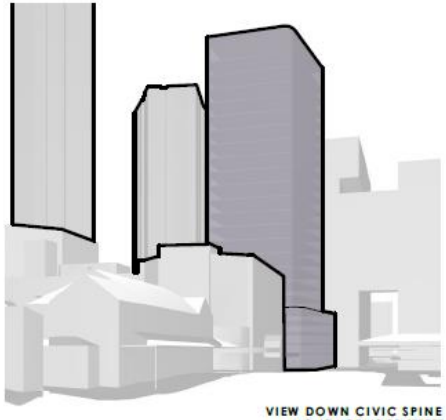
TYPICAL PROPOSED PLAN
1:750



PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO POWERHOUSE PROPOSAL + NEARBY DEVELOPMENTS



VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

OPTION IV: NEW COMMERCIAL BUILD TO 11.5:1 FSR		
TOTAL GBA (sqm)	GFA* (sqm)	NLA* (sqm)
781	0	0
781	0	0
781	703	633
781	703	633
781	703	633
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781	703	633
781	703	633
781	703	633
1,151	0	0
1,151	0	0
1,151	0	0
1,151	0	0
1,151	691	622
21,376m²	13,344m² GFA	12,009m²

11.59:1
OPTION IV FSR

KEY CONSIDERATIONS AND CONCERNS

Consideration 2 - Impact on heritage context

The subject site adjoins Willow Grove an item of heritage significance, which is locally listed under the Parramatta LEP 2011 (Item No. I737). The Powerhouse SSDA proposes to demolish Willow Grove and the St George's Terrace (Item No. 1738). These heritage items contribute to the local character and landscape setting of the riverside precinct and could be integrated into the PPM and the public domain and the planned Civic Link.

Australian Unity objects to the demolition of Willow Grove and the St George's Terrace. The local heritage listed items provide in a level of protection of the significance of these places in the planning framework, that are understood by Australian Unity to represent heritage significance that is valued by the community to be retained.

It is also understood that the City of Parramatta Council support the retention of two local heritage items and integration with the PPM.

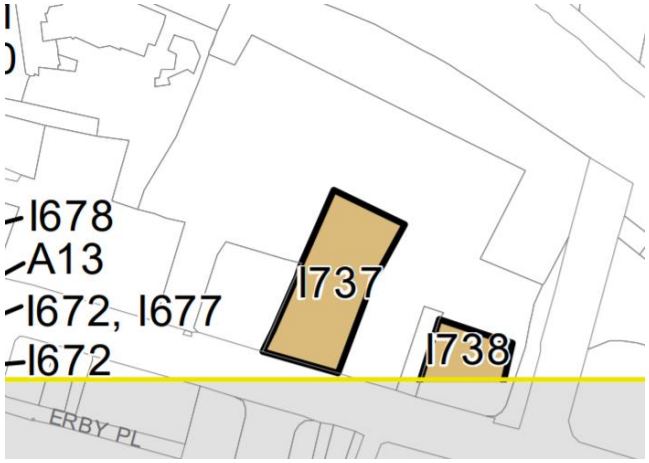

Figure 8 – Heritage Map. Source: Heritage Map - Sheet HER_009, Parramatta LEP 2011

Figure 9 – View of Willow Grove and 32 Phillip Street. Source: CoP

KEY CONSIDERATIONS AND CONCERNS

Consideration 3 – Impact on activating the Civic Link

The PPM proposes to activate the Civic Link through the site with the inclusion of three retail tenancies and the Presentation Space with a primary entry. This is considered to be a positive outcome for the precinct and for the future redevelopment of the subject site.

Concern is raised in relation to the proposal to retain dense vegetation along the western boundary of the PPM site adjoining the subject site, as this will not provide any potential to activate the western side of the Civic Link, including active uses with outdoor dining opportunities on the ground floor of the subject site.

It is assumed that the PPM design seeks to retain vegetation along the western boundary to screen the existing office building on the subject site. This is a lost opportunity to facilitate activation of both sides of the Civic Link, a key public domain element for the Parramatta CBD that is anticipated will have high levels of pedestrian movements.

There are inconsistencies with the information submitted with the SSDA EIS. The architectural, landscape plans and arborist report shows the removal of some of the trees and planting of new trees along the western boundary with the subject site. 3D photomontages submitted with the SSDA EIS show a different and less dense landscape solution to the plans submitted

The landscaping proposal immediately adjoining the 32 Phillip Street eastern frontage should facilitate activation along the Civic Link with ground level active uses as a part of a future redevelopment of the subject site.

The proposed levels in the landscape documentation and indicated on the architectural documentation seek to lift the level of the ground plane from a current RL 6.7 along our northern boundary to RL 7.5.

From the Flood report it is clear this has been undertaken to avoid flooding from the Parramatta River with the level being set higher than the modelled maximum 1% Annual Exceedance Probability (AEP) flood level with an additional allowance of 500mm freeboard.

This design strategy means the Civic Link will rise 1m across the length of the east and west boundaries from its current levels. The implications of this design strategy include reworking of the loading dock levels, car park ramp levels and potential conflicts with the ability to open up and activate the Civic Link along the eastern frontage of the subject site.

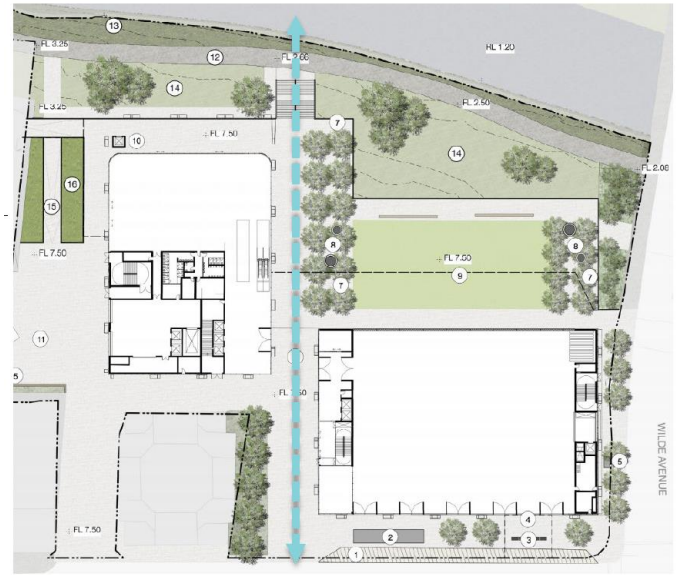

Figure 57 Civic Link and Wilde Avenue frontage
Source: McGregor Coxall

Figure 10 – Site Plan – Civic Link

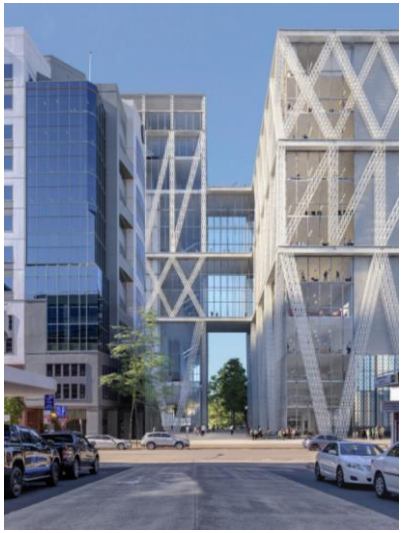

Figure 11 – 3D perspective – Civic Link

KEY CONSIDERATIONS AND CONCERNS

Consideration 3 – Impact on activating the Civic Link

Figure 12 – Proposed active uses along eastern side of Civic Link

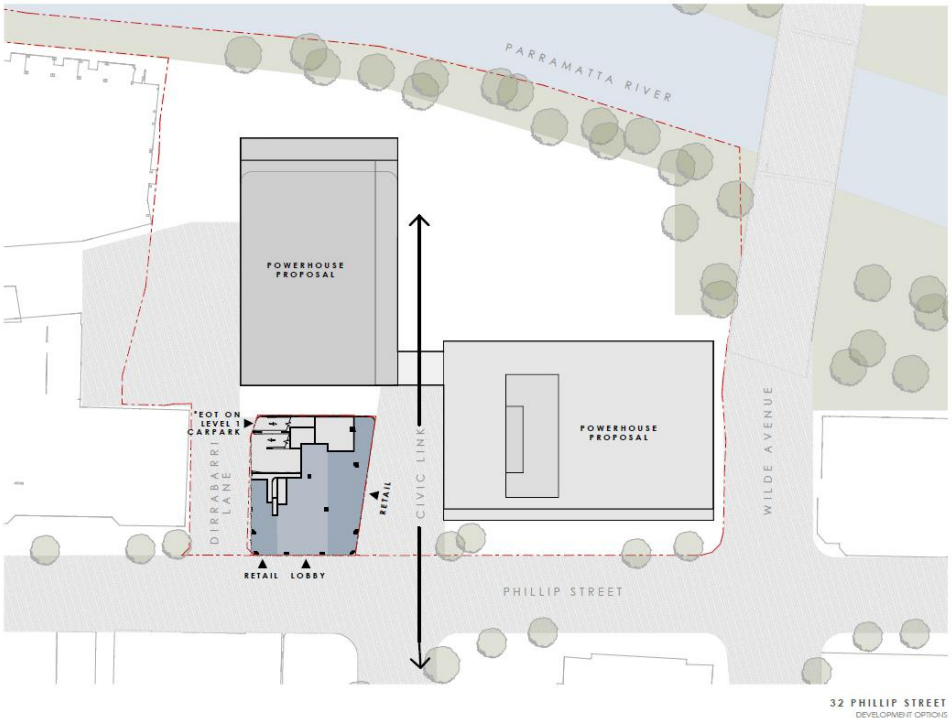

Figure 13 - Preferred landscape treatment of Civic Link optimising potential for activation

Concerns and Requested Actions:

2. The PPM project team should be requested to clarify the proposed landscape treatment for the Civic Link.

3. The landscape treatment on the western side of the Civic Link should allow for ground level use of the 32 Phillip Street site to include active uses that address and make the most positive contribution to activating the Civic Link.

4. The landscape treatment of the Civic Link should be open to allow pedestrian movement and visual connections between buildings on both sides of the Civic Link.

5. The landscape solution for the PPM should provide for outdoor dining opportunities including licenced areas along the western edge of the Civic Link fronting the 32 Phillip Street site.

KEY CONSIDERATIONS AND CONCERNS

Consideration 4 - Operational uncertainty

The PPM EIS states that the project will present an annual program of large-scale cultural and community events for up to 10,000 people that reflects the aspirations of its communities and expand the cultural calendar of Sydney and NSW. Given the significance of the PPM for the people of Parramatta and Western Sydney, it would be expected that the EIS include details on the operation and management of major events.

Concern is raised with the lack of information on how major events at the PPM are to be managed to determine potential impacts on the site and surrounding area.

Operational information and event management information is lacking from the submitted SSDA EIS.

Concern and Requested Action:

6. The PPM project team should be requested to provide an Operation and Event Management Plan, including but not limited to:

- **Approach to provision of Operator Services**
- **Methods of dealing with Public authorities**
- **Precinct Interface Management Plan (Operating Phase)**
- **Traffic and Pedestrian Management Plan (Operating Phase)**
- **Transport and Accessibility (Operations)**
- **Security Plan (Operating Phase)**
- **Public use of facilities**

KEY CONSIDERATIONS AND CONCERNS

Consideration 5 – Construction vehicle access

Urbis have undertaken an investigation of the potential transport and traffic impacts to the subject site, during the construction stage and the operations of the proposed PPM. The sections below outline the anticipated traffic impacts likely to arise from the PPM proposal, during its construction stages onto the subject site.

The TIA states that construction works at the PPM site is expected to commence in early to mid-2021 and will likely take three (3) years to complete. The durations of various construction stages are as follows:

- Site Establishment & demolition: 2-3 months
- Bulk/Detailed Excavation/Piling: 4 months
- Construction: 24 months

The work associated with the proposal will be carried out between the following hours of construction:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 5pm
- Sunday / public holiday: No work

The following three (3) vehicular access points are proposed to facilitate the construction works of the PPM:

1. Dirrabarri Lane – The primary construction vehicle access point.
2. Philip Street opposite Horwood Place – Facilitate the movement of larger construction vehicles.
3. George Khattar Lane – Provide access for smaller construction vehicles and general deliveries to the site due to the vehicle height clearance limit of 3.5 metres under the Wilde Avenue Bridge.

The construction vehicles accessing the PPM site off Philip Street and Dirrabarri Lane will use the Wilde Avenue bridge and turn right onto Philip Street.

Impacts on Dirrabarri Lane

The PPM will impact on the amenity for visitors and workers accessing the subject site via Dirrabarri Lane during the construction stage, due to heavy vehicles access and construction activities.

The TIA states that the construction works associated with the PPM development are not anticipated to have impacts on road user safety due to:

- Traffic controllers managing the construction vehicle movements on Dirrabarri Lane.
- The vehicle site access points being under the control and management of accredited traffic controllers.
- The construction vehicle routes not coinciding with the major pedestrian activity areas.
- The traffic flows associated with construction activities being relatively low.
- All footpaths and bicycle paths remaining open and unaffected during the construction period.
- Class hoardings on the northern side of Phillip Street will be established to protect pedestrians walking in an east-west direction.

The TIA states that Dirrabarri Lane will retain full vehicle and pedestrian access during construction of the PPM. However, the report does not detail how this will occur during times that Dirrabari Lane is resurfaced or other associated works.

Concerns and Requested Actions:

7. The PPM should be required to work with Australian Unity and building management while developing the Construction Traffic Management Plan (CTMP) to ensure adequate site access is retained throughout the construction period.

8. Australian Unity should be provided an opportunity to review and comment on the final CTMP prior to the issue of a construction certificate and commencement of the works.

9. Heavy vehicles should be required to use the existing and future entry / exit off Wilde Avenue only.

KEY CONSIDERATIONS AND CONCERNS

Impacts on Dirrabarri Lane

Immediately adjoining the western boundary of the subject site exists a carriage way on the Powerhouse Museum Site (Lot 2 on DP1247122), which benefits 32 Phillip Street to provide access to an existing driveway. Refer to extract of Site Survey at Figure 3.

The carriage way is currently paved as a brick footpath with bollards and the concreted driveway to existing car park at 32 Phillip Street and is not part of the existing carriage way of Dirrabarri Lane.

It is understood that that physical changes to the PPM site including the creation of Dirrabarri Lane and informal agreement between landowners has taken place without titles and rights of carriage way being updated.

The substantial works proposed to Dirrabarri Lane associated with the PPM project should to include the legal formalisation of the access arrangements to the 32 Phillip Street from Dirrabarri Lane, whilst maintaining the width of existing pedestrian access along the western boundary of the subject site.

Figure 14 – Dirrabarri Lane footpath looking North from Phillip Street intersection showing bollards along existing carriageway for vehicle access to 32 Phillip Street and currently restricting vehicle access in favour for pedestrian access.

Concerns and Requested Actions:

10. The PPM project should be required to include the legal formalisation of the access arrangements to the 32 Phillip Street from Dirrabarri Lane, whilst maintaining the width of existing pedestrian access along the western boundary of the subject site.

KEY CONSIDERATIONS AND CONCERNS

Consideration 6 – Wind Impacts

Wintech were engaged to review the Wind Impact Assessment prepared by Arup, which formed part of the PPM EIS and presents an assessment of the impact of the proposed Powerhouse Parramatta development onto pedestrians in the surrounding streets.

Wintech have advised that some of these streetscapes are particularly significant such as the Civic link to the Parramatta River, the Parramatta River foreshore, the area around the building on the subject site as well as wind conditions along Phillip St, Wilde Avenue and Dirrabarri Lane.

The Arup Wind Impact Assessment has employed an approximate method, using Computational Fluid Dynamics (CFD) rather than a more accurate wind tunnel model study. Wintech have reservations in the accuracy of CFD when assessing wind environment impacts and in particular the safety limit, due to the difficulty in being able to model transient effects such as the annual maximum gust wind speed, which one of the criterial stipulated in the local planning controls.

Parramatta DCP 2011 it provides guidance to the appropriate method of undertaking wind impact assessments for building greater than 50 metres in height, as follows:

> ***Parramatta DCP 2011 – Building Form and Wind Mitigation***
>
> *O.1 To ensure that building form enables the achievement of nominated wind standards to maintain safe and comfortable conditions in the city centre streets and lanes.*
>
> *C.4 For buildings over 50m in height, results of a wind tunnel test are to be included in the report.*

The Secretary's Environmental Assessment Requirements (SEARS) includes a requirement for preparing a wind impact assessment, which explicitly calls for wind tunnel testing to demonstrate that the wind environment in the public domain will be comfortable for its intended use.

9. Environmental Amenity

The EIS shall:

- *include a wind impact assessment, including wind tunnel testing, to demonstrate that the wind environment in the public domain will be comfortable for its intended use*

Areas of particular concern in relation to potential wind impacts identified by Wintech relate to the potential for activating the eastern aspect of the ground floor level at the subject site, which faces the Civic Link. Such activation will involve outdoor stationary activities. Given that the south-easterly winds are the most prevalent winds within this part of the Sydney Basin, there is some concern that the eastern wing of the proposed Powerhouse building on Phillip Street could result in accelerated wind flows onto the eastern aspect of the ground floor and potentially impacting the viability of the future retail tenancies along that aspect.

The Arup CFD modelling suggests that the wind conditions surrounding the proposed development are similar to those experienced surrounding the existing development on site. Arup has suggested that all locations measured will achieve the safety and comfort criteria and are identified as being appropriate for their intended use.

Arup has identified potential measures that could assist in further improving wind conditions on the site. Wind mitigation measures have not been carried into Section 8.0: Mitigation Measures of the EIS.

There are concerns that the submitted wind impact assessment has failed to properly address the SEARS, which required wind tunnel testing. Wind tunnel testing will enable the public, surrounding properties owners and the consent authority with an accurate understanding the impact on the wind environment.

Concern and Requested Action:

11. A detailed Wind Impact Assessment should be requested using wind tunnel testing to more accurately assess the impact of the PPM on the pedestrian amenity in the surrounding streetscapes as well as the potential for activation of the eastern aspect of the ground floor of 32 Phillip Street frontage to the Civic Link.

KEY CONSIDERATIONS AND CONCERNS

Consideration 7 – Flooding impacts

The SEARS sets out the requirements for the EIS to include an:

- *Assessment of flood risk in accordance with the guideline contained in the NSW Floodplain Development Manual 2005, including potential effects of climate change, sea level rise and an increase in rainfall intensity and integration with Council's wider flood risk management planning and flood modelling.*

Molino Stewart were engaged to provide advice to Australian Unity on the implications of the PPM for:

- Any changes to flooding that may impact the subject site - flow paths, flood levels, rates of flow and mitigation measures;
- The ability for the proposed public domain levels to be functional and integrated with existing and future development of subject site;
- The flood impact to meet Council's requirements and flood management policies; and
- Appropriate design responses and/or conditions to protect the subject site from adverse flood impacts.

Both the PPM site and the subject site are affected by two types of flooding:

- Riverine flooding where the Parramatta River rises and overflows onto the sites; and
- Overland flooding where water which exceeds the capacity of the underground street drainage network runs through the streets and other open space areas between buildings on its way to the Parramatta River.

Molino Stewart have advised that while low lying parts of the PPM site are affected by relative frequent floods in the Parramatta River, the subject site is not affected by riverine flooding up to and including the 1% (1 in 100) average exceedance probability (AEP) flood. Both sites are affected by the probable maximum flood in the Parramatta River which reaches about 11m AHD and would be more than 4m deep at the car park driveway into 32 Phillip St.

Drainage in Horwood Place and on both sides of Phillip Street feed into a 600mm diameter pipe, which runs along Dirribarri Lane before cutting through the at grade car park at the rear of the subject site and under the multideck carpark before discharging into the Parramatta River.

In a 5% AEP overland flow event the underground pipe network is unable to take all of the flows. As Dirribarri Lane and Willow Grove are slightly higher than Phillip St, the water ponds in Phillip Street. Once it has reached sufficient depth it flows around either side of the subject site and into the at grade car park at its rear. This is what happened on 9th February, 2020 and floodwaters entered the foyer of building on the subject site.

Ponding up to 0.5m deep at the front of the building in a 5% AEP event may occur. In the 1% AEP flood the water depths in front of the subject site would be deeper.

Riverine Flooding Considerations

To ensure that the museum development does not obstruct riverine flows and increase flood levels on neighbouring properties, it is proposed to create an undercroft space under the museum's western building and contour the outdoor areas to provide the same flood conveyance and storage as currently exists.

As the subject site is already above the 1% AEP flood levels in the Parramatta River, the museum development is unlikely to have any adverse impacts on 32 Phillip Street and the surrounding public spaces with regard to riverine flooding.

Overland Flooding Considerations

The existing 600mm diameter pipe which currently runs under Dirribarri Lane and the multideck carpark will be replaced by a 1200mm diameter pipe running under Dirribarri Lane and heading directly north to the river. On the eastern side of the subject site a new 600mm pipe will be laid to take water directly to the river between the two museum buildings.

KEY CONSIDERATIONS AND CONCERNS

Consideration 7 – Flooding impacts

Molino Stewart have raised concerns with the flood modelling prepared by Arup at Appendix O of the EIS. In particular, concerns are raised in relation to whether adequate consideration has been given to the potential blockage of stormwater pits. Blockage is stormwater pits has the potential to change the reported flood modelling results.

It is noted that City of Parramatta Council requires an assumption of a 100% blockage factor for any flood modelling associated with development applications in the CBD. This assumed blockage percentage will have a significant bearing on whether the proposed development will increase or decrease flood levels at the subject site.

The existing stormwater flows pond in front of the subject site and flow in a 600mm diameter pipe under the Dirrabirra Lane to the river. When the flows to the low point exceed the capacity of the pipe the water rises until it reaches the high point in Dirrabirra Land and the high point in Willow Grove and flows overland around the subject site.

If the inlet to the 600mm diameter pipe is partially blocked, less water will get into the pipe and more water will have to flow overland to the river in the same storm event. This means that any blockage in the pipe will increase the depth of the flows around the subject site and the depth of ponding in front of the building. A 100% blockage will mean all the flows go overland and maximise the flood depths at the subject site.

The overland flow management strategy for the PPM is to increase the capacity of the pipe in Dirrabirra Lane and to provide a new pipe to take overland flows along the eastern side of the subject site. This will effectively increase the flow rate underground and reduce the flow rate overland. Molino Stewart are concerned that if the inlets to the pipes are 100% blocked then they will make no contribution to flood conveyance and will not reduce flood levels at the subject site. As it is proposed to increase the ground levels to the east of the subject site and if Dirrabirra Lane is increased in level, then overland flow water will need to pond to a higher level in Phillip Street and increase the flood levels for the subject site.

Flooding impacts during construction phase

Section 8.10 of preliminary CMP notes mitigation measures to minimize the damage and environmental impact caused by flooding during the construction phase.

Water extraction methods during heavy rains and maintenance of erosion control measures during the works are acknowledged as important, consideration must be given to ensuring that the works do not temporarily, or permanently change the overland flow conditions and effectively create a low point at 32 Phillip Street, increasing the impacts on Australian Unities property during periods of heavy rain, which could have serious implications on the property and its tenants. Cornerstone has recommended that Australian Unity request details on how the project team will ensure that this does not occur.

Concerns and Requested Actions:

12. Australia Unity support the provision of amplified stormwater pipes on either side of 32 Phillip Street site.

13. The flood impacts of the final PPM design should be tested using City of Parramatta Council's more up to date, and peer reviewed, flood model when it becomes available to ensure that there will be no adverse flood impacts on the subject site or the surrounding public domain.

14. The PPM project team should be requested to provide updated flood modelling accounting for an appropriate blockage percentage for stormwater pits.

15. The civil design solution must not increase flood levels adjacent to 32 Phillip Street.

KEY CONSIDERATIONS AND CONCERNS

Consideration 8 – Acoustic and vibration impacts

Acoustic Logic were engaged to review the Arup “Noise and Vibration Impact Assessment” (NVIA), which forms Appendix Z of the PPM EIS in respect construction noise and vibration impacts on the subject site.

The construction works assessed with the PPM includes demolition, site preparation, construction of new structures and landscaping/external works.

The NVIA identifies the subject site as a sensitive receiver and assigns noise and vibration management levels as follows:

- External noise level of 70 dB(A), which is consistent with the ICNG. It is noted that given the nature of the existing façade of the office building at the subject site, the corresponding likely internal office noise level close to the façade would be around 40 dB(A). AS 2107-2016 recommends a maximum ambient noise level of 45 dB(A) for office space (for permanent noise sources). Therefore, at the proposed NML a low level of impact on the occupants of 32 Phillip Street is expected. However, this is not to say that construction noise will be inaudible.
- Human Comfort Criteria have been adopted in accordance with the IGNG. Again, it is noted that this does not preclude that some perceptible vibration will not be felt from time to time.
- Building Damage Criteria – Building damage criteria have been adopted based on appropriate DIN and British Standards. Given the construction of the subject building, we would expect the “Group 1” vibration levels would be applied. These vibration levels are well above the human comfort criteria and are not expected to be reached by the proposed works given this, and the nature of the proposed works.

Acoustic Logic have identified a number of issues arising out of the NVIA in respect of construction impacts, which are discussed below:

Inconsistencies between Noise and Vibration Impact Assessment (NVIA) and Construction Management Plan (CMP)

There are a number of inconsistencies between the NVIA and the CMP in respect of equipment. Notably, the CMP foreshadows the use of rock breakers (excavator mounted hydraulic hammers) during demolition, and rock saws and rock removal during the excavation phase. These are excluded from the NVIA. The CMP proposes a number of noise and vibration management measures that are not detailed in the NVIA.

Acoustic logic were not able to verify the numbers of equipment assumed in the NVIA, nor the location on site used as there does not appear to be any corresponding advice in the CMP as to numbers, nor is there information in the NVIA as to the locations of the sources used to assess noise levels.

The NVIA predicts a worst case noise level of 82 dB(A) during the works, except for the Bulk/Detailed Excavation Phase where a noise level of 83 dB(A) is predicted. These noise levels exceed the NML for 32 Phillip Street by 12-13 dB(A), which are significant exceedances. (A noise level increase of 10 dB(A) is considered to be a subjective doubling of loudness.)

Using the noise emission levels used in the NVIA, and assuming the piling works could occur as close as 10m from the Phillip Street norther façade and around 25m from the eastern façade, the resultant façade noise level from this activity would be up to 90 dB(A) outside the nearest commercial tenancies (ground level eastern façade and level 5 northern façade). This is well above the 83 dB(A) predicted as a worst case in the NVIA. The resultant internal noise level predicted in the NVIA would be around 53 dB(A) and our predictions indicate impact piling may produce up to 60 dB(A). Noise at these levels (particularly at 60 dB(A)) would impact amenity.

Given that impact piling is likely to generate higher noise levels than assumed in the NVIA, noise levels in the commercial spaces may exceed 70 dB(A) which would have a serious impact on amenity.

KEY CONSIDERATIONS AND CONCERNS

Consideration 8 – Acoustic and vibration impacts

The use of hydraulic hammers to demolish the carpark may generate similar noise levels to piling, i.e. around 85 dB(A). This is not addressed in the NVIA as it states that demolition will be undertaken using pulverisers only. Given the CMP contradicts this, the potential impact of this activity should be assessed.

Modelling of construction noise impacts has been undertaken for the NVIA. However, the NVIA does not indicate where the noise sources have been placed on the site to obtain the predicted levels. The analysis presented above indicates the assessment undertaken does not adequately assess impact at 32 Phillip Street. While a "typical" location of plant may be adequate to predict impacts to more distant receivers, the proximity of 32 Phillip Street to the site demands a more detailed assessment of impacts.

In response to the prediction of the NML the NVIA presents only very generalised and non-site specific recommendations in respect of the management of construction noise, nor does it recommend any real commitments to be adhered to by the proponents. The NVIA does recommend that the constructors develop a detailed Construction Noise and Vibration Management Sub Plan, but provides no recommendation as to the contents of the plan nor the desired outcomes.

The CMP promulgates the use of respite periods to mitigate noise from louder operations, whereas the NVIA is silent on this. It is noted that the CMP proposes a respite period between 7am and 8am and no loud works on Saturday. While this addresses residential and hotel receivers, this will concentrate louder activities to periods when the building is occupied, and away from periods when the building is unoccupied or lightly occupied.

In respect of vibration, the only activity that is likely to adversely impact the subject site is impact piling. The NVIA indicates a separation of 20m is typically required to prevent adverse impacts on amenity. It is noted that piling appears likely to be needed within that distance.

The NVIA likely under-predicts potential noise and vibration impacts at the subject site by adopting base noise emission levels that are lower than those that might potentially occur, and by not assessing activities that might occur close to the boundary with the subject site.

The NVIA provides only generalised recommendations in respect of mitigation and no commitments as to appropriate noise levels where exceedances above the Noise Management Level should require more than "reasonable and feasible" mitigation.

The NVIA recommends the contractors prepare a more detailed plan but does not stipulate what this should include or the desired outcome in respect of impact on 32 Phillip Street.

Section 8.1 of preliminary CMP describes a number of noise and vibration mitigation measures that would apply to the works. Included in this list is:

- The Contractor will ensure that intrusive activities such as demolition or piling works should be undertaken after 8am, and
- Only undertaken over continuous periods not exceeding 3 hours with at least a one hour respite period in between.

The IGNG requires that consultation with affected receivers be undertaken prior to the development of any management plans.

Concerns and Requested Actions:

16. The PPM project team should be requested to provide independent auditing and monitoring of, or the establishment of a noise logger to monitor the implementation of controls and mitigation measures to ensure compliance with conditions of consent to mitigate adverse acoustic impacts on the subject site.

17. It is requested that contractors be required to consult with Australia Unity prior to the preparation of detailed CMP.

KEY CONSIDERATIONS AND CONCERNS

Consideration 9 – Dilapidation impacts

Cornerstone were engaged to undertake a review of the preliminary CMP, prepared by Aver and submitted with the PPM EIS. The purpose of the review is to examine the potential impacts of construction of the PPM on the subject site and its tenants at the subject site.

Impacts on the subject site may arise from the PPM construction activities including;

- Vibration from demolition of existing structures or from socketing new CFA piles into sandstone bedrock
- Plant or machinery failure / impact
- Heavy Construction Vehicle Traffic

Cornerstone have provided recommendations in relation to mitigating the impacts of the PPM construction on dilapidation of the building at the subject site.

Concern and Requested Action:

18. The PPM project team should be required to provide Dilapidation Reports of Council's assets to Australian Unity, in so far as it relates to the footpaths and roads in the vicinity of 32 Phillip Street.

Consideration 10 – Impacts of dust

Cornerstone has provided advice and recommendations in relation to dust impacts associated with construction activities of the PPM on the subject site.

Section 5.1 of the EIS Wilkinson Murray Air Quality Report states;

> *"The preceding assessment of potential dust impacts from the proposed construction works indicates that, in the absence of specific mitigation measures, the works have a high risk of dust soiling impacts and a low risk of health impacts."*

The close proximity of demolition and construction and the associated increased levels of dust soiling from the works, are of concern as they will have a detrimental impact on the maintenance and operation of mechanical plant rooms, air conditioning filters and above ground carparking in the building as fine dust particles pass through the mechanical louvers (area defined by orange arrows) and carpark screens (area defined by red arrows) on the Western and Northern elevations of the existing building on the subject site.

In addition, the glass façade of the existing building on the subject site will be subject to high levels dust soiling from the PPM construction activities, and as a result the façade will require additional scheduled cleaning.

Whilst Section 8.4 of the Preliminary CMP and the Wilkinson Murray report nominates a number of mitigation strategies, these will not prevent additional maintenance and cleaning that will be incurred by Australian Unity over the 24 month construction period.

Concerns and Requested Actions:

19. Independent auditing and monitoring of the implementation of controls and mitigation strategies should be employed by the PPM project team.

20. A review of past cleaning and maintenance expenses for 32 Phillip Street is required and forecast additional cleaning and maintenance expenses to be paid for by the PPM project.

21. The PPM team should be requested to provide additional dust screening, noting the need to satisfy fresh air and / or ventilation requirements to the carpark and plant rooms on the subject site.

KEY CONSIDERATIONS AND CONCERNS

Consideration 11 – Excavation impacts

The deepest known excavation associated with the PPM is identified near the north boundary of the subject site associated with base of the large goods lift pit, BOH 3 that will serve the loading dock in the proposed western building. At this location, the existing ground level is approx. 6.70m. The lift (BOH L3) is nominated as having an excavation level at the base of the lift pit of 4.75m AHD, approximately 2m below the existing bitumen carpark, and approximately 12m north of the boundary with the subject site.

In addition, pier caps on the perimeter of the building line will need to be excavated, which at this point have not had levels nominated.

Consideration must be given to how Australia Unity will be able to ensure ongoing maintenance and emergency access to the substation room and pump room in the North Eastern corner of the subject site in light of this excavation and future construction activities in this part of the PPM site.

Cornerstone have identified other excavation that has the potential to impact upon 32 Phillip Street, would include service trenching in connection with new or diverted services which may be in the areas adjacent to the boundaries of the subject site, or removal of hazardous materials.

Section 12.2 of Aver's preliminary CMP sets out their understanding of the areas of cut required at this point in time, and acknowledges that;

> "*where excavation works are required close to the boundary and / or neighboring buildings further consideration with the zone of influence will be required, it is anticipated a shoring system such as either contiguous piled walls, or soldier pile walls with infill shotcrete panels would be implemented*"

Given this uncertainty Cornerstone has provided recommendations to ensure that Australia Unity is adequately consulted:

Concern and Requested Action:

22. Australian Unity should be given the opportunity to review the potential impact of all excavation works, prior to the issue of a construction certificate. Details for any anchors that impact upon the subject site should be provided to Australia Unity to determine any threats or constraints to the property.

Consideration 12 - Hazardous / Contaminated materials impacts

Section 10.4 of the preliminary CMP sets out controls and safeguards related to the identification, removal and disposal of hazardous / contaminated materials on the site, and Appendix L to the EIS, JBS&G Detailed Site Investigation (DSI) into potential contamination provides further detail on the outcomes of the detailed site investigation and subsequent remedial action plan (RAP) developed by JBS&G.

Australian Unity are considering independent auditing and monitoring of the planning and execution of the works and the RAP by the museum project team, to ensure that commitments are satisfied, given the proximity of 32 Phillip Street and the open carpark and tenants of the building.

KEY CONSIDERATIONS AND CONCERNS

Consideration 13 - Hoardings and Materials Handling Impacts

Hoardings

Cornerstone have reviewed the proposed hording and materials handling for the PPM. Figure 6 in the preliminary CMP illustrates the location of the proposed work zone in Phillip Street and the perimeter site boundary hoarding.

Concern is raised in relation to the boundary hoarding and entry into the PPM site off Dirrabarri Lane, and the location of site gates at the end of the lane and the intersection of the carpark entry ramp to the subject site.

As recommended above, heavy vehicle access to the PPM site should be limited to Wilde Avenue, especially during the demolition, excavation and piling, and early structure phases of the project to take pressure off Dirrabarri Lane and Phillip Street.

Materials Handling

The preliminary CMP sets out plans for craneage and materials handling, noting that a fixed crane (Favco or Hammer-head type) will be utilized on the site. Further details are required on the proposed location of the crane, its swing and the type of crane to be used.

Scaffold

Section 13.9 of preliminary CMP confirms that scaffolding around the perimeter of the new building is anticipated. Further details of proposed scaffolding are required to ensure dust control and privacy, and to aviod impeding emergency access/egress to the pump room and switch room in the North East corner of the subject site.

Concerns and Requested Actions:

23. The site gate location in Dirrabarri Lane must ensure access is maintained to the car park entry ramp to 32 Phillip Street.

24. Clarity is sought from the PPM project team where site gates will be located on Dirrabarri Lane. Site gates should be located away from the base of the carpark ramp to the subject site, to ensure the safety of drivers exiting the carpark at 32 Phillip Street.

25. The PPM project team should be required to confirm the proposed location of the crane, its swing arc to confirm it will not swing over the subject site, and the type of crane.

26. Shade cloth must be included on the scaffolds or screens to provide dust control and privacy screening for the occupants of 32 Phillip Street working near the windows on the Northern elevation of the building.

27. Scaffolding must not impede emergency access / egress to the pump room and substation room in the North East corner of 32 Phillip Street.

CONCLUSION

Thank you for the opportunity to provide this submission on the Parramatta Powerhouse (SSD-10416) on behalf of Australian Unity, the landowners of 32 Phillip Street, Parramatta, which immediate adjoins the PPM site.

As discussed in this submission, our client requests The Minister for Planning to consider the recommendations provided in determining the development application.

We would welcome the opportunity to meet with the Department of Planning, Industry and Environment to discuss the content of this submission to ensure both our client's and Department's vision for a prominent government site is achieved.

Should you require additional information regarding this submission, please do not hesitate to contact me on 02 8233 9953.

Yours sincerely,

Murray Donaldson
Director, Planning
Urbis Pty Ltd
mdonaldson@urbis.com.au

APPENDICES

APPENDIX A – REVIEW OF EIS AND BUILDING ENVELOPE STUDY, PREPARED BY FITZPATRICK & PARTNERS

fitzpatrick+partners

32 Phillip Street

Parramatta

Response to the Powerhouse EIS

Fifteenth of July, 2020

James Freeman via Cris Van Haren
TSA Management
Level 15, 207 Kent Street,
Sydney, NSW 2000

Dear Cris

Re: 32 Phillip Street Parramatta
Review of Powerhouse EIS documents

As requested we have reviewed the documents from the EIS for the Powerhouse Museum and have prepared a series of design studies in line with your brief which form a stand alone report relative to 32 Phillip Street.

In this short report we cover off the remaining items in your scope relating to the assessment of the various aspects of the architectural and landscape / public domain design for the proposed Powerhouse Museum on the adjacent site as pertinent to the Australian Unity site at 32 Phillip Street. This report should be read with the design studies to inform the next steps of Australian Unity's thinking on the site and their responses to the EIS.

It is our summary that the development of the Powerhouse Museum on the adjacent site will have detrimental impacts on the subject site due to its size and location however as a commercial development these impacts on views and vista are not protected and as such don't form the basis of an arguable objection. Perhaps the largest impact is on the future redevelopment of the site as the size and location of the proposed Powerhouse effectively nullifies the sites potential as a residential conversion or residential new build due to site separation, over viewing and over shadowing from the Powerhouse on the 32 Phillip Site.

All images used in this report come from the publically available information in the EIS.

We trust this information meets with your requirements but if not please feel free to contact the undersigned.
Yours Sincerely,

Paul Reidy
Partner

fitzpatrick+partners

A Level 6, 156 Clarence Street
Sydney NSW 2000

P +61 2 8274 8200

E enquiries@fitzpatrickpartners.com

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32 Phillip Street

Powerhouse EIS response

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Associates
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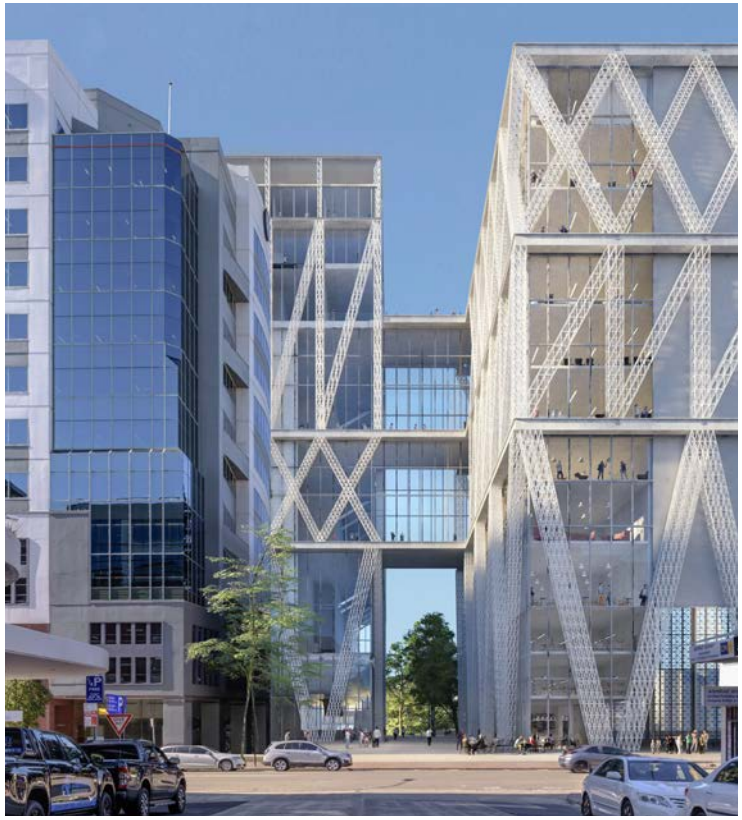
32 Phillip Street
Powerhouse EIS response

1 – REVIEW OF APPENDIX B OF THE EIS (Architecture Report and Plans)

The location for the new Powerhouse Museum adjacent to 32 Phillip Street presents a variety of impacts on the office building. The Architectural Report for the SSDA includes a number of illustrations which help to visualise these impacts (both positive and negative). The adjacent view from the south looking towards the site and the through site connection to the river illustrates the scale and proximity of the proposed building relative to 32 Phillip Street.

The proposed Powerhouse takes out the rest of the block from Dirrabarri Lane to Smith Street with 32 Phillip being cut out of the regular block. The adjoining heritage listed Willow Grove, which is slated to be demolished to make way for the new Museum, provides a number of mature trees in the front garden of the setback house. The garden is fenced to the street and provides a passive low scale neighbour to the building at 32 Phillip.

The proposed buildings provide a continuation of the proposed Civic Link from Parramatta Square through the Powerhouse site to the river giving a setback against 32 Phillip and turning a passive heavily foliaged face into a potentially active pedestrian thoroughfare along our eastern facade.



Continued.

SETBACKS AND ADJACENCY

The new buildings orientate themselves largely to the north and the river frontage with the Civic Link connection directing people through to this face. In terms of large scale events it is envisaged that the river frontage and Civic Link will be the primary spaces.

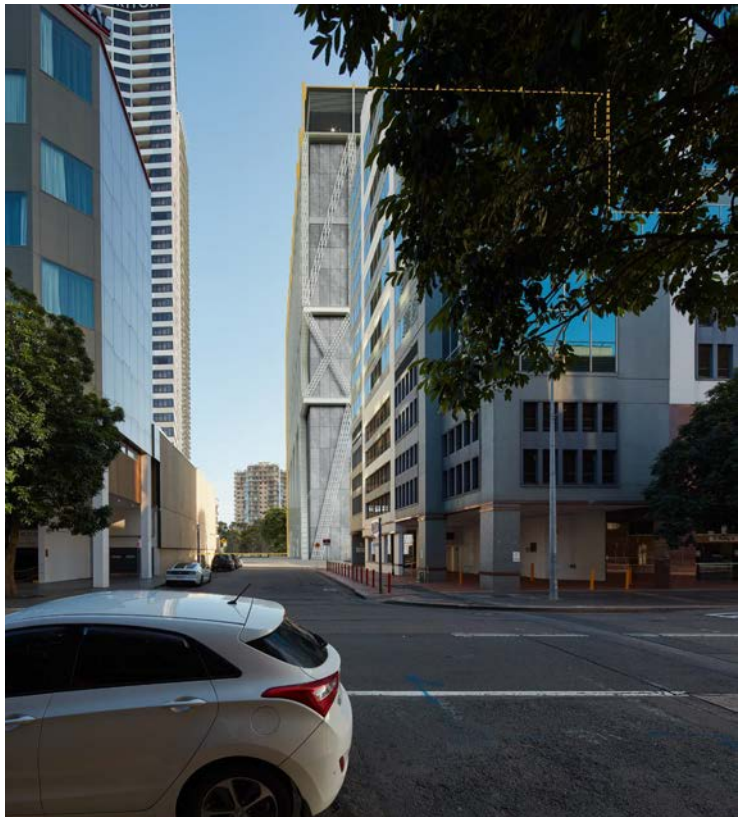
On the Civic Link side, 32 Phillip is between 18-21.5m from the boundary to the face of the Powerhouse, which is actually setback from the street face by 9.3m to allow for coach drop-off and anticipated exhibit loading directly into the Phillip Street Frontage. The western Building is 8m from the northern boundary of 32 Phillip. The boundary of our site is nor orthogonal and the current buildings face is typically 21m+ from the Powerhouse along the Civic Link and 11m along the north face. The uses along these two faces differ with the ground floor along the Civic Link being largely retail and along the northern face largely BOH uses and circulation.

It appears that Dirrabarri Lane will retain its largely back of house function for the Powerhouse site and the adjoining residential sites along the river frontage.

VIEW LOSS AND OVER-SHADOWING

Given the vertical scale of the museums east and west wings both of which are larger than the current 55 m tall 32 Phillip street building, at 62 and 79m respectively. together with their proximity and orientation they obscure almost all views to the north and east of the building including distant views back towards the Sydney CBD.

Furthermore the buildings create substantial overshadowing of the façades of the building and indeed of the entire site, particularly in the winter half of the year, which substantially limits any future development of the site into a residential development due to the inability of providing minimum hours of sunlight into an appropriate proportion of apartments year around as required by the Apartment Design Guidelines. It should be noted that residential is a permitted use on the site and but for the design, location and scale of the Powerhouse might be a highest and best use alternative as the building is approaching a series of end of life decisions on services and facade.



Continued.

POTENTIAL INTEGRATION OPPORTUNITIES AND ISSUES.

Obviously the location of such a significant cultural institution next door offers a number of possible benefits including opportunities to review the ground level of the building to incorporate retail amenity facing both Phillip Street and the Eastern face onto the Powerhouse site.

The Powerhouse plans suggest a grove of trees along out eastern boundary fronting the Civic Link which could in essence replicate the current boundary condition or thought could be given to opening up the frontage of 32 Phillip at ground to the new Civic Link activating both sides of the link.

The new Development will also bring a lot more pedestrian and bus traffic across the front door of the building as well as an increase in BOH activities along Dirrabarri Lane.

The frontage to the north which is setback from our northern boundary by 8m allows access to waste rooms and other services at ground which indicate the intended expression of this face as back of house only. This is consistently applied as the building rises with switch rooms and generator rooms along this face on level 1 and BOH circulation above which will indicate a largely inactive facade. Given the lower levels of 32 Phillip are car parking and services along this face this is viewed as appropriate.

It should be noted that the top level of the western building which currently sits 14m above the height of 32 Phillip Street contains short stay residential accommodation including 3 of the 40 residential units that have frontages towards 32 Phillip, one of which has its only frontage directly towards 32 Phillip. The setback of these units from our development may cause some concern for any future development that contemplates an increase in height or widening of the built envelope on the site.

While we understand that the ADG will not apply to these units clarity on the classification of these serviced apartments on the roof is recommended.

2 – REVIEW OF Appendix C of the EIS (Landscape Plans)

The Landscape report and indeed the landscape design follows the architectural lead and concerns itself largely with the river frontage and secondarily the Civic Link. It appears from the schematic design report that most trees adjacent our eastern boundary are to be considered for removal and replacement with Mature Native trees or in some cases retention of some of the existing. All other boundary conditions are covered in the rather open ended definition of pavement which in the architectural report is referred to as fine concrete.

More detail of how the proposed boundary conditions are to be considered is recommended. The boundary fence to our eastern and northern boundaries appears to be on our site and the ownership of this should be established. Currently our buildings northern face presents with a series of BOH elements from substations to car park ramps at ground with office facade above.

As noted previously in the case of our eastern boundary to the Civic Link the opportunity of not planting this edge or planting it such that the ground floor face to the Civic Link may be activated is recommended. It would appear that a reworking of the ground level of 32 Phillip could take advantage of the Civic Link in particular together with the increased pedestrian activity along Phillip Street to include some ground level retail amenity.

3 – REVIEW of the General EIS documentation

It should be noted that the proposed levels in the landscape documentation and indicated on the architectural documentation seek to lift the level of the ground plane from a current RL of 6.7 approximately along our northern boundary to 7.5.
From the Flood report it is clear this has been undertaken to avoid flooding from the Parramatta River with the level being set higher than the modelled maximum 1% Annual Exceedance Probability (AEP)
flood level with an additional allowance of 500 mm freeboard. However this means that the Civic Link will rise 1m across the length of our east and west boundaries from its current levels. The implications of this include reworking of our loading dock levels, car park ramp levels and potential conflicts with the ability to open up to the civic Link along the eastern frontage.

The Infrastructure Services Strategy and the Survey point to a sewer main through 32 Phillip that connects into points further on in the Powerhouse site. This main is apparently a 150 concrete encased main running east west which connects to a 225 vitrified clay main running north south connecting to a 225 vitrified clay main running in Phillip Street. The proposed development doesn't look to utilise the sewer infrastructure under 32 Phillip instead connecting to the north and east of the powerhouse site.

4 – Recommendations

We would recommend clarity be requested on the following items;

- Residential use on the top level and confirmation that the ADG will not be applied to these units.
- Level changes along both Darribarri Lane and the proposed Civic Link and how these will be handled in terms of interface to 32 Phillip Streets dock, parking access and ground level tenancies.
- Options for the interface of Civic Link and 32 Phillip in terms of landscaping and possible ground level activation from 32 Phillip.
- Clarity on the use of services that pass under 32 Phillip in particular that the sewer line under the building will be redundant and wont impede the site of 32 Phillip.
- Special mention should be made of the impact the Powerhouse Development has on the future of 32 Phillip in relation to redevelopment options and the loss of opportunity in terms of residential highest and best use redevelopment.

5 – Redevelopment options

Refer seperate report

32 PHILLIP STREET

PARRAMATTA, NSW

DEVELOPMENT OPTIONS
Wednesday, 22 July 2020

fitzpatrick+partners

CONTENTS

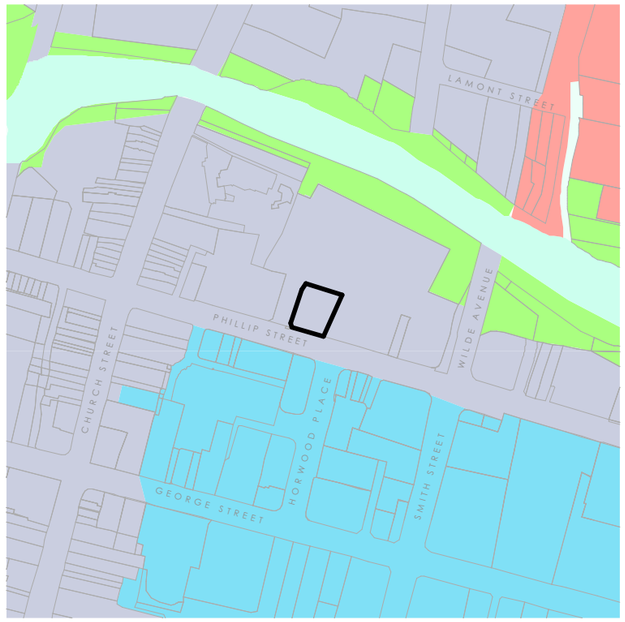
2011 PARRAMATTA LEP CONTROLS

2011 PARRAMATTA LEP
CLAUSE 7.10 DESIGN EXCELLENCE

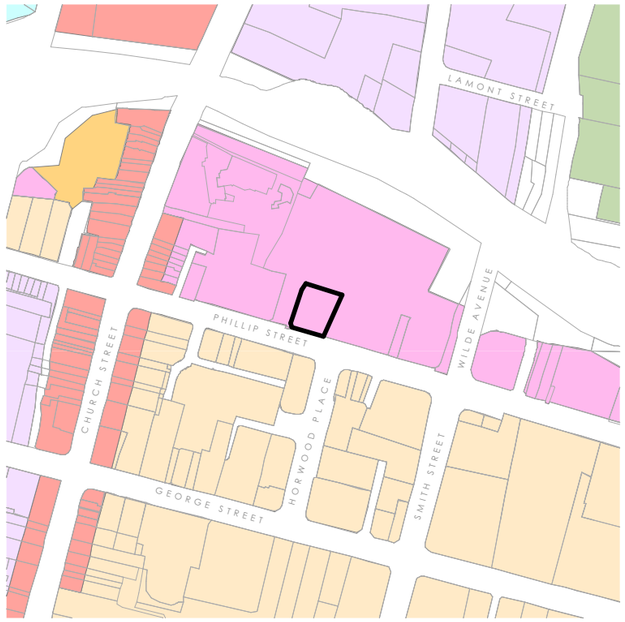
(8) If the design of a new building, or an external alteration to an existing building, is the winner of a competitive design process and the consent authority is satisfied that the building or alteration exhibits design excellence, it may grant development consent to the erection of the new building, or the alteration to the existing building, with:

(a) in any case—a building height that exceeds the maximum height shown for the land on the Height of Buildings Map or an amount of floor space that exceeds the maximum floor space ratio shown for the land on the Floor Space Ratio Map (or both) by up to 15%, or

(b) if the proposal is for a building containing entirely non-residential floor space in Zone B4 Mixed Use—a building height that exceeds the maximum height shown for the land on the Height of Buildings Map or an amount of floor space that exceeds the maximum floor space ratio shown for the land on the Floor Space Ratio Map (or both) by up to 25%.

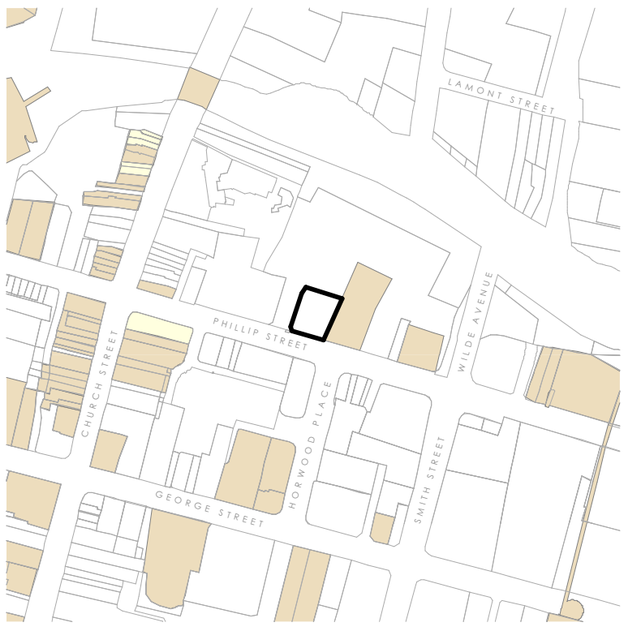


LAND ZONING
MIXED USE (B4)

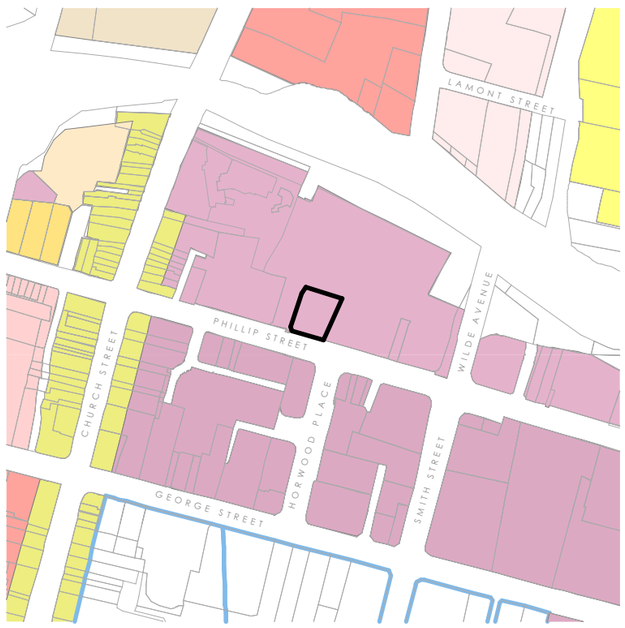


FLOOR SPACE RATIO
4.868:1 (MIXED USE 6.9:1 OR NON-RESI 7.5:1 WITH DESIGN EXCELLENCE)

KEY SITES + SUN ACCESS PROTECTION
KEY SITE B: REFER TO CLAUSE 7.10 (DESIGN EXCELLENCE) +
PROXIMITY TO LANCER BARRACKS NO OVERSHADOWING PLANE



HERITAGE + CONVERSATION
ADJACENT TO HERITAGE HOUSE (NO. I737)



HEIGHT OF BUILDINGS
MAXIMUM 80M (100M WITH DESIGN EXCELLENCE LEP CLAUSE 7.10)

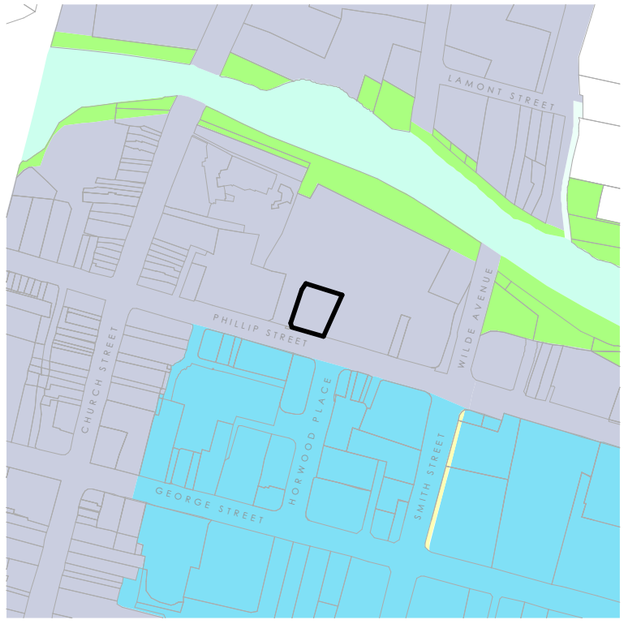
DRAFT LEP CONTROLS

DRAFT PARRAMATTA LEP
CLAUSE 7.10 DESIGN EXCELLENCE

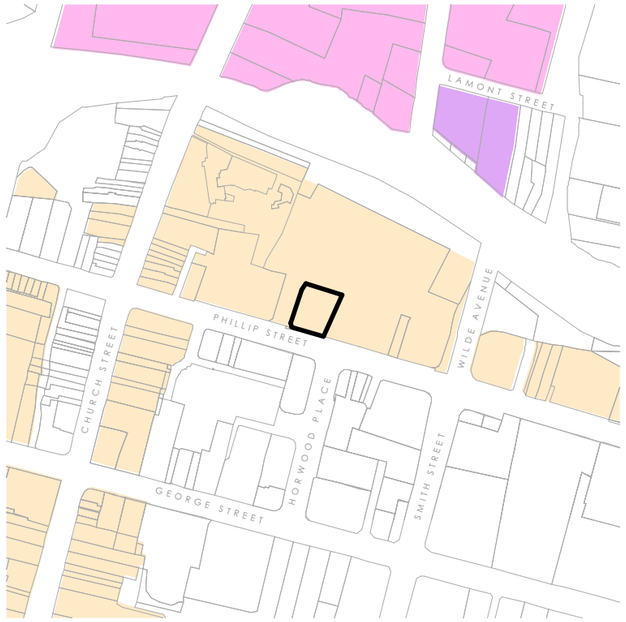
(8) If the design of a new building, or an external alteration to an existing building, is the winner of a competitive design process and the consent authority is satisfied that the building or alteration exhibits design excellence, it may grant development consent to the erection of the new building, or the alteration to the existing building, with:

(a) a building height that exceeds the maximum height shown for the land on the Height of Buildings Map or an amount of floor space that exceeds the maximum floor space ratio shown for the land on the Floor Space Ratio Map (or both) by up to 15%, if the development does not include community infrastructure in accordance with clause 7.6H; or

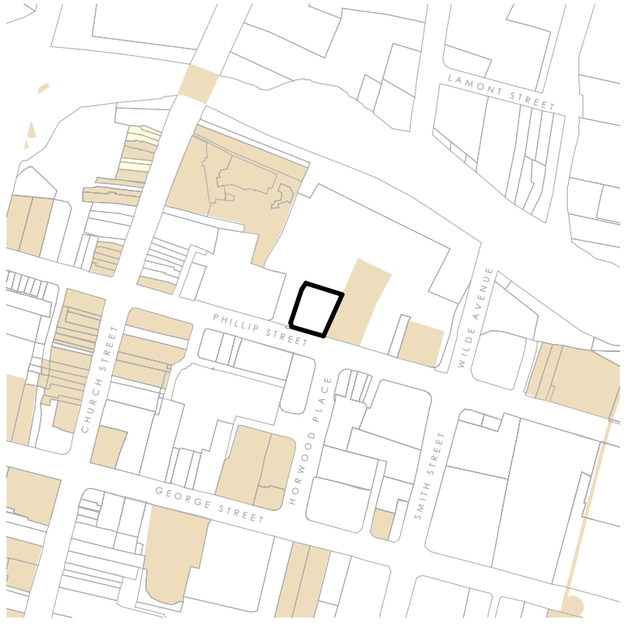
(b) a building height that exceeds the maximum height shown for the land on the Incentive Height of Buildings Map or an amount of floor space that exceeds the maximum floor space ratio shown for the land on the Incentive Floor Space Ratio Map (or both) by up to 15%, if the development includes community infrastructure in accordance with clause 7.6H or consists wholly of commercial premises in accordance with clause 7.6C (3).



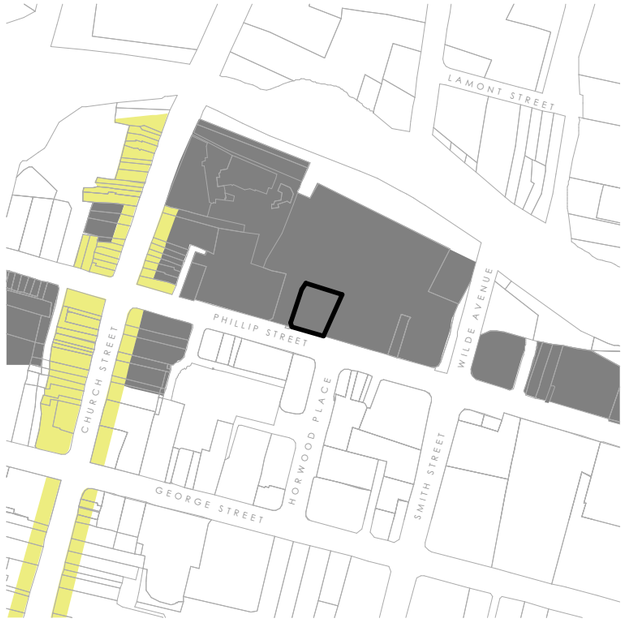
LAND ZONING
MIXED USE (B4)



INCENTIVE FLOOR SPACE RATIO
10:1 (11.5:1 WITH DESIGN EXCELLENCE LEP CLAUSE 7.10)



HERITAGE + CONVERSATION
ADJACENT TO HERITAGE HOUSE (NO. I737)

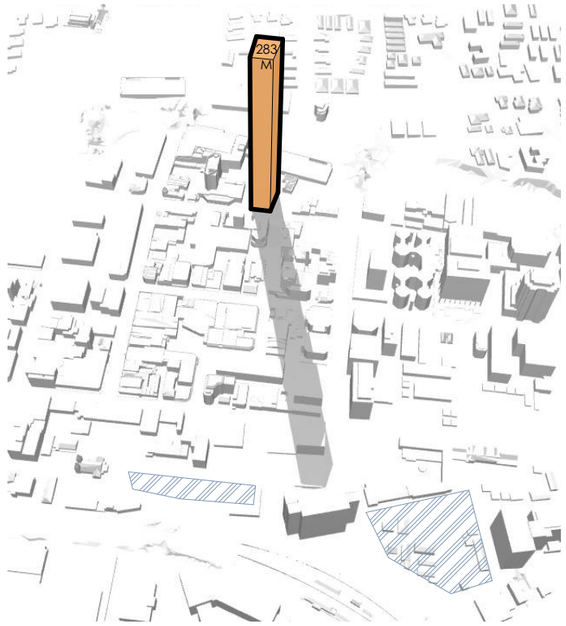


INCENTIVE HEIGHT OF BUILDINGS
MAXIMUM RL 211 (RL 242.65 WITH DESIGN EXCELLENCE, NOTE: PAN-OPS LIMIT 215-220M DUE TO WESTERN SYDNEY AIRPORT)

SUN ACCESS PROTECTION
NOT AFFECTED BY NO OVERSHADOWING SITES

NO OVERSHADOWING MAX HEIGHT

DICTATED BY LANCER BARRACKS



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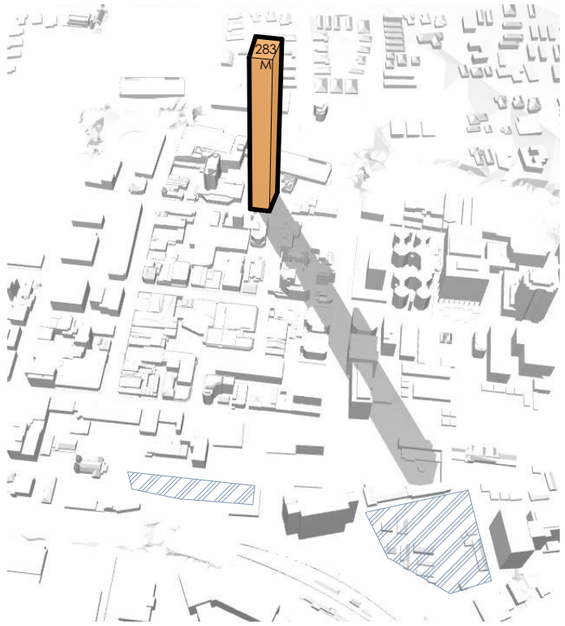

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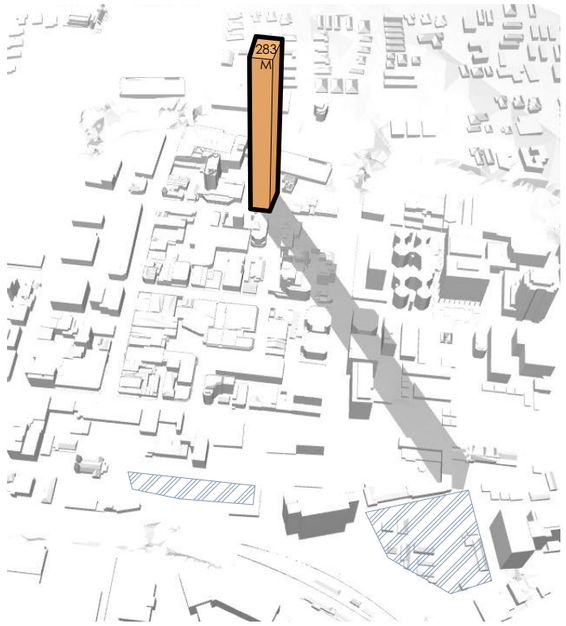

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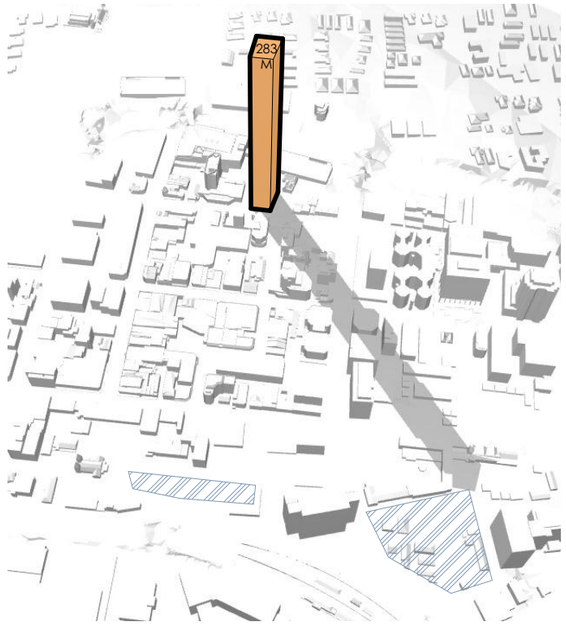

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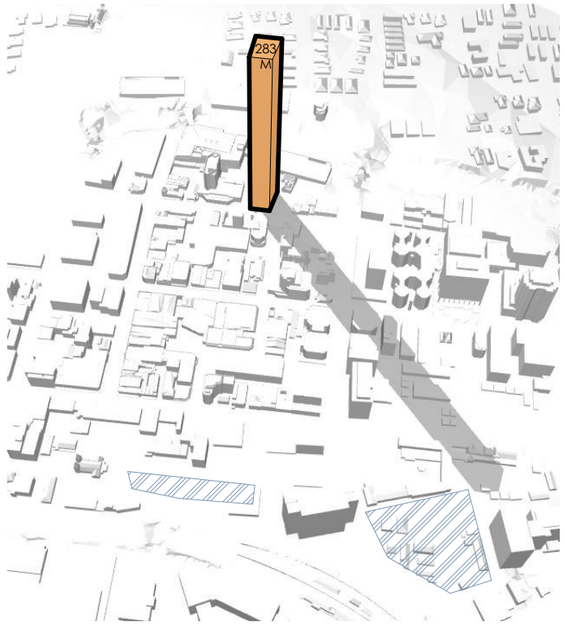

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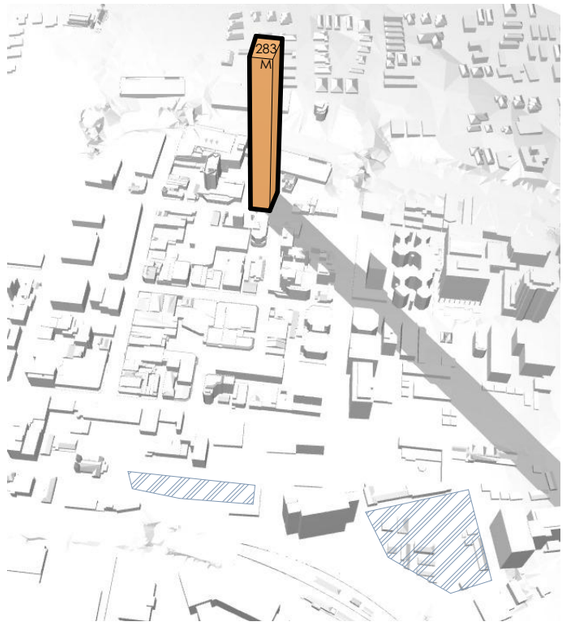
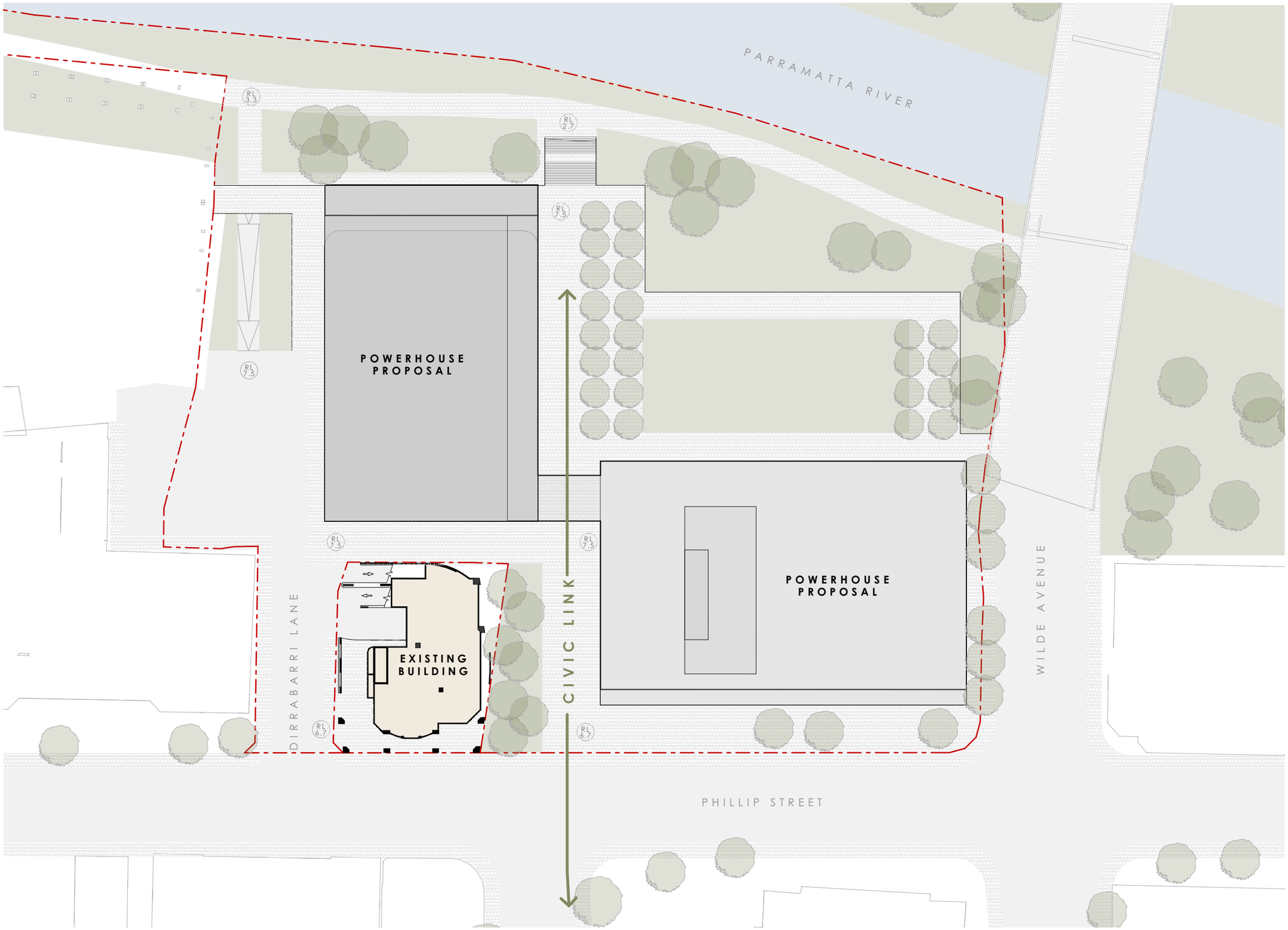


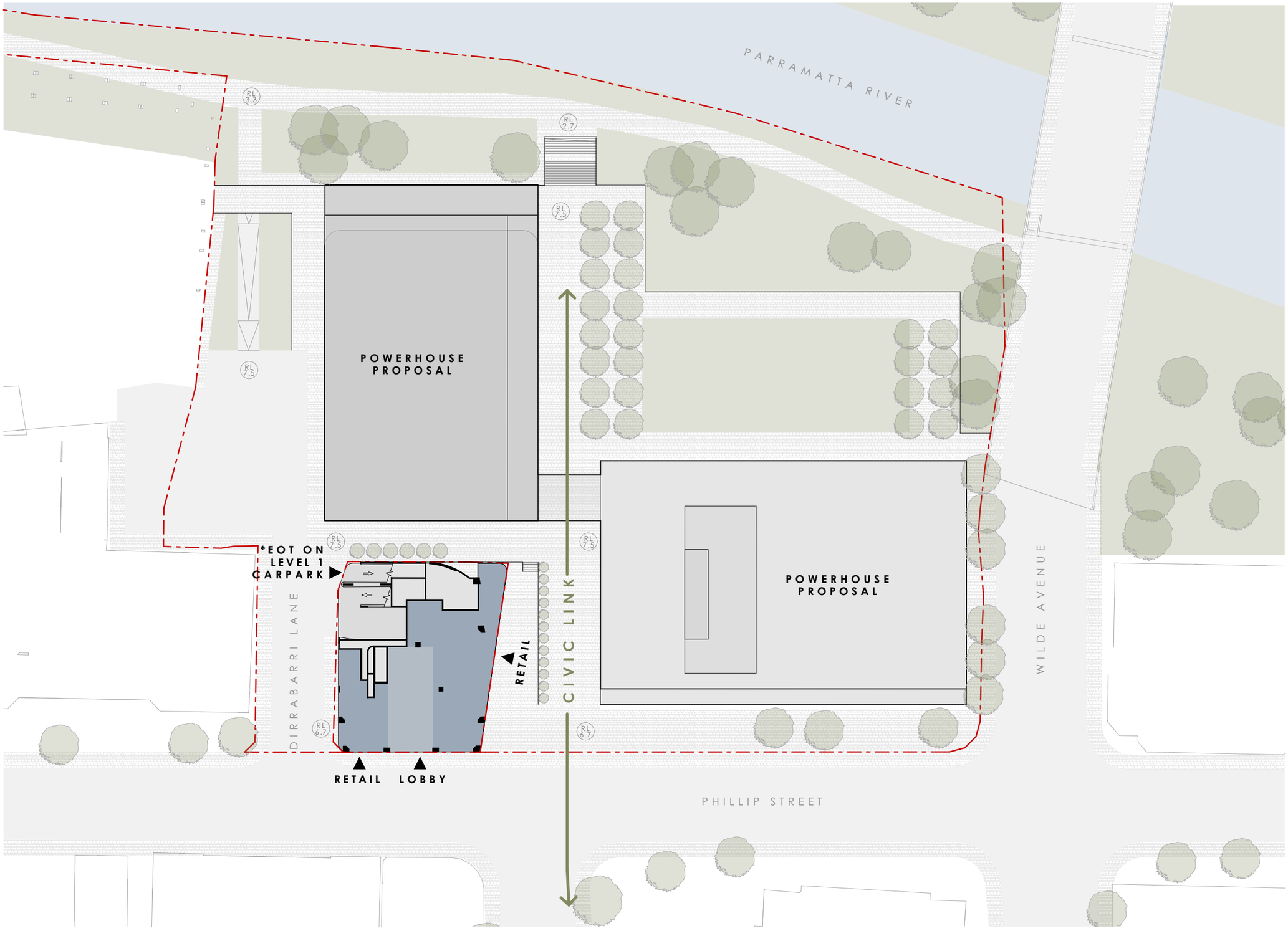
2:00 PM
21 JUNE (WINTER SOLSTICE)

KEY SITES + SUN ACCESS PROTECTION
KEY SITE B: REFER TO CLAUSE 7.10 (DESIGN EXCELLENCE) +
PROXIMITY TO LANCER BARRACKS NO OVERSHADOWING PLANE

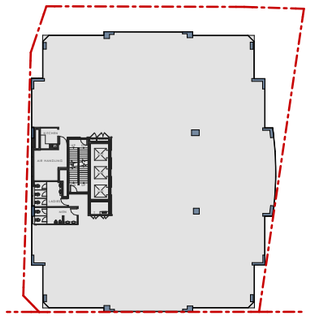
CONTEXT


PARRAMATTA RIVER
RL 3.3
RL 2.7
RL 7.5
POWERHOUSE PROPOSAL
RL 7.5
RL 7.5
EXISTING BUILDING
RL 6.7
RL 6.7
CIVIC LINK
POWERHOUSE PROPOSAL
DIRRABARRI LANE
WILDE AVENUE
PHILLIP STREET

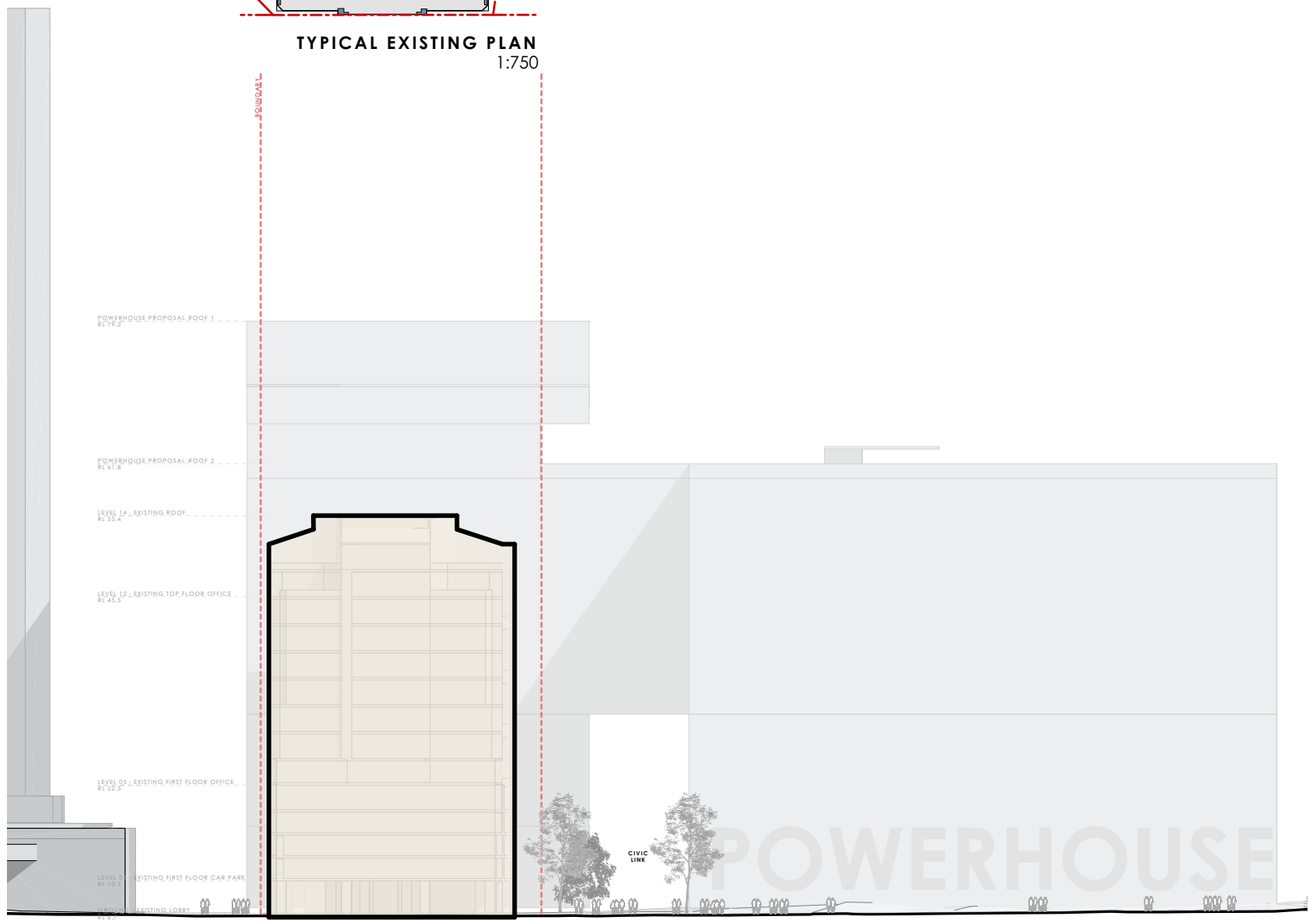
PROPOSED GROUND PLANE



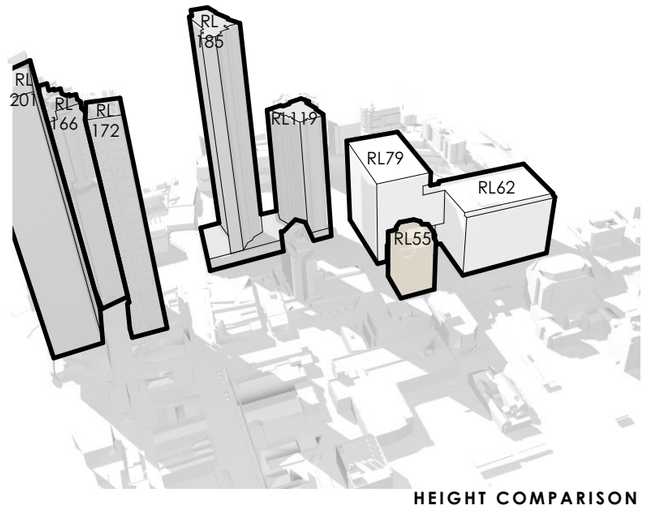
EXISTING BUILDING



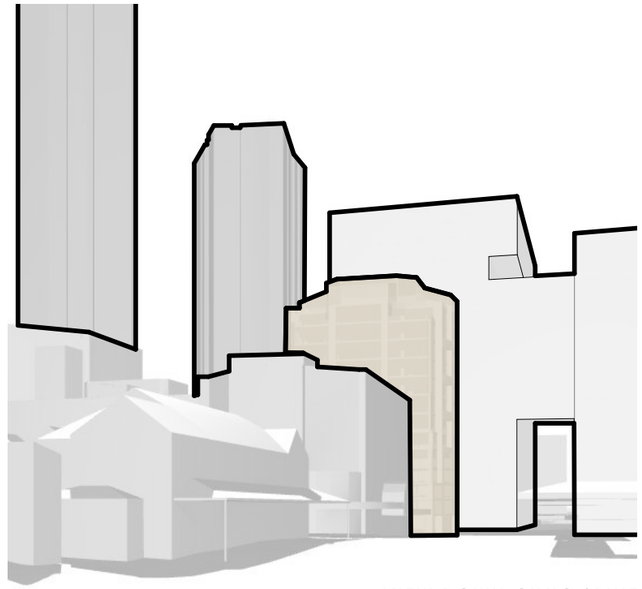
TYPICAL EXISTING PLAN
1:750



PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO POWERHOUSE PROPOSAL + NEARBY DEVELOPMENTS



VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

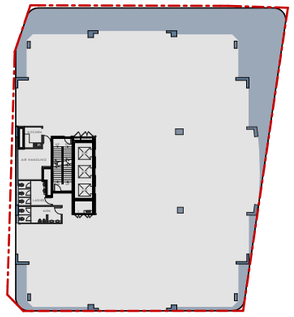
EXISTING BUILDING

EXISTING GBA (sqm)	GFA* (sqm)
285	0
797	0
591	730
945	878
945	878
945	878
945	878
946	879
946	879
970	902
979	0
979	0
979	0
979	0
591	428
12,822m²	7,330m²

GFA

6.37:1
EXISTING FSR

OPTION I
RECLAD EXISTING



TYPICAL RECLAD PLAN
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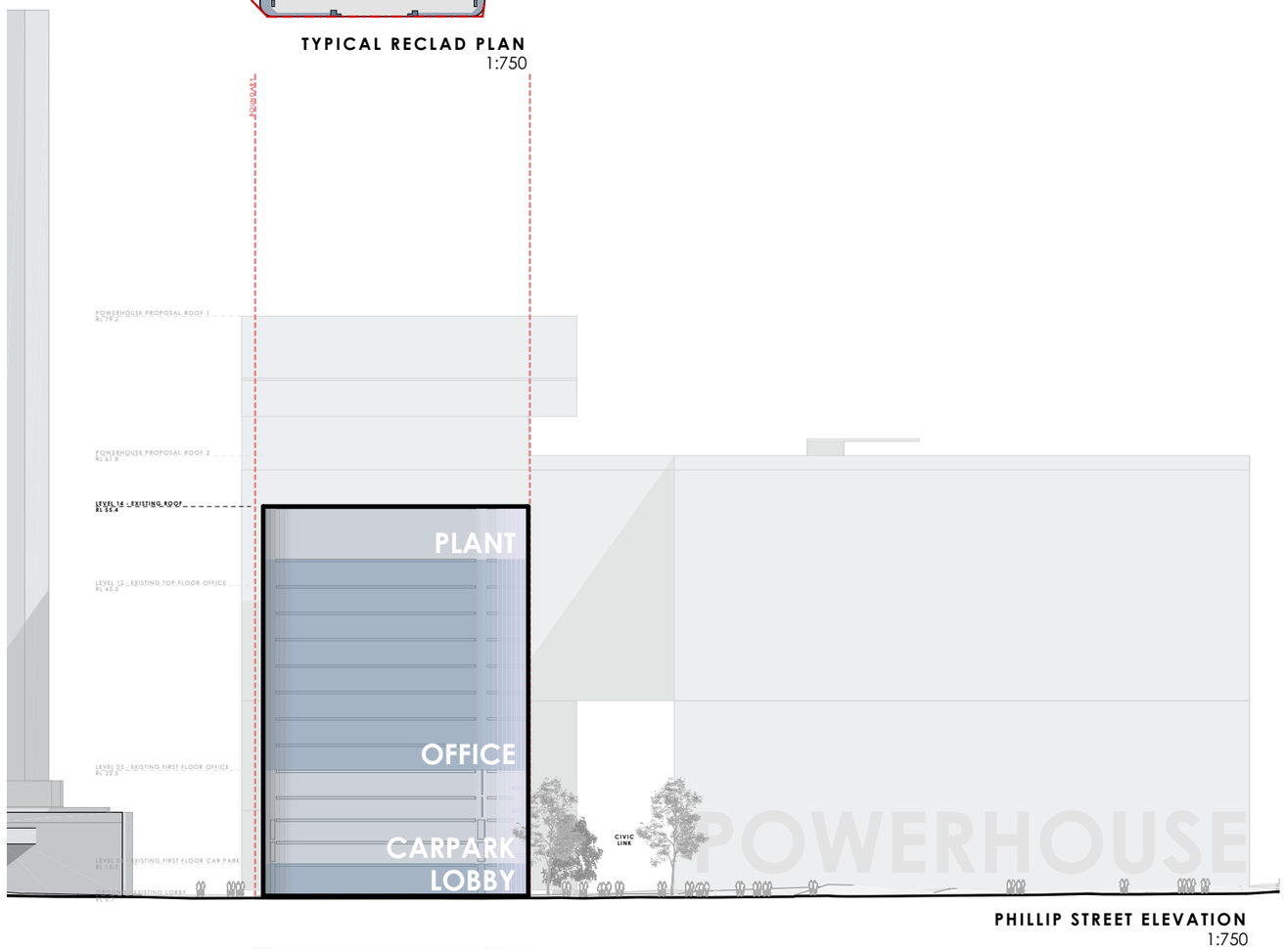
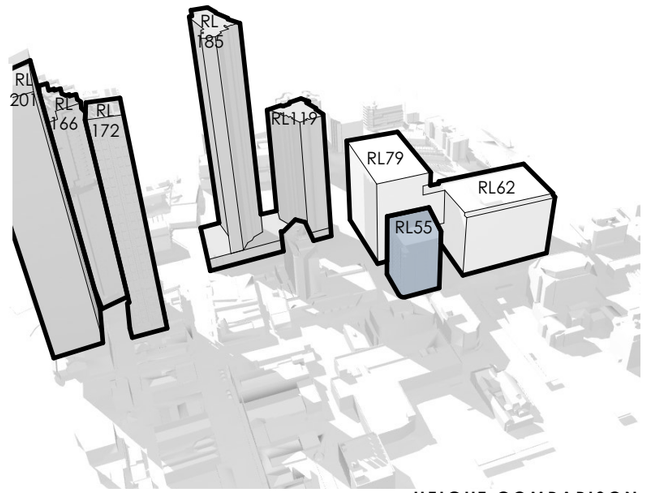
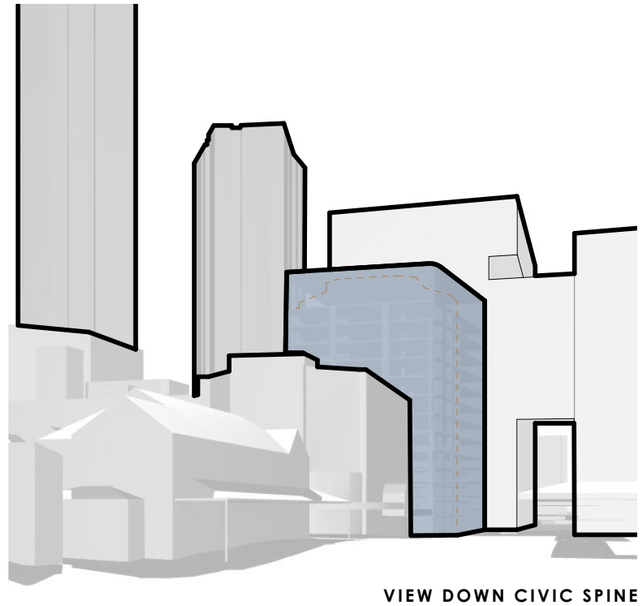


PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO POWERHOUSE PROPOSAL + NEARBY DEVELOPMENTS



VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

OPTION I: RECLAD EXISTING

INFILL GBA (sqm)	TOTAL GBA (sqm)	GFA* (sqm)	NLA* (sqm)
0	285	0	0
0	797	0	0
184	775	698	628
184	1,127	1,014	913
184	1,127	1,014	913
184	1,127	1,014	913
184	1,127	1,014	913
183	1,127	1,014	913
183	1,127	1,014	913
159	1,127	1,014	913
148	1,127	0	0
148	1,127	0	0
148	1,127	0	0
148	1,127	0	0
309	900	540	486
2,346m²	15,152m²	8,336m²	7,503m²

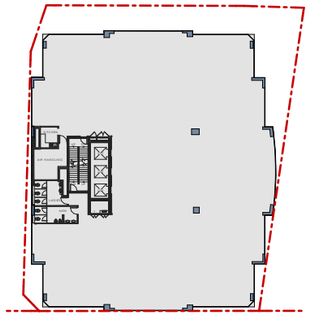
Northern View over Powerhouse

Eastern View over Powerhouse

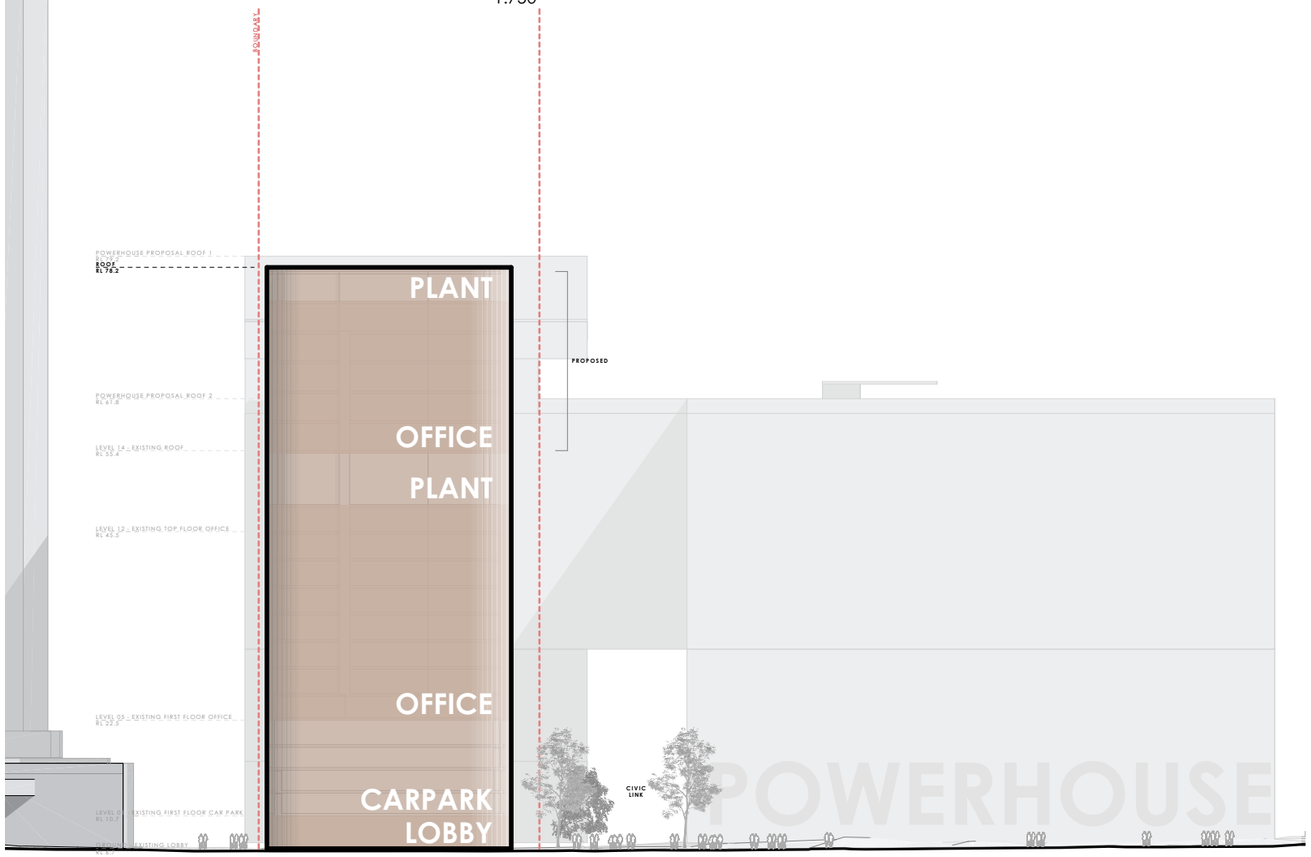
GFA

7.24:1
OPTION I FSR

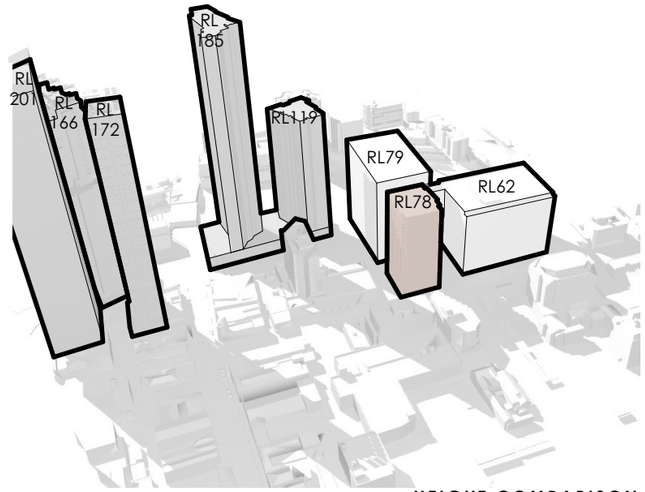
OPTION II
EXTEND EXISTING



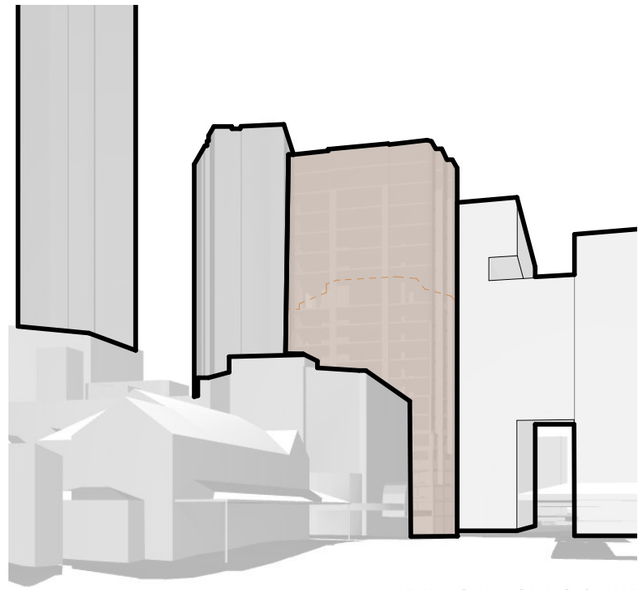
TYPICAL EXISTING PLAN
1:750



PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO POWERHOUSE PROPOSAL + NEARBY DEVELOPMENTS



VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

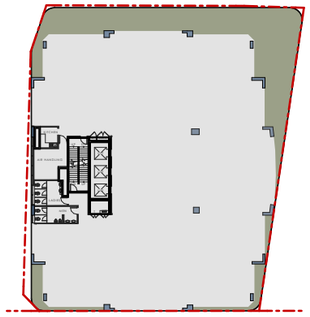
OPTION II: EXTEND EXISTING TO 10:1 FSR

EXISTING GBA (sqm)	GFA* (sqm)	NLA* (sqm)
945	0	0
945	0	0
945	851	765
945	851	765
945	851	765
945	851	765
945	851	765
797	0	0
945	851	765
945	851	765
945	851	765
945	851	765
945	851	765
946	851	766
946	851	766
970	873	786
979	0	0
979	0	0
979	0	0
979	0	0
591	355	319
19,506m²	11,435m²	10,292m²

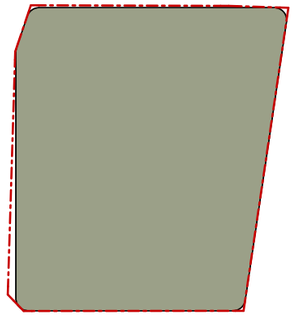
GFA

9.94:1
OPTION II FSR

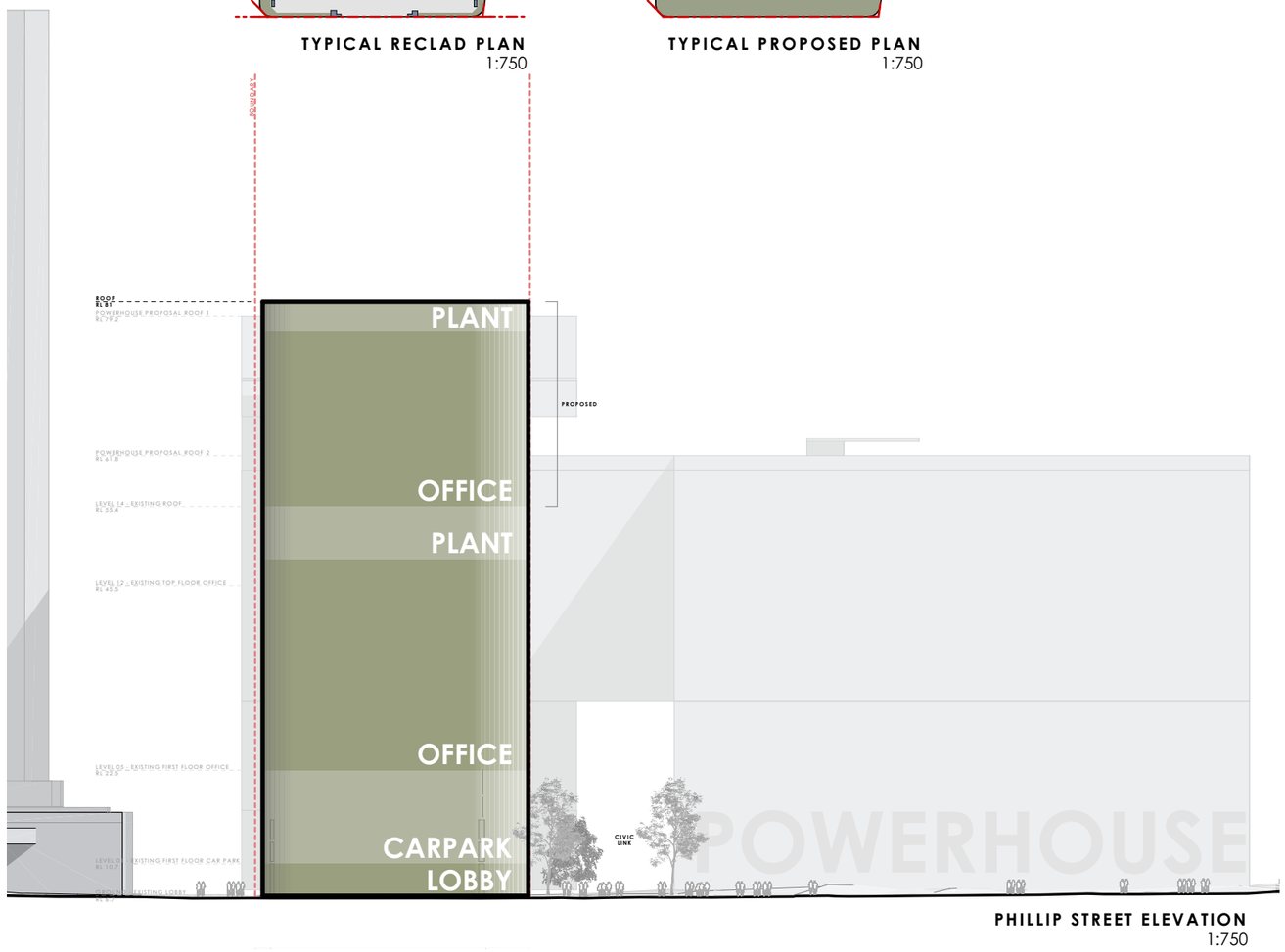
OPTION III
RECLAD TO MAX FSR



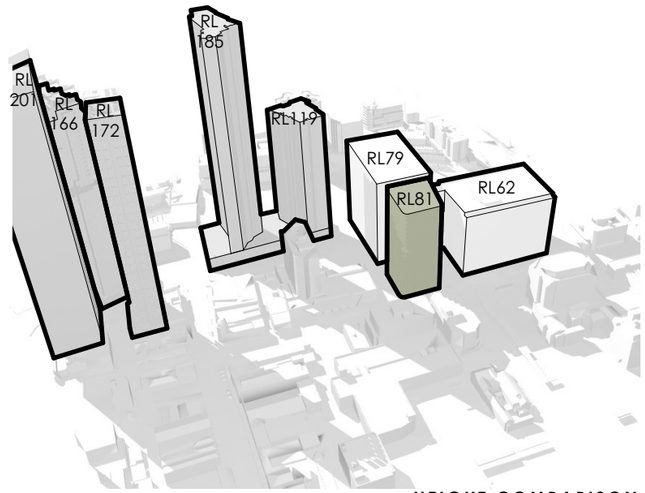
TYPICAL RECLAD PLAN
1:750



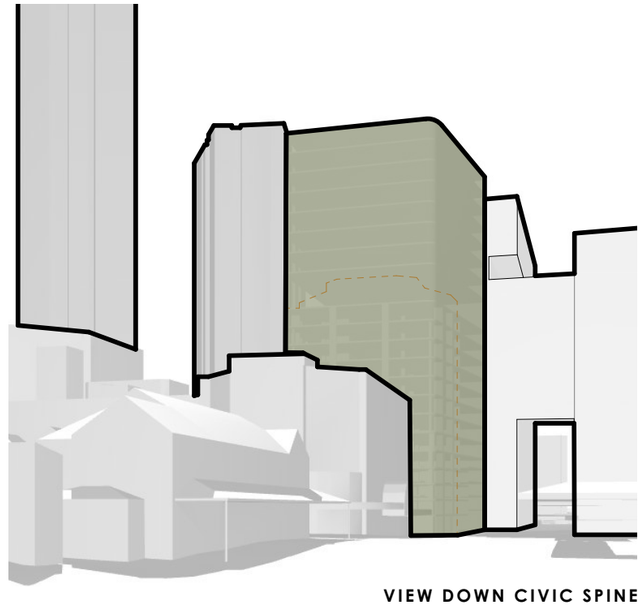
TYPICAL PROPOSED PLAN
1:750



PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO POWERHOUSE PROPOSAL + NEARBY DEVELOPMENTS



VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

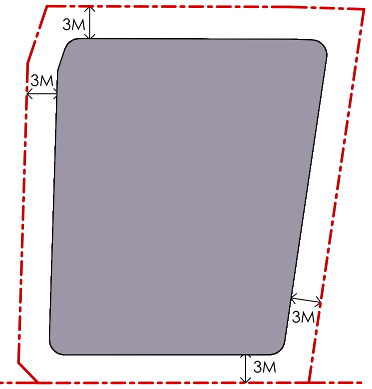
OPTION III: RECLAD TO 11.5:1 FSR

TOTAL GBA (sqm)	GFA* (sqm)	NLA* (sqm)
1,126	0	0
1,126	0	0
1,126	1,013	912
1,126	1,013	912
1,126	1,013	912
1,126	1,013	912
1,126	1,013	912
1,126	1,013	912
797	0	0
775	698	628
1,127	1,014	913
1,127	1,014	913
1,127	1,014	913
1,127	1,014	913
1,127	1,014	913
1,127	1,014	913
1,127	1,014	913
1,127	0	0
1,127	0	0
1,127	0	0
1,127	0	0
900	540	486
22,749m²	13,403m²	12,063m²

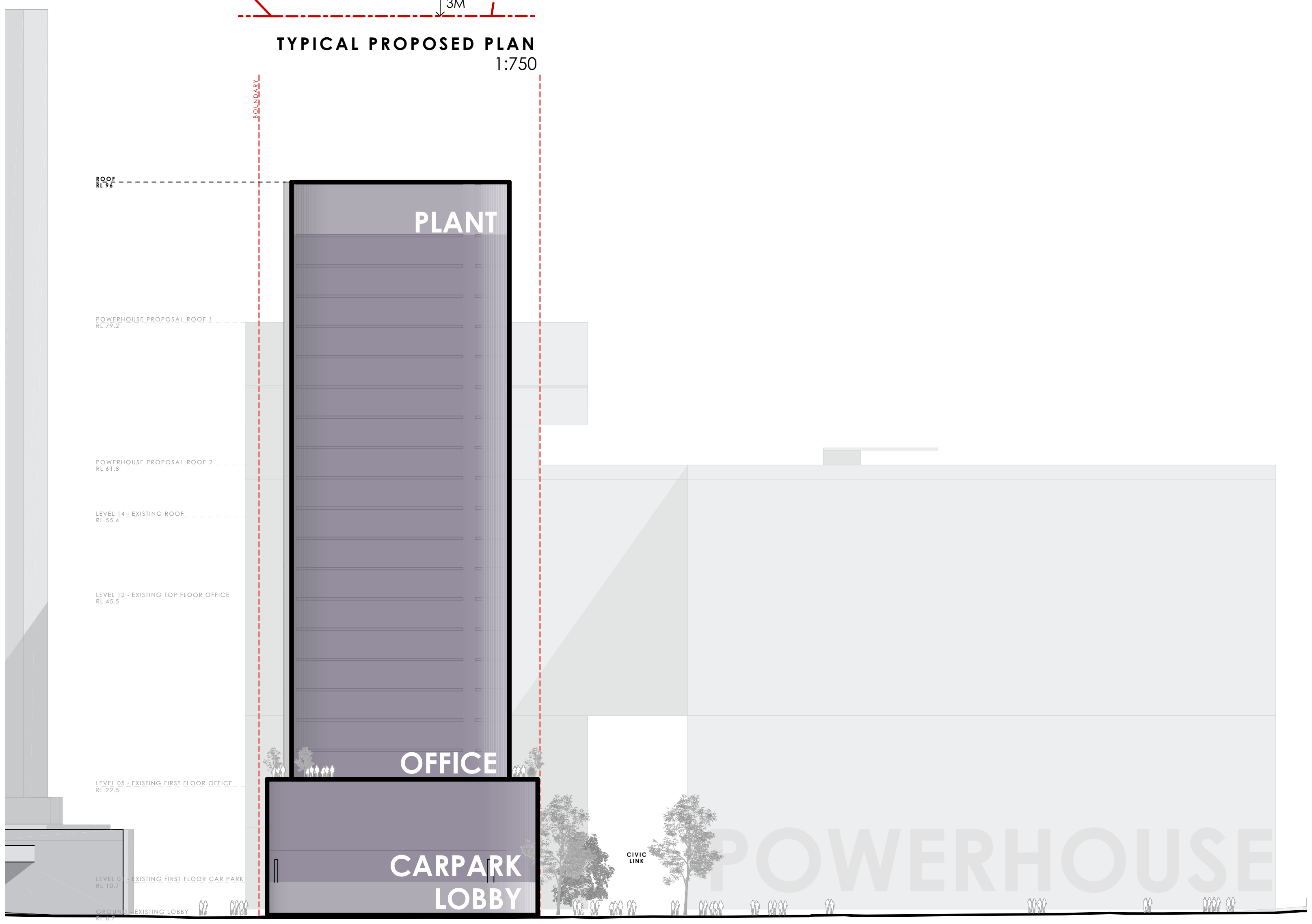
GFA

11.64:1
OPTION III FSR

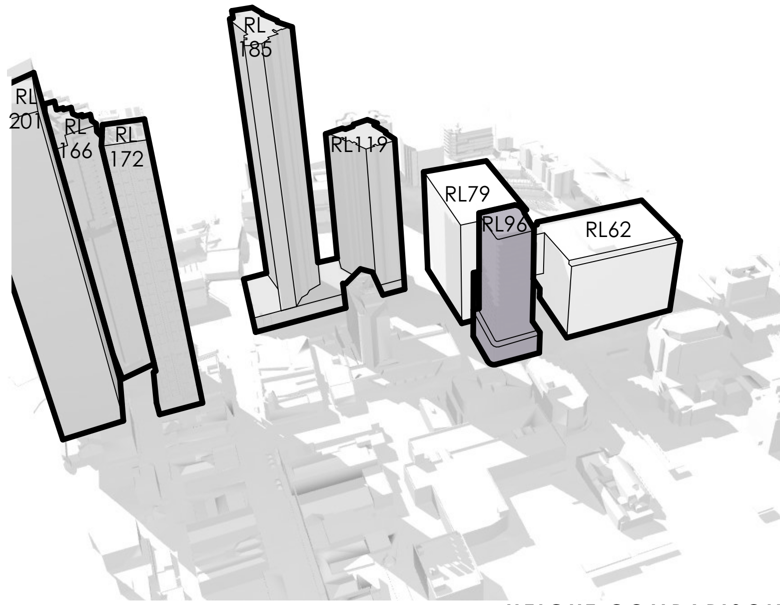
OPTION IV
REBUILD TO MAX FSR



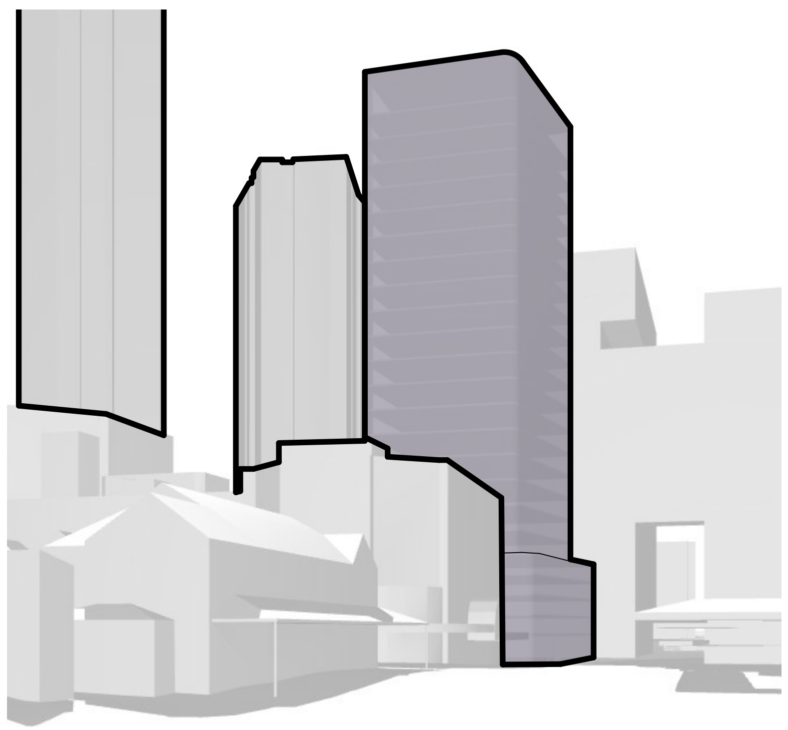
TYPICAL PROPOSED PLAN
1:750



PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO POWERHOUSE PROPOSAL + NEARBY DEVELOPMENTS



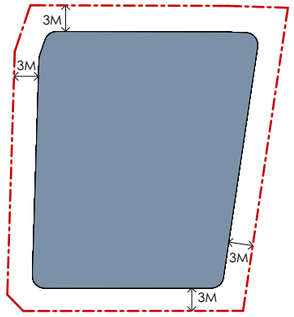
VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

OPTION IV: NEW COMMERCIAL BUILD TO 11.5:1 FSR		
TOTAL GBA (sqm)	GFA* (sqm)	NLA* (sqm)
781	0	0
781	0	0
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
1,151	0	0
1,151	0	0
1,151	0	0
1,151	0	0
1,151	691	622
21,376m²	13,344m²	12,009m²
	GFA	

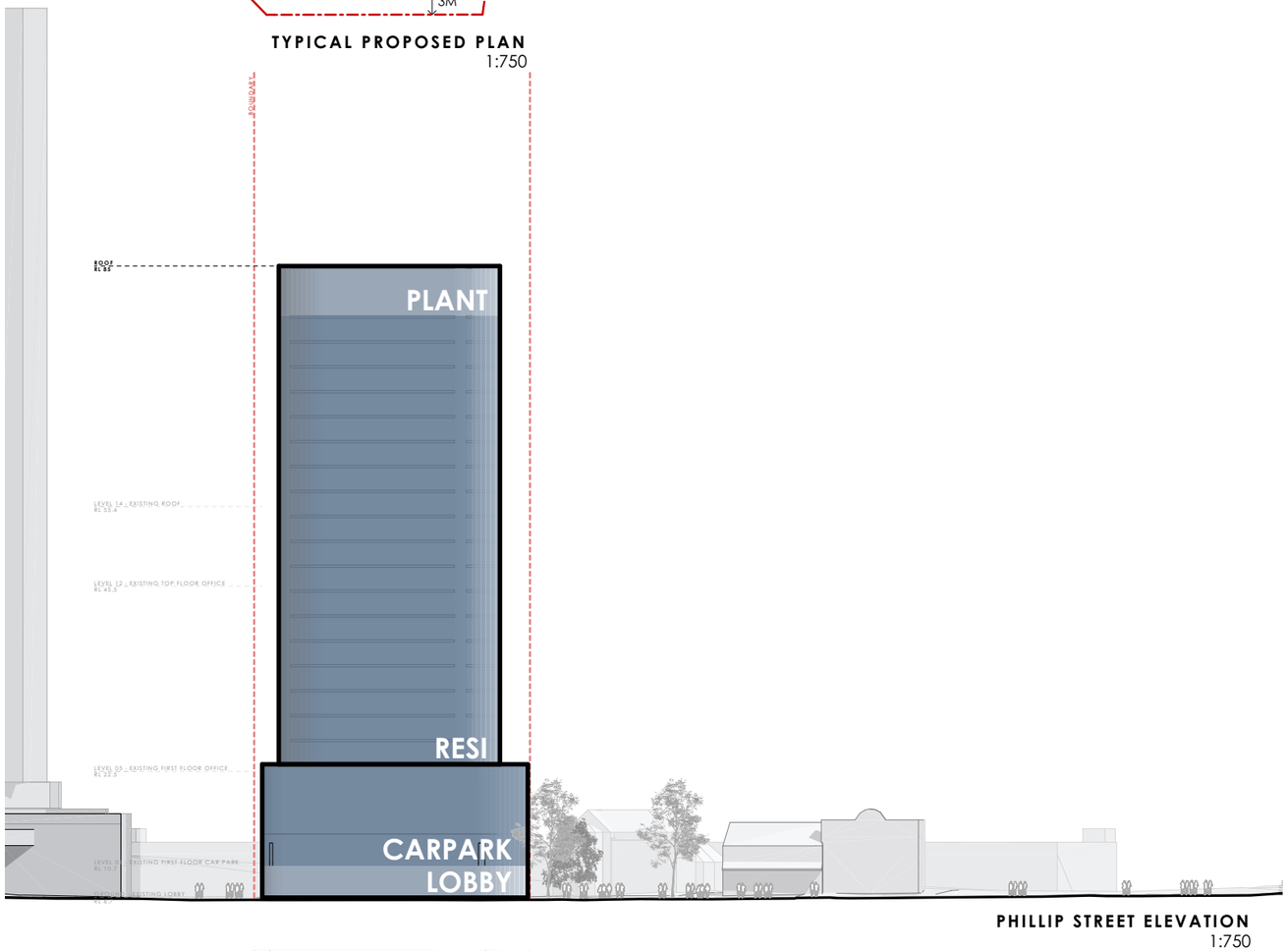
11.59:1
OPTION IV FSR

OPTION V

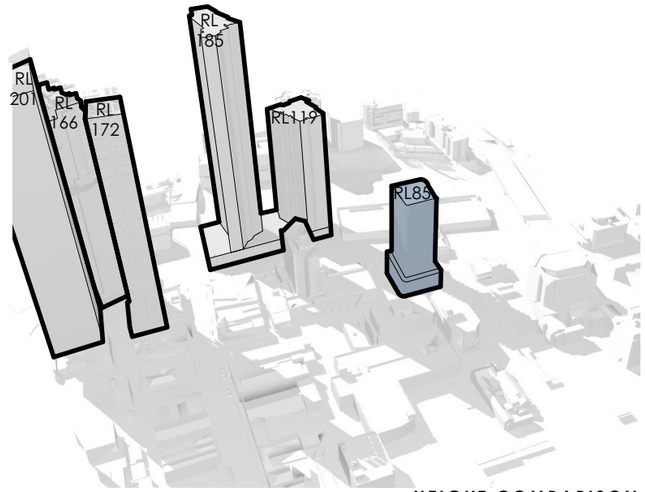
REBUILD RESI (WITHOUT POWERHOUSE PROPOSAL)



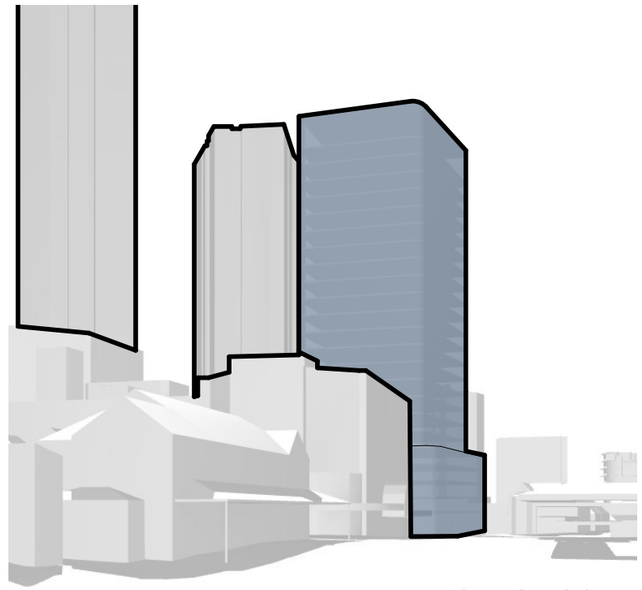
TYPICAL PROPOSED PLAN
1:750



PHILLIP STREET ELEVATION
1:750



HEIGHT COMPARISON
ADJACENT TO NEARBY DEVELOPMENTS



VIEW DOWN CIVIC SPINE
ALONG HORWOOD STREET

OPTION V: NEW RESI BUILD TO 11.5:1 FSR (NO POWERHOUSE)

TOTAL GBA (sqm)	GFA* (sqm)	NLA* (sqm)
781	0	0
781	0	0
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
781	703	633
1,151	0	0
1,151	0	0
1,151	0	0
1,151	0	0
1,151	691	622
21,375m²	13,343m²	12,009m²

GFA

11.59:1
OPTION V FSR

DEVELOPMENT OPTION SUMMARY

32 Phillip Area Schedule

32 Phillip Street, Parramatta NSW

Document	
Issue	A
Date	10/07/2020
Prepared by	MM
Checked by	PR
Prepared for	Australian Unity

Site		
Site Area	1,151m²	
FSR	4.868 :1	*Parramatta Local Environmental Plan 2*
Allowable GFA	5,603m²	*Parramatta Local Environmental Plan 2*
Allowable Height	100m	*Parramatta Local Environmental Plan 2*

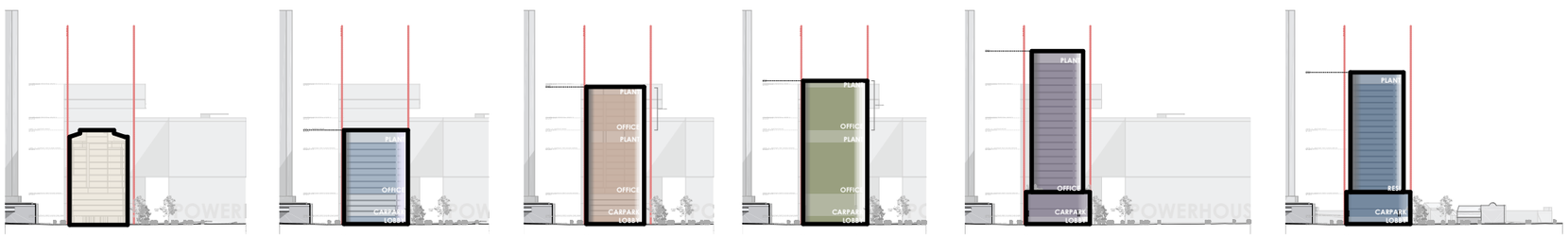
Parking	
Cars Req (1/400sqm)	14 spaces
Bikes/Lockers (1/150sqm)	37
Visitor Bikes/Lockers (1/400sqm)	14
Shower (1/10 Bikes)	5

Site Area 1,151m²
FSR 10 :1
Allowable GFA 11,510m²
Allowable Height 100m

Site Area 1,151m²
FSR 11.5 :1
Allowable GFA 13,237m²
Allowable Height 100m

Level	Use	EXISTING BUILDING RL (m)	EXISTING BUILDING Floor-to-Floor (m)	EXISTING BUILDING EXISTING GBA (sqm)	EXISTING BUILDING GFA* (sqm)	OPTION I: RECLAD EXISTING INFILL GBA (sqm)	OPTION I: RECLAD EXISTING TOTAL GBA (sqm)	OPTION I: RECLAD EXISTING GFA* (sqm)	OPTION I: RECLAD EXISTING NLA* (sqm)	OPTION II: EXTEND EXISTING TO 10:1 FSR EXISTING GBA (sqm)	OPTION II: EXTEND EXISTING TO 10:1 FSR GFA* (sqm)	OPTION II: EXTEND EXISTING TO 10:1 FSR NLA* (sqm)	OPTION III: RECLAD TO 11.5:1 FSR TOTAL GBA (sqm)	OPTION III: RECLAD TO 11.5:1 FSR GFA* (sqm)	OPTION III: RECLAD TO 11.5:1 FSR NLA* (sqm)	OPTION IV: NEW COMMERCIAL BUILD TO 11.5:1 FSR RL (m)	OPTION IV: NEW COMMERCIAL BUILD TO 11.5:1 FSR Floor-to - Floor (m)	OPTION IV: NEW COMMERCIAL BUILD TO 11.5:1 FSR TOTAL GBA (sqm)	OPTION IV: NEW COMMERCIAL BUILD TO 11.5:1 FSR GFA* (sqm)	OPTION IV: NEW COMMERCIAL BUILD TO 11.5:1 FSR NLA* (sqm)	OPTION V: NEW RESI BUILD TO 11.5:1 FSR (NO POWERHOUSE) RL (m)	OPTION V: NEW RESI BUILD TO 11.5:1 FSR (NO POWERHOUSE) Floor-to - Floor (m)	OPTION V: NEW RESI BUILD TO 11.5:1 FSR (NO POWERHOUSE) TOTAL GBA (sqm)	OPTION V: NEW RESI BUILD TO 11.5:1 FSR (NO POWERHOUSE) GFA* (sqm)	OPTION V: NEW RESI BUILD TO 11.5:1 FSR (NO POWERHOUSE) NLA* (sqm)	GBA/GFA (%)	GFA/NLA (%)
																96.37		781	0	0	85.37		781	0	0		
																89.97	6.40	781	0	0	79.17	6.20	781	0	0		
						Northern View over Powerhouse										86.27	3.70	781	703	633	76.07	3.10	781	703	633	90%	90%
Roof		78.18								945	0	0	1,126	0	0	82.57	3.70	781	703	633	72.97	3.10	781	703	633	90%	90%
Level 18	Additional Plant	73.68	4.50							945	0	0	1,126	0	0	78.87	3.70	781	703	633	69.87	3.10	781	703	633	90%	90%
Level 17	Additional Office	70.03	3.65							945	851	765	1,126	1,013	912	75.17	3.70	781	703	633	66.77	3.10	781	703	633	90%	90%
Level 16	Additional Office	66.38	3.65				Eastern View over Powerhouse			945	851	765	1,126	1,013	912	71.47	3.70	781	703	633	63.67	3.10	781	703	633	90%	90%
Level 15	Additional Office	62.73	3.65							945	851	765	1,126	1,013	912	67.77	3.70	781	703	633	60.57	3.10	781	703	633	90%	90%
Level 14	Additional Office	59.08	3.65							945	851	765	1,126	1,013	912	64.07	3.70	781	703	633	57.47	3.10	781	703	633	90%	90%
Existing Roof	Additional Office	55.43	3.65	285	0	0	285	0	0	945	851	765	1,126	1,013	912	60.37	3.70	781	703	633	54.37	3.10	781	703	633	90%	90%
Level 13	Plant	48.83	6.60	797	0	0	797	0	0	797	0	0	797	0	0	56.67	3.70	781	703	633	51.27	3.10	781	703	633	90%	90%
Level 12	Office	45.53	3.30	591	730	184	775	698	628	945	851	765	775	698	628	52.97	3.70	781	703	633	48.17	3.10	781	703	633	90%	90%
Level 11	Office	42.23	3.30	945	878	184	1,127	1,014	913	945	851	765	1,127	1,014	913	49.27	3.70	781	703	633	45.07	3.10	781	703	633	90%	90%
Level 10	Office	38.93	3.30	945	878	184	1,127	1,014	913	945	851	765	1,127	1,014	913	45.57	3.70	781	703	633	41.97	3.10	781	703	633	90%	90%
Level 9	Office	35.63	3.30	945	878	184	1,127	1,014	913	945	851	765	1,127	1,014	913	41.87	3.70	781	703	633	38.87	3.10	781	703	633	90%	90%
Level 8	Office	32.33	3.30	945	878	184	1,127	1,014	913	945	851	765	1,127	1,014	913	38.17	3.70	781	703	633	35.77	3.10	781	703	633	90%	90%
Level 7	Office	29.03	3.30	946	879	183	1,127	1,014	913	946	851	766	1,127	1,014	913	34.47	3.70	781	703	633	32.67	3.10	781	703	633	90%	90%
Level 6	Office	25.73	3.30	946	879	183	1,127	1,014	913	946	851	766	1,127	1,014	913	30.77	3.70	781	703	633	29.57	3.10	781	703	633	90%	90%
Level 5	Office	22.47	3.26	970	902	159	1,127	1,014	913	970	873	786	1,127	1,014	913	27.07	3.70	781	703	633	26.47	3.10	781	703	633	90%	90%
Level 4	Parking	19.17	3.30	979	0	148	1,127	0	0	979	0	0	1,127	0	0	23.37	3.70	781	703	633	23.37	3.10	781	703	633	90%	90%
Level 3	Parking	16.37	2.80	979	0	148	1,127	0	0	979	0	0	1,127	0	0	20.47	2.90	1,151	0	0	20.47	2.90	1,151	0	0	90%	90%
Level 2	Parking	13.57	2.80	979	0	148	1,127	0	0	979	0	0	1,127	0	0	17.57	2.90	1,151	0	0	17.57	2.90	1,151	0	0	90%	90%
Level 1	Parking	10.77	2.80	979	0	148	1,127	0	0	979	0	0	1,127	0	0	14.67	2.90	1,151	0	0	14.67	2.90	1,151	0	0	90%	90%
Ground	Entry / Retail	6.77	4.00	591	428	309	900	540	486	591	355	319	900	540	486	11.77	2.90	1,151	0	0	11.77	2.90	1,151	0	0	90%	90%
																6.77	5.00	1,151	691	622	6.77	5.00	1,151	691	622	60%	90%
			71.4m	12,822m²	7,330m²	2,346m²	15,152m²	8,336m²	7,503m²	19,506m²	11,435m²	10,292m²	22,749m²	13,403m²	12,063m²		89.6m	21,376m²	13,344m²	12,009m²		78.6m	21,375m²	13,343m²	12,009m²		
					GFA			GFA			GFA			GFA					GFA					GFA				
					6.37:1 EXISTING FSR			7.24:1 OPTION I FSR			9.94:1 OPTION II FSR			11.64:1 OPTION III FSR					11.59:1 OPTION IV FSR					11.59:1 OPTION V FSR				

*% Efficency used for all options



APPENDIX B – REVIEW OF TRAFFIC AND TRANSPORT ASSESSMENT, PREPARED BY URBIS

URBIS

ANGEL PLACE
LEVEL 8, 123 PITT STREET
SYDNEY NSW 2000

URBIS.COM.AU
Urbis Pty Ltd
ABN 50 105 256 228

17 July 2020

Australian Unity
C/- TSA
Level 15, 207 Kent Street,
Sydney NSW 2000

Dear Sir/Madam,

REVIEW OF THE ENVIRONMENTAL IMPACT STATEMENT FOR PARRAMATTA POWERHOUSE MUSEUM

Urbis has been engaged by TSA to review the Environmental Impact Statement (EIS) for the proposed Parramatta Powerhouse Museum. This letter outlines the findings of our investigation concerning the potential transport and traffic impacts to 32 Phillip Street in Parramatta (the site), during the construction stage and the operations of the proposed Parramatta Powerhouse Museum.

During the preparation of this letter, reference has been made to Appendix F of the Powerhouse Parramatta EIS which includes the Transport Impact Assessment (TIA), prepared by JMT Consulting (dated April 2020).

BACKGROUND AND EXISTING CONDITIONS

The site is located at the corner of Philip Street/Dirrabarri Lane intersection, adjacent to the proposed Parramatta Powerhouse Museum (PPM) site, as shown in **Figure 1**. The car park and loading access to the site is via Dirrabarri Lane, which is part of an easement which provides vehicle access to; (1) the Meriton apartments; (2) the Parramatta Riverfront (for emergency vehicles); (3) The Riverbank car park; and (4) The Council car park.

The short section of Dirrabarri Lane, immediately adjacent to the site, comprises a 9.2 metre wide sealed carriageway with six (6) time-restricted kerbside parallel parking spaces along its western side The eastern side of Dirrabarri Lane is signposted with a ‘No Stopping’ restriction. Footpaths are available on either side of Dirrabarri Lane and they provide pedestrian access from Philip Street to the site, the Meriton apartments, the two (2) car parks, and the riverfront. A photo of Dirrabarri Lane is shown in **Figure 2**.

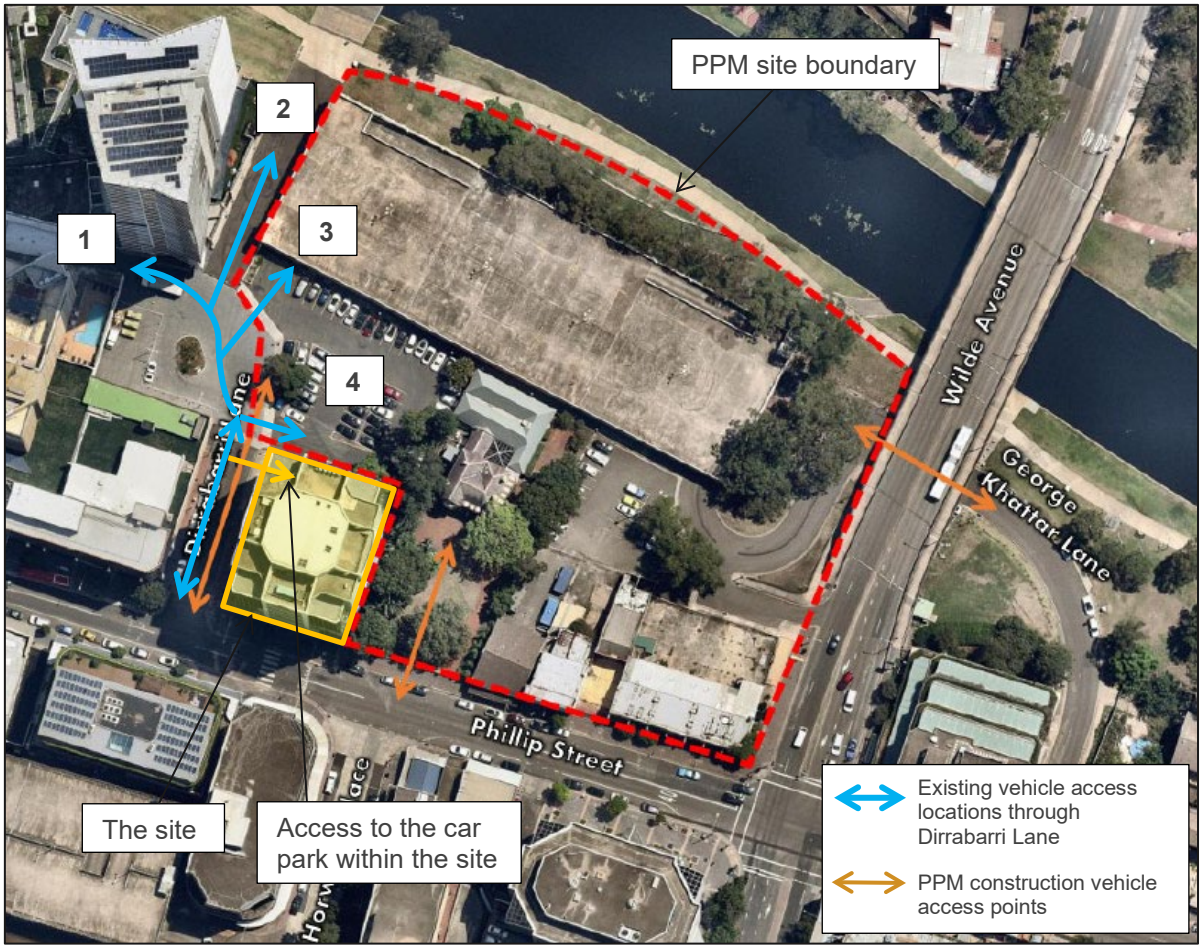


Figure 1: Site location and access

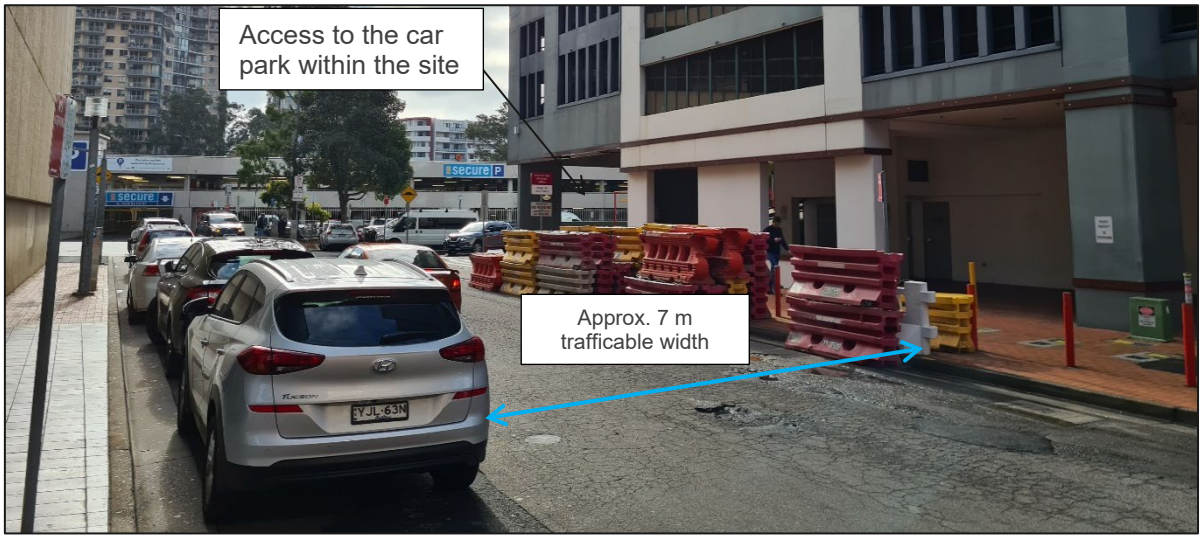


Figure 2: Street view of Dirrabarri Lane looking north from Phillip Street

URBIS

PPM DEVELOPMENT IMPACTS ON DIRRABARRI LANE

The PPM proposal seeks consent for the demolition of the existing structures and construction and operation of the Powerhouse Parramatta Museum at 34-54 and 30B Phillip Street and 338 Church Street in Parramatta. The proposed PPM development is located immediately adjacent to the north and east frontages of the site at 32 Phillip Street, Parramatta. The sections below outline the anticipated traffic impacts likely to arise from the PPM proposal, during its construction and operational stages, onto the site.

Construction stage

The TIA states that construction works at the PPM site is expected to commence in early to mid-2021 and will likely take three (3) years to complete. The durations of various construction stages are as follows:

- Site Establishment & demolition: 2-3 months
- Bulk/Detailed Excavation/Piling: 4 months
- Construction: 24 months

The work associated with the proposal will be carried out between the following hours of construction:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 5pm
- Sunday / public holiday: No work

The following three (3) vehicular access points are proposed to facilitate the construction works of the PPM, as shown in **Figure 1**:

1) Dirrabarri Lane – The primary construction vehicle access point.
2) Philip Street opposite Horwood Place – Facilitate the movement of larger construction vehicles.
3) George Khattar Lane – Provide access for smaller construction vehicles and general deliveries to the site due to the vehicle height clearance limit of 3.5 metres under the Wilde Avenue Bridge.

The construction vehicles accessing the PPM site off Philip Street and Dirrabarri Lane will use the Wilde Avenue bridge and turn right onto Philip Street. The vehicles that will access the PPM site during construction will likely mainly comprise of heavy vehicles including Articulated Vehicles (AV) such as precast delivery trucks, truck and dog vehicles for waste removal, and Heavy Rigid Vehicles (HRVs) such as concrete trucks.

The TIA states that multiple construction vehicles may access the site at the same time and be managed by a Construction Traffic Management Plan (CTMP). Other heavy machinery plants such as cranes will have to be delivered to the PPM site in the preliminary stage. All heavy goods such as girders or machinery plants are likely to be delivered outside of peak traffic hours.

The expected heavy and light vehicle traffic generation levels during the demolition/construction stage of the PPM are as follows:

- Heavy vehicles: The number of daily heavy vehicles accessing the PPM site is forecast to vary from between 40-60 vehicles per day during the demolition phase to 100-120 per day during the peak construction period (see **Figure 3**).

- Light vehicles: Workers will generate some additional traffic to the site. Typically, the demolition phase will have a workforce of only 20 people, with up to 200 people on site during the construction phase. This would generate approximately 7 vehicles arriving to the site during the demolition phase and 65 vehicles during the construction phase. This level of activity is lower than that currently generated by the Riverbank car park and is not expected to result in any undue impacts on the surrounding road network. Further, construction workers will need to arrive to the site prior to 7am, therefore not coinciding the morning commuter peak hour.

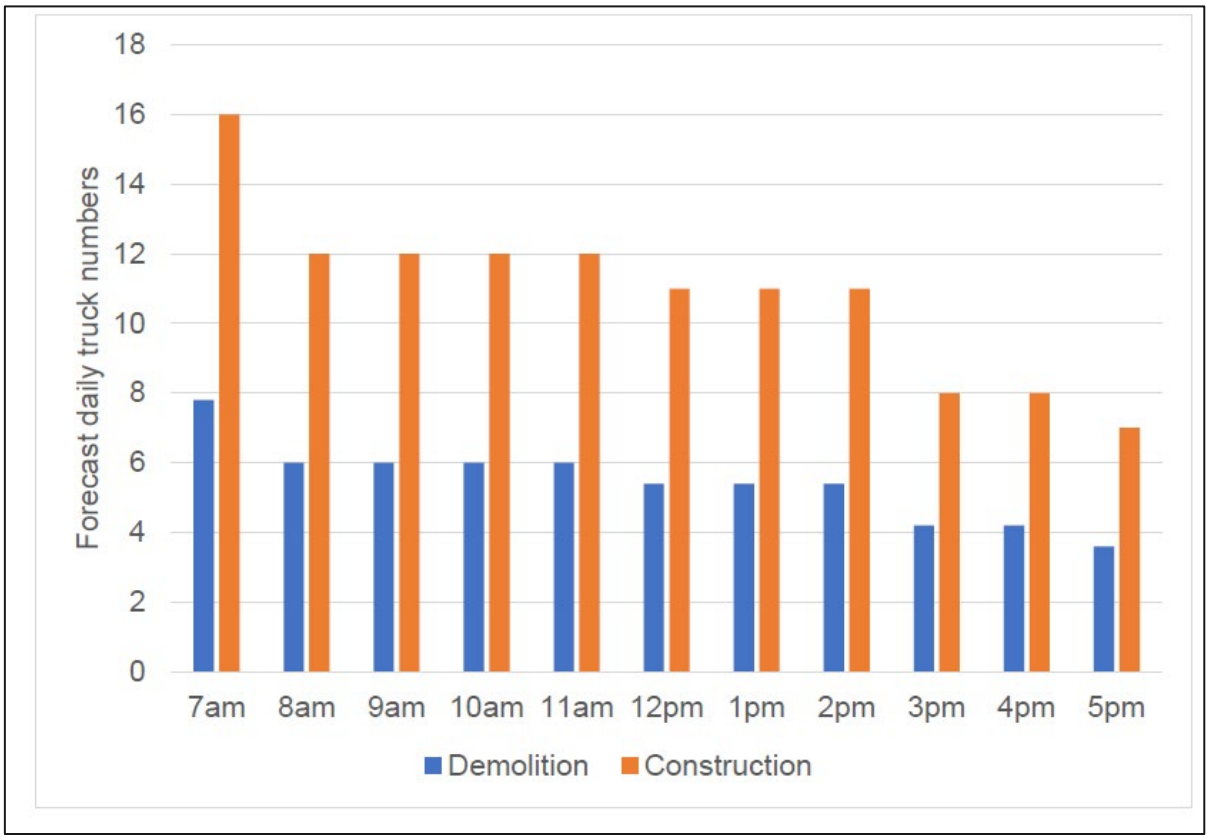


Figure 3: Anticipated hourly heavy vehicle traffic generation levels during demolition and construction stages

Source: Figure 32 of the TIA (JMT Consulting, April 2020)

The construction of the PPM will first involve the demolition of the existing Riverbank car park and Council car park. The Riverbank car park includes approx. 550 car spaces and they can be accessed through Dirrabarri Lane off Philip Street, as well as George Khattar Lane and Oyster Lane to the east. The section of the Council car park, that can be accessed directly through Dirrabarri Lane, includes approx. 50 car spaces. **Therefore, upon removal of the Riverbank and Council car parks, a significant reduction in traffic on Dirrabarri Lane can be expected**.

The TIA states that the construction works associated with the PPM development are not anticipated to have impacts on road user safety due to:

- Traffic controllers managing the construction vehicle movements on Dirrabarri Lane so that these vehicles do not impact the movement or safety of other users.
- The vehicle site access points being under the control and management of accredited traffic controllers, who will prevent vehicles from leaving the PPM site until it is safe to do so.
- The construction vehicle routes not coinciding with the major pedestrian activity areas – specifically within the Parramatta CBD.
- The key egress route for vehicles being the Smith Street / Phillip Street / Wilde Avenue intersection, which is controlled by traffic lights which can safely manage the movement of vehicles through this location.
- The traffic flows associated with construction activities being relatively low, in the order of 110-120 vehicles per day (a maximum of 16 vehicles per hour as shown in **Figure 3**) at peak times during the project. While this is the total, only a proportion of this traffic will enter the PPM site through Dirrabarri Lane. As such, the traffic impact on Dirrabarri Lane during the construction stage is considered minimal in the context of existing traffic movements in the precinct (especially without the vehicles accessing the two (2) car parks off Dirrabarri Lane); and
- All footpaths and bicycle paths remaining open and unaffected during the construction period. B-Class hoardings on the northern side of Phillip Street will be established to protect pedestrians walking in an east-west direction.

The TIA states that Dirrabarri Lane will retain full vehicle and pedestrian access during construction of the PPM. However, the report does not detail how this will occur during times that Dirrabari Lane is resurfaced or other associated works. It is recommended that the proponent is conditioned to work with Australian Unity and building management while developing the CTMP to ensure adequate site access is retained.

Operations phase

As shown in **Figure 4**, when the PPM is operational, Dirrabarri Lane will be used as the primary loading and servicing vehicle access route, for two (2) dedicated on-site loading areas. In particular, the northernmost loading dock will cater to the deliveries of Powerhouse collection/exhibition items and is capable of accommodating either a single 19 metre articulated vehicle or two (2) 12.5 metre heavy rigid vehicles (HRVs) simultaneously. The southernmost loading dock will service the retail, catering, and waste collection requirements of the building and can accommodate a 10-metre-long medium rigid vehicle. It is envisaged the onsite management of the loading dock will consist of a combination of an on-site dock manager and a dock management system (DMS). The DMS will enable the onsite management team to scheduled truck delivery times and allocate docks to avoid the delivery vehicles queuing back on to Dirrabarri Lane.

In addition, Dirrabarri Lane is expected to serve as a secondary pedestrian connection to the PPM site (see **Figure 5**). It is expected that the level of this pedestrian traffic will likely be similar to the current levels experienced on Dirrabarri Lane.

It is noted that no pickup/drop off points are proposed within the PPM site with vehicle access through Dirrabarri Lane. As such, during typical operations, Dirrabarria Lane will only be used by vehicles for loading and servicing of the PPM.

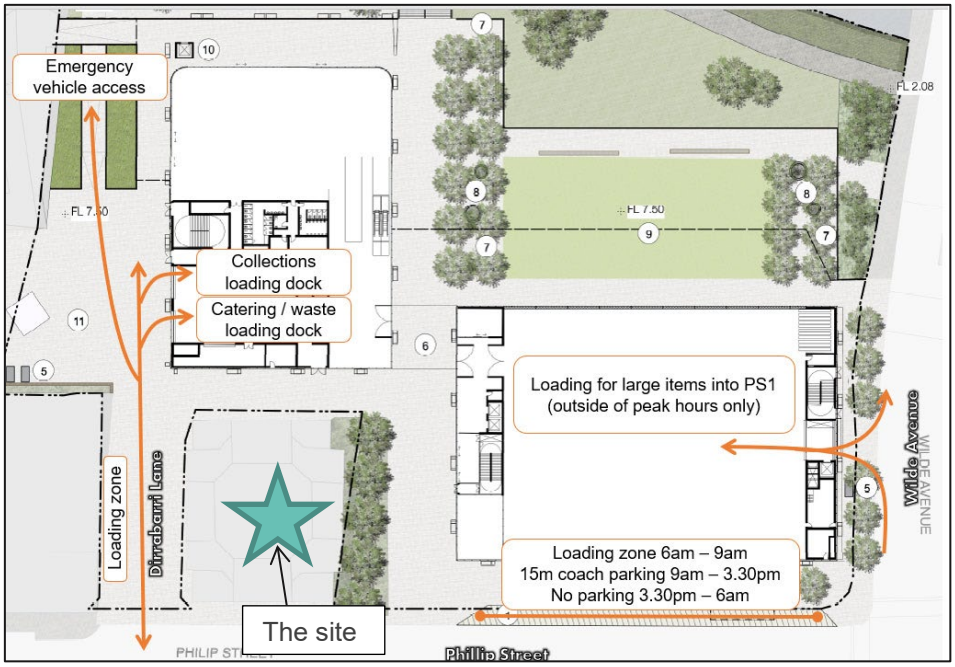


Figure 4: Vehicle access strategy for typical operations of the PPM

Source: Figure 26 of the TIA (JMT Consulting, April 2020), modified by Urbis

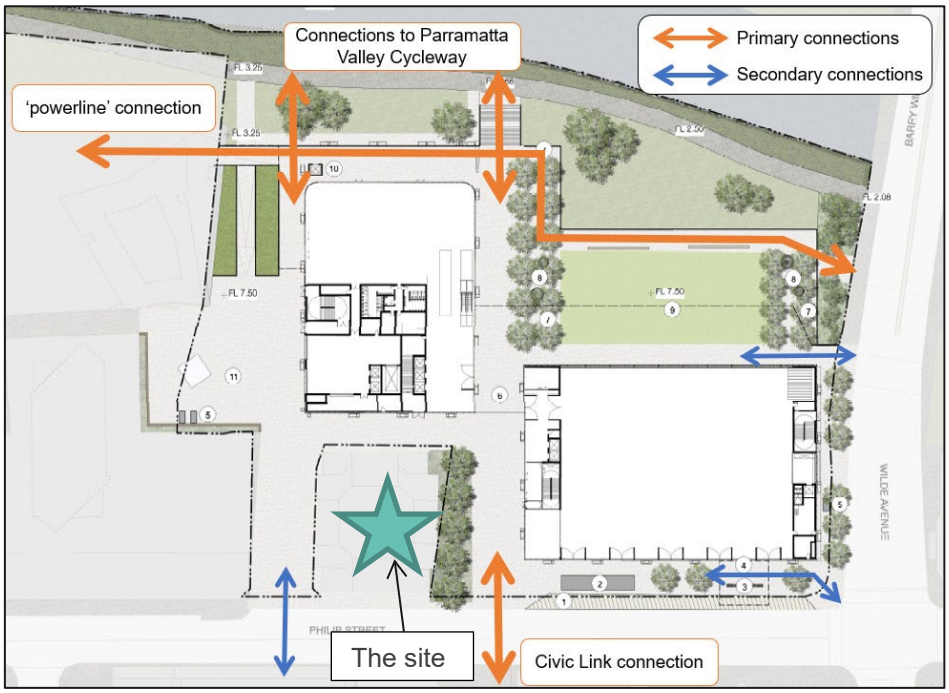


Figure 5: Pedestrian connections to the PPM

Source: Figure 24 of the TIA (JMT Consulting, April 2020), modified by Urbis

URBIS

CONCLUSION

Based on our review of the TIA for the PPM development, the following can be concluded:

- The TIA states that vehicle and pedestrian access along Dirrabarri Lane will be retained during both construction and operational stages of the PPM.
- Dirrabarri Lane is one of the three potential access points to the PPM site by construction vehicles. While it is unclear what proportion of construction vehicles will use Dirrabarri Lane, the traffic operational impacts during the construction stage of PPM on Dirrabarri Lane is considered minimal, especially due to the reduction of vehicle traffic associated with the two (2) existing car parks being demolished.
- Some level of impacts on the amenity for visitors and workers accessing 32 Phillip Street via Dirrabarri Lane can be expected during the construction stage of the PPM, due to heavy vehicles access and construction activities.
- Any civil works on Dirrabarri Lane must be carried out with consideration of access requirements to other adjacent sites (including the site at 32 Philip Street and the Meriton apartments). Traffic management will be determined by the CTMP and many include traffic controllers used to retain one-way traffic flows, so that vehicle access to the adjacent sites are not impeded.
- It is recommended that the proponent of the PPM liaise closely with the owners of the adjacent sites to develop a detailed CTMP, which considers likely impacts at each stage and proposes suitable mitigation measures such as dust and noise control procedures.
- Once PPM is operational, the traffic impact on Dirrabarri Lane will be minimal as it will only be used by the vehicles loading at and servicing for the PPM.

Should you wish to discuss any aspect of this letter, please don't hesitate to contact me on 02 8233 7665 or gmccabe@urbis.com.au.

Yours sincerely,

Graham McCabe
Director

gmccabe@urbis.com.au

APPENDIX C – REVIEW OF FLOOD IMPACT ASSESSMENT PREPARED BY MOLINO STEWART

MOLINO STEWART
ENVIRONMENT & NATURAL HAZARDS

27/07/2020

Australian Unity
C/- Robert Teijeiro
Senior Project Manager
TSA
Level 15, 207 Kent Street
Sydney, NSW, 2000

Dear Robert,

Re:Powerhouse Museum EIS Review – Flooding and 32 Phillip Street

As requested, we have reviewed the Powerhouse Museum EIS and relevant technical appendices and this letter provides an overview of the proposed museum's implications for:

- any changes to flooding that may impact 32 Phillip Street - flow paths, flood levels, rates of flow and mitigation measures.
- the ability for the proposed public domain levels to be functional and integrated with existing and future development of 32 Phillip Street.
- the flood impact to meet Council's requirements and flood management policies.
- appropriate design responses and/or conditions to protect 32 Phillip Street from adverse flood impacts.

This report does not consider the appropriateness of the museum's design to manage flood risks to the museum, its collections or people on the museum site.

Nature of Flooding

Both the Powerhouse Museum site and 32 Phillip Street are affected by two types of flooding:

- Riverine flooding where the Parramatta River rises and overflows onto the sites
- Overland flooding where water which exceeds the capacity of the underground street drainage network runs through the streets and other open space areas between buildings on its way to the Parramatta River

While low lying parts of the museum site are affected by relative frequent floods in the Parramatta River, 32 Phillip Street is not affected by riverine flooding up to and including the 1% (1 in 100) average exceedance probability (AEP) flood. Both sites are affected by the probable maximum flood in the Parramatta River which reaches about 11m AHD and would be more than 4m deep at the car park driveway into 32 Phillip St.

Figure 20 from Appendix O of the EIS (reproduced on the next page as Figure 1) shows the stormwater drainage catchments and underground pipe network which drain through the museum site to the River. The smaller, middle catchment includes 32 Phillip Street which is a noticeable indent in the southern boundary of the museum site.

The figure also shows there is drainage in Horwood Place and on both sides of Phillip Street which feed into a 600mm diameter pipe which runs along Dirrabarri Lane before cutting through the at-grade car park at the rear of 32 Phillip and under the multideck carpark before discharging into the Parramatta River.

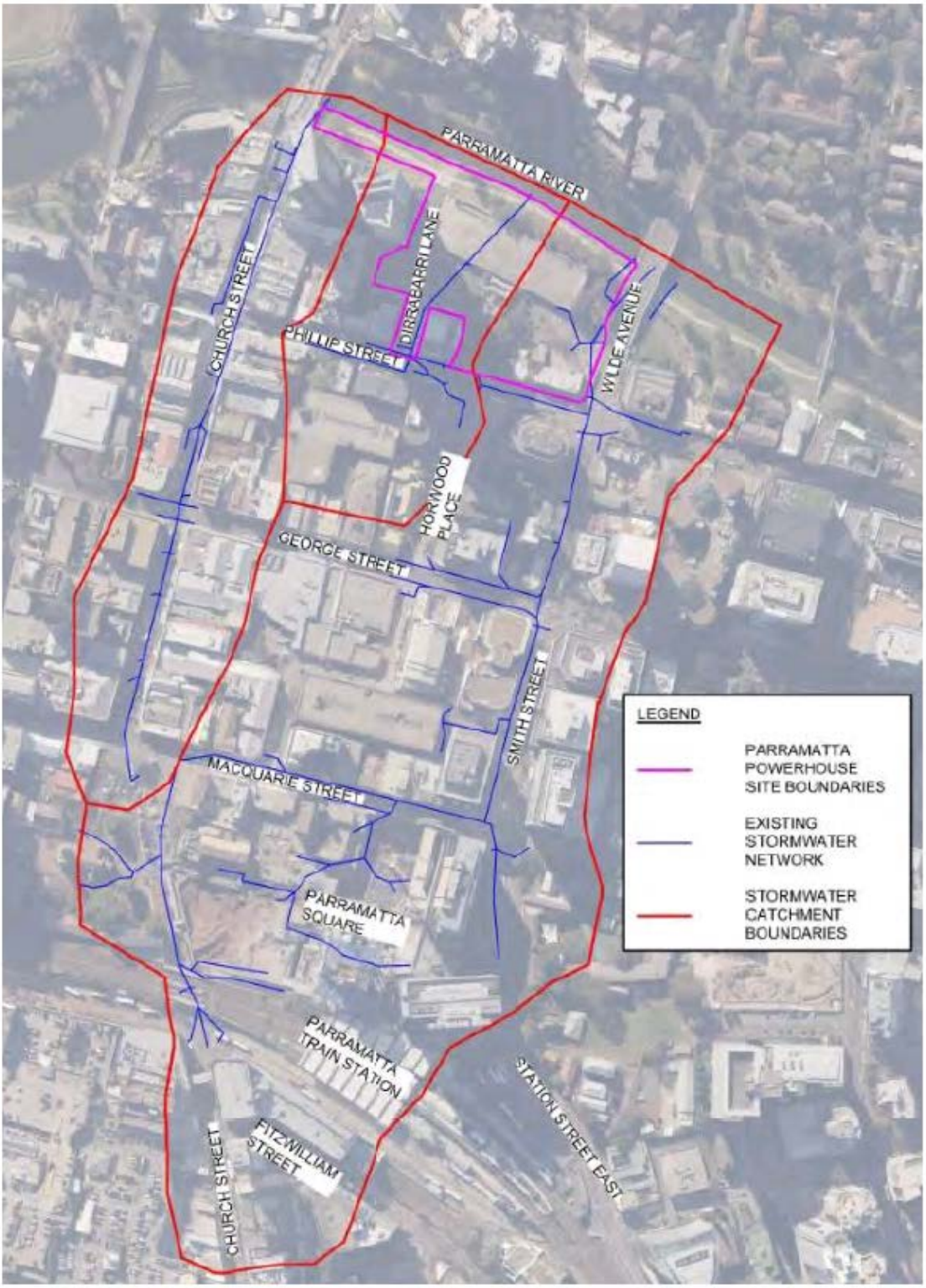


Figure 20: Existing stormwater drainage infrastructure catchment plan for areas in close proximity to the Powerhouse Parramatta development site

Figure 1: Stormwater Catchments and Pipes

Figure 2 shows that even in a 5% AEP overland flow event the underground pipe network is unable to take all of the flows. Because Dirrabarri Lane and Willow Grove are slightly higher than Phillip St, the water ponds in Phillip St. Once it has reached sufficient depth it flows around either side of 32 Phillip Street and into the at-grade car park at its rear. This is what happened on 9th February, 2020 and floodwaters entered the foyer of 32 Phillip Street.

It could be ponding up to 0.5m deep at the front of the building in a 5% AEP event. In the 1% AEP flood the water depths in front of 32 Phillip Street would be a little deeper. In the PMF the water could be up to 4.5m deep in front of 32 Phillip Street but this would be mainly controlled by the flood level in the Parramatta River which would only be about half a metre lower.

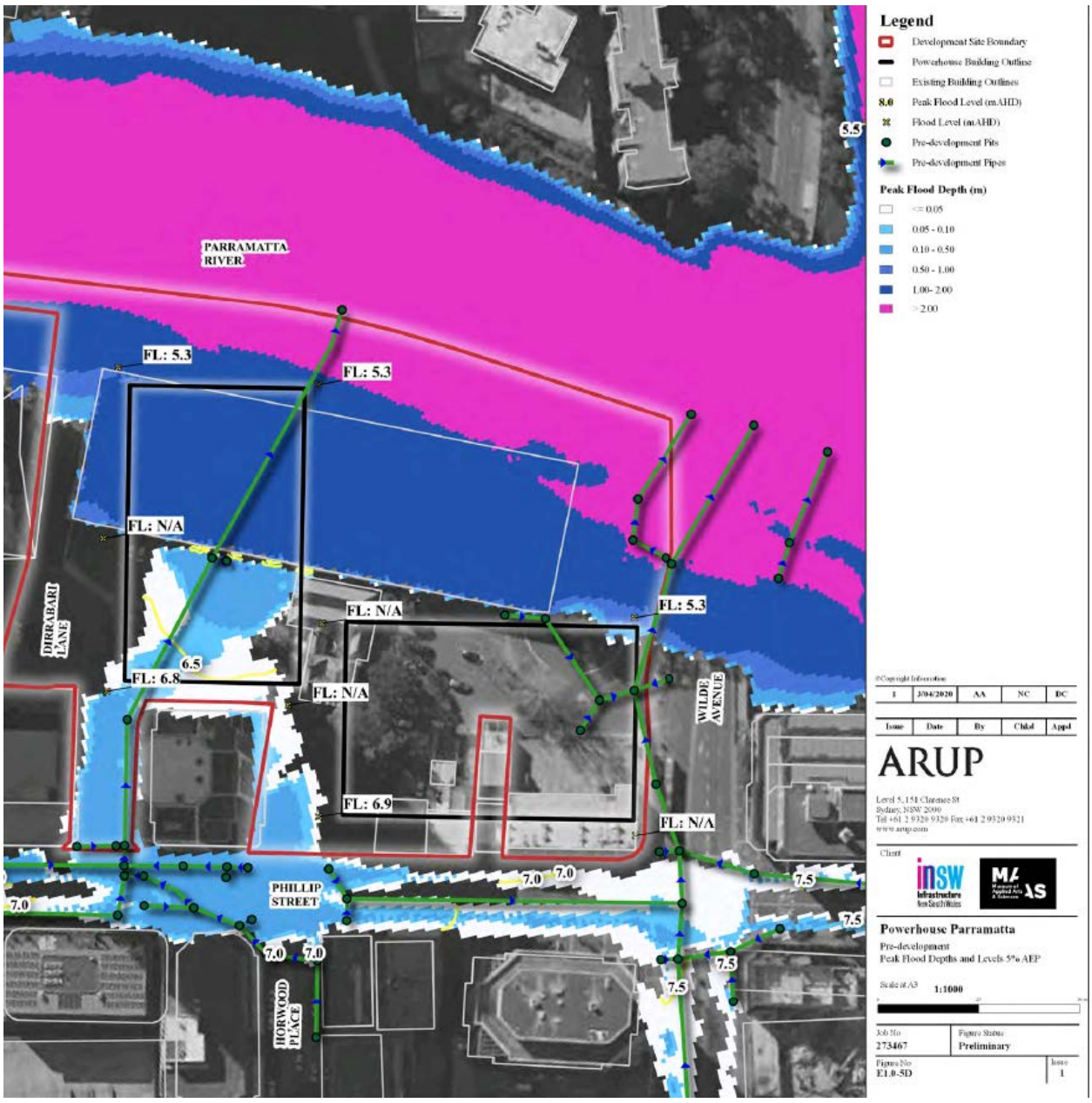


Figure 2: 5% AEP Flood Levels and Depths

Riverine Flooding Considerations

To ensure that the museum development does not obstruct riverine flows and increase flood levels on neighbouring properties, it is proposed to create an undercroft space under the museum's western building and contour the outdoor areas to provide the same flood conveyance and storage as currently exists.

As 32 Phillip Street is already above the 1% AEP flood levels in the Parramatta River, the museum development is unlikely to have any adverse impacts on 32 Phillip Street and the surrounding public spaces with regard to riverine flooding.

Overland Flooding Considerations

Figure 3 shows how the museum development proposes to manage overland flows and the impacts on overland flows in a 1% AEP event.. The existing 600mm diameter pipe which currently runs under Dirrabarri Lane and the multideck carpark will be replaced by a 1200mm diameter pipe running under Dirrabarri Lane and heading directly north to the river. Then on the eastern side of 32 Phillip Street a new 600mm pipe will be laid to take water directly to the river between the two museum buildings.

As can be seen in Figure 3, these measures would eliminate flooding to the immediate east and north of 32 Phillip Street and slightly reduce levels in Phillip Street and Dirrabarri Lane in a 1% AEP event.

Limitations

The preceding commentary is premised on the assumption that the flood modelling for the museum is adequate and the results presented in the EIS are accurate. I have in no way reviewed the adequacy of the modelling.

However, I note that Appendix O does compare the model results in the Parramatta River with the levels currently adopted by Council and those foreshadowed in a more up to date model currently being prepared for Council. The discrepancies are minor and, given that the 1% AEP level in the river is below the level of 32 Phillip Street, such discrepancies are not likely to have any implications for 32 Phillip Street.

No such comparison is presented in Appendix O for the overland flows but it is logical that by providing more underground pipe capacity on either side of 32 Phillip Street the current situation can only be improved. However, an important consideration in overland flow modelling is the assumed blockage of pipes and inlet structures. Appendix O claims to have included appropriate blockage factors for stormwater pits in the flood modelling but does not state what those factors are.

It is important to know what blockage factors have been adopted in the modelling for the following reason.

The existing stormwater flows pond in front of 32 Phillip Street and flow in a 600mm diameter pipe under Dirrabirra Lane to the river. When the flows to the low point exceed the capacity of the pipe the water rises until it reaches the high point in Dirrabirra Land and the high point in Willow Grove and flows overland around 32 Phillip Street.

If the inlet to the 600mm diameter pipe is partially blocked, less water will get into the pipe and more water will have to flow overland to the river in the same storm event. This means that any blockage in the pipe will increase the depth of the flows around 32 Phillip Street and the depth of ponding in front of the building. A 100% blockage will mean all the flows go overland and maximise the flood depths at 32 Phillip Street.

Furthermore, the overland flow management strategy within the Powerhouse Museum design is to increase the capacity of the pipe in Dirrabirra Lane and to provide a new pipe to take

overland flows along the eastern side of 32 Phillip Street. This will effectively increase the flow rate underground and reduce the flow rate overland. However, if the inlets to the pipes are 100% blocked then they will make no contribution to flood conveyance and will not reduce flood levels at 32 Phillip Street. In fact, if the level of Dirrabirra Lane is proposed to be raised, and it is certainly proposed to increase the ground levels to the east of 32 Phillip Street, then the water will need to pond to a higher level in Phillip Street and increase the flood levels for 32 Phillip Street.

I, and most flood modellers, do not think it reasonable to assume that the pipes will be 100% blocked but you can see that knowing the assumed blockage percentage will have a significant bearing on whether the proposed development will increase or decrease flood levels at 32 Phillip Street. If the same blockage percentage is assumed in the pre and post development modelling then that should not be a problem if the assumed blockages are reasonable.

Where a problem may arise is when a future development proposal is submitted for the redevelopment of 32 Phillip Street. It is my experience that Parramatta City Council requires flood modelling associated with development applications in the LGA to assume a 100% blockage of all stormwater inlets. If this is done then the flood planning level at 32 Phillip Street would be higher than has been assumed for the museum and in fact, because the museum has assumed some flow in the pipes to counter the increased ground level but Council will assume no flow in the pipes, the museum development will have effectively increased the flood planning level for 32 Phillip Street by virtue of the different flood modelling assumptions acceptable to the State Government versus Parramatta Council.

A more reliable overland flow solution for 32 Phillip Street, and one which Council would insist on were it the consent authority for the museum development, would be to lower the ground levels to the east and west of 32 Phillip Street so that there is less impediment to flow between the street and the river.

Conclusions and Recommendations

The proposed museum development is unlikely to have any adverse impact on 32 Phillip Street with regard to riverine flooding up to the 1% AEP flood level. In this regard the proposed museum design responses to flooding on and near the site meets the requirements of Parramatta City Council's flood management policies in that it does not increase the flood risks off site, as far as can be ascertained from the model results presented.

It should also theoretically not have an adverse impact on overland flood levels at 32 Phillip Street because it proposes to increase the capacity of underground pipes on either side of the building to counteract the increase in ground levels that it will create. The modelling in the EIS suggests that it will actually slightly decrease the overland flood levels at 32 Philip Street and make it flood free on its northern and . The effectiveness of this as a design solution will depend on the degree to which the pipe inlets can get blocked and the EIS and Appendices are silent on what has been assumed in the modelling.

What is more complicated is the potential divergence in the way the NSW Government and Parramatta City Council may consider inlet and pipe blockage in overland flood models. While the State Government may accept the blockages assumed in the overland flood modelling for the museum development, Council is likely to expect an assumed 100% blockage for the redevelopment of 32 Phillip Street. This would mean that 32 Phillip Street would be penalised financially because of the different treatment by the two consent authorities of the proposed overland flow management solution for the museum.

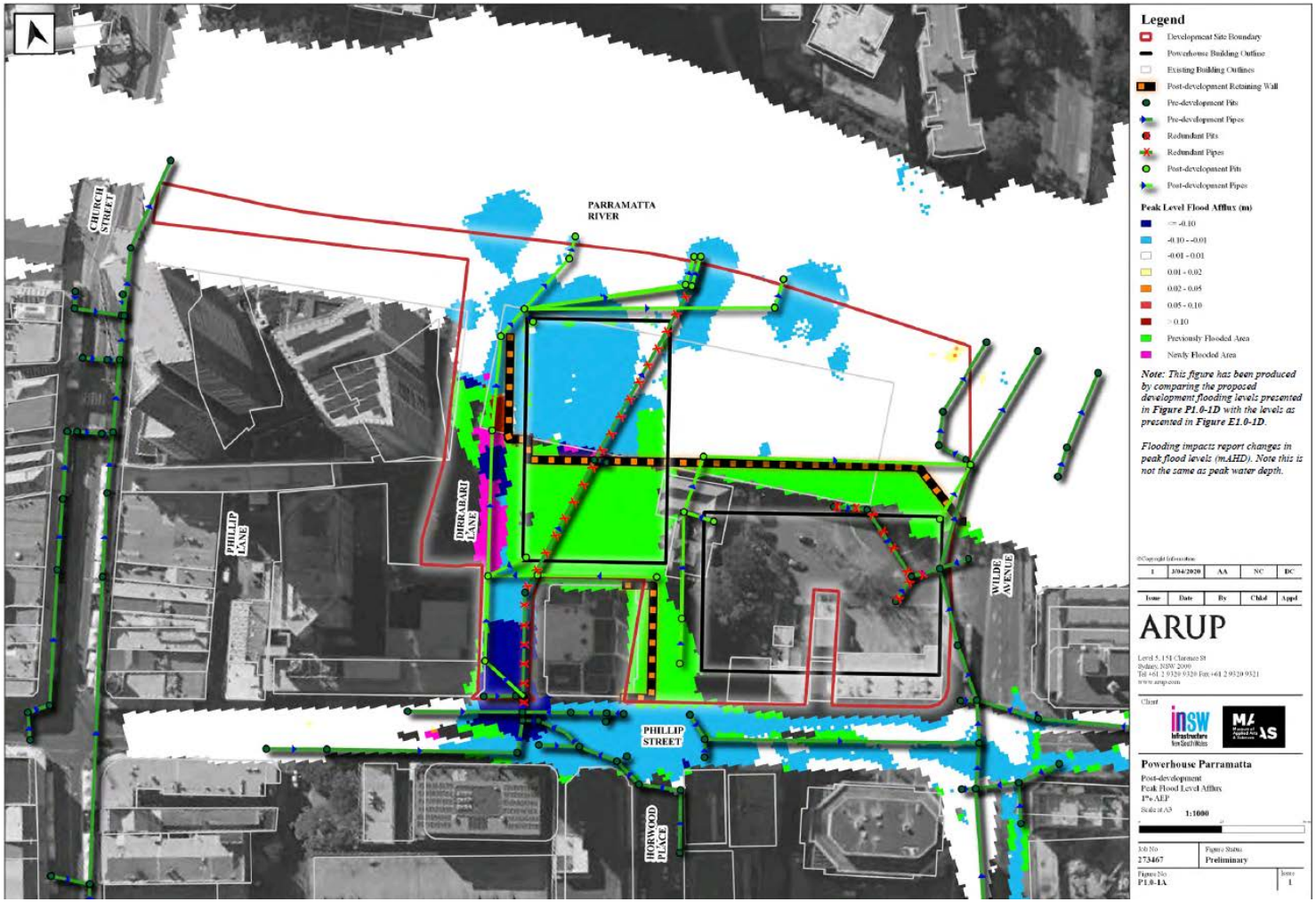


Figure 3: Proposed Design Responses to Manage Overland Flows

Therefore, to protect the commercial interests of the owners of 32 Phillip Street, it is recommended that:

- the provision of amplified stormwater pipes on either side of 32 Phillip Street be supported
- the flood impacts of the final museum design be tested using Council's more up to date, and peer reviewed, flood model when it becomes available (probably late 2020) to ensure that there will be no adverse flood impacts on 32 Phillip Street or the public spaces immediately surrounding it.
- when the detailed design and updated flood modelling is undertaken that the design solution be one which does not increase flood levels adjacent to 32 Phillip Street and is unlikely to do so even were there to be 100% inlet or pipe blockage.

Yours faithfully

For Molino Stewart Pty Ltd

Steven Molino

Principal

Y:\Jobs\2020\1222 32 Phillip Street - EIS services Review\Reports\Final\1222 32 Phillip St Parramatta - Powerhouse Museum Flood Impact Review.docx

APPENDIX D – REVIEW OF CONSTRUCTION NOISE ASSESSMENT PREPARED BY ACOUSTIC LOGIC

MATTHEW PALAVIDIS
VICTOR FATTORETTO
MATTHEW SHIELDS

Powerhouse Precinct Construction Noise Assessment Peer Review

Impact Assessment for 32 Phillip Street Parramatta

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Project ID	20200692.1
Document Title	Impact Assessment for 32 Phillip Street Parramatta
Attention To	Australian Unity Investment Management

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	16/07/2020	20200692.1/1607A/R0/VF	VF		VF

TABLE OF CONTENTS

1 INTRODUCTION

This report reviews the findings of the Arup "Noise and Vibration Impact Assessment" (NVIA) (ref: PHM-ARP-REP-AC-00004 Issue 02 dated 22 April 2020, which forms Appendix Z of the Powerhouse Parramatta Environmental Impact Statement) in respect construction noise and vibration impacts on 32 Phillip Street Parramatta.

"Construction" in this context includes demolition, site preparation, construction of new structures and landscaping/external works.

The EIS documents reviewed include Appendix B "Architectural Design Report" (ADR) and Appendix R "Preliminary Construction Management Plan"(CMP).

2 32 PHILLIP STREET

32 Phillip Street is located immediately adjacent to the Powerhouse site and has common boundaries on the eastern, northern and western sides of the 32 Phillip Street site.

The building is of "modern" construction with a concrete structure and a "sealed" glazed façade.

The ground floor contains a commercial tenancy as well as back of house spaces, building services (including main electrical services and diesel tanks) and building management offices. Levels 1 to 4 consist of carparking. Levels 5 to 12 are commercial offices. The offices are generally arranged with open plan office space around a central core of meeting rooms, storage and services. There are however more noise sensitive rooms such are meeting rooms located on the façade.

3 PROPOSED DEVELOPMENT

The site is currently occupied by a multi-storey carpark, at grade carparking, and existing low-rise buildings including Willow Grove and the St Georges Terrace. The site has two partial road frontages and is made up of a number of land parcels, forming an irregularly-shaped site area. It is bounded by the Parramatta River to the north, Wilde Avenue to the east, Phillip Street to the south and residential apartments and a hotel with frontages along Church Street to the west. The works for the project include site preparation and establishment, service relocations or terminations, tree removal, hazardous material removal, as well as demolition of existing structures and construction of the new museum.

The proposed development consists of museum spaces, food and beverage, co-working and residential spaces, education spaces and public domain. These spaces will be contained in two main buildings located immediately to the northern and eastern boundaries of 32 Phillip Street.

Construction of the Powerhouse would proceed in a number of phases:

- Site Establishment(2 weeks) – mainly consisting of establishing hoardings, site facilities, etc.

- Demolition (2-3 months)– This includes the strip out of existing buildings and the demolition of structures and ground works. The buildings consist of low-rise structures the most significant being the River Bank Car park. The CMP notes *"The structures will be demolished using larger plant and equipment including 15-40t hydraulic excavators." Materials handling would likely be completed by mechanical plant (including excavators and bobcats) loaded into trucks (bogie tippers and semi-trailers). Sorting of material into both non-recyclable and recyclable streams will be processed prior to be carted offsite to an approved waste facility or recycling centre respectively. The final demolition method to be confirmed by the Contractor within an updated Construction Management Plan prior to Works commencing."*

- Civil and Infrastructure Works (4 months) - This involves earth works to prepare the site for the building footprint, foundations and piling. It is noted that there is expected that some excavation of unsuitable poor and moderate strength material will be required, as well as for underground services. However, most of the site will require fill to achieve the desired levels. The CMP envisages that there will be some sawing and excavating of rock, as well as piling and rock anchoring. The building will be founded on piles that will extend to bed rock.

- Main Structure Construction (24 months) -The main structure would involve the erection of the main steel structures, infill concrete floors and fitting out of finishes and services.

- Public Domain Works (2 to 3 months) – Landscaping and minor structures.

4 NOISE AND VIBRATION IMPACT ASSESSMENT

4.1 GENERAL

The assessment conducted by Arup is largely based on the NSW Interim Construction Noise Guideline (ICNG). This is the guideline that is typically used to assess and manage construction noise impacts in NSW.

The structure of the guideline is:

- Assess the sensitivity of surrounding receivers to noise and vibration based on use
- Assign "noise (and vibration) management levels" (NMLs) to the surrounding receivers in accordance with the guideline's recommendations.
- Assess which activities will likely cause exceedances of the management levels and "reasonable and feasible" management of these activities to minimise impacts. Where there are still significant residual impacts recommend additional measures (such as respite periods) to manage these impacts.
- Provides general recommendations to manage impacts.

It should be noted that the noise and vibration management levels determined using the ICNG are not "limits" these levels can be exceeded provided that all reasonable and feasible methods have been employed and, where higher levels of impact occur, additional measures employed to mitigate the impacts.

The NVIA identifies 32 Phillip Street as a sensitive receiver and assigns noise and vibration management levels as follows:

- External noise level of 70 dB(A), which is consistent with the ICNG. It is noted that given the nature of the existing façade, the corresponding likely internal office noise level close to the façade would be around 40 dB(A). AS 2107-2016 recommends a maximum ambient noise level of 45 dB(A) for office space (for permanent noise sources). Therefore, at the proposed NML a low level of impact on the occupants of 32 Phillip Street is expected. However, this is not to say that construction noise will be inaudible.

- Human Comfort Criteria have been adopted in accordance with the IGNG. Again, it is noted that this does not preclude that some perceptible vibration will not be felt from time to time.

- Building Damage Criteria – Building damage criteria have been adopted based on appropriate DIN and British Standards. Given the construction of the subject building, we would expect the "Group 1" vibration levels would be applied. These vibration levels are well above the human comfort criteria and are not expected to be reached by the proposed works given this, and the nature of the proposed works.

There are a number of issues arising out of the NVIA in respect of construction impacts, which are discussed below.

4.2 NOISE PREDICTIONS

- Noise predictions at the façade of 32 Phillip Street are summarised in Table 21 of the NVIA based on the noise emission levels in Table 19. The noise emission levels used as a basis of the predicted noise levels appear to be reasonable except that the noise level for impact piping appears to be at the lower end of the range. AS 2436-2010 adopts a range of 126-147 dB(A) sound power level for impact piping with a typical midpoint of 137 dB(A). The "typical" value in AS 2436 is 10 dB(A) higher than adopted in the NVIA.

- There are a number of inconsistencies between the NVIA and the CMP in respect of equipment. Notably, the CMP foreshadows the use of rock breakers (excavator mounted hydraulic hammers) during demolition, and rock saws and rock removal during the excavation phase. These are excluded from the NVIA. The CMP proposes a number of noise and vibration management measures that are not detailed in the NVIA.

- We are not able to verify the numbers of equipment assumed in the NVIA, nor the location on site used . as there does not appear to be any corresponding advice in the CMP as to numbers, nor is there information in the NVIA as to the locations of the sources used to assess noise levels.

- The NVIA predicts a worst case noise level of 82 dB(A) during the works, except for the Bulk/Detailed Excavation Phase where a noise level of 83 dB(A) is predicted. These noise levels exceed the NML for 32 Phillip Street by 12-13 dB(A), whicha re significant exceedances. (A noise level increase of 10 dB(A) is considered to be a subjective doubling of loudness.)

- Using the noise emission levels used in the NVIA, and assuming the piling works could occur as close as 10m from the Phillip Street norther façade and around 25m from the eastern façade, the resultant façade noise level from this activity would be up to 90 dB(A) outside the nearest commercial tenancies (ground level eastern façade and level 5 northern façade). This is well above the 83 dB(A) predicted as a worst case in the NVIA. The resultant internal noise level predicted in the NVIA would be around 53 dB(A) and our predictions indicate impact piling may produce up to 60 dB(A). Noise at these levels (particularly at 60 dB(A)) would impact amenity. Given that impact piling is likely to generate higher noise levels than assumed in the NVIA, noise levels in the commercial spaces may exceed 70 dB(A) which would have a serious impact on amenity.

- We estimate that the use of hydraulic hammers to demolish the carpark may generate similar noise levels to piling, i.e. around 85 dB(A). This is not addressed in the NVIA as it states that demolition will be undertaken using pulverisers only. Given the CMP contradicts this, the potential impact of this activity should be assessed.

- Modelling of construction noise impacts has been undertaken for the NVIA. However, the NVIA does not indicate where the noise sources have been placed on the site to obtain the predicted levels. The analysis presented above indicates the assessment undertaken does not adequately assess impact at 32 Phillip Street. While a "typical" location of plant may be adequate to predict impacts to more distant receivers, the proximity of 32 Phillip Street to the site demands a more detailed assessment of impacts.

- In response to the prediction of the NML the NVIA presents only very generalised and non-site specific recommendations in respect of the management of construction noise, nor does it recommend any real commitments to be adhered to by the proponents. The NVIA does recommend that the constructors develop a detailed Construction Noise and Vibration Management Sub Plan, but provides no recommendation as to the contents of the plan nor the desired outcomes.

- The CMP promulgates the use of respite periods to mitigate noise from louder operations, whereas the NVIA is silent on this. It is noted that the CMP proposes a respite period between 7am and 8am and no loud works on Saturday. While this addresses residential and hotel receivers, this will concentrate louder activities to periods when the building is occupied, and away from periods when the building is unoccupied or lightly occupied.

- In respect of vibration, the only activity that is likely to adversely impact 32 Phillip Street is impact piling. The NVIA indicates a separation of 20m is typically required to prevent adverse impacts on amenity. It is noted that piling appears likely to be needed within that distance.

5 CONCLUSION

A review of the NVIA has been undertaken with the following conclusions:

- The NVIA has assessed noise and vibration impacts using the NSW Interim Construction Noise Guideline as a basis, which is appropriate.
- The NVIA lacks sufficient detail to enable a proper assessment of worst case impacts to be determined.
- The NVIA likely under-predicts potential noise and vibration impacts at 32 Phillip Street by adopting base noise emission levels that are lower than those that might potentially occur, and by not assessing activities that might occur close to the 32 Phillip Street boundary.
- There are inconsistencies between the CMP and the NVIA. There are activities proposed in the CMP that are not assessed in the NVIA. There are specific noise management measures nominated in the CMP that are not mentioned or mentioned in a general sense in the NVIA.
- The effect of the respite periods proposed in the CMP is to minimise impacts at residential receivers but increase impacts to 32 Phillip Street by concentrating construction activity to periods when the building will be in use, and away from periods when the building would be unoccupied or lightly occupied.
- The NVIA concludes that noise levels generated by the proposal will significantly exceed the Noise Management Level, by up to 13 dB(A). Our assessment indicates that this may underestimate the level of impact, particularly if impact piling is required and noise levels of up to 70 dB(A) within the building may be produced from this activity. This would effectively preclude this activity from occurring close to the 32 Phillip Street boundary during business hours as this noise level will have a significant impact on amenity.
- The NVIA provides only generalised recommendations in respect of mitigation and no commitments as to appropriate noise levels where exceedances above the Noise Management Level should require more than "reasonable and feasible" mitigation.
- In respect of vibration, the only activity that is likely to adversely impact 32 Phillip Street is impact piling. The NVIA indicates a separation of 20m is typically required to prevent adverse impacts on amenity. It is noted that piling appears likely to be needed within that distance.
- The NVIA recommends the constructions prepare a more detailed plan but does not stipulate what this should include or the desired outcome in respect of impact on 32 Phillip Street.
- The IGNG requires that consultation with affected receivers be undertaken prior to the development of any management plans.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Victor Fattoretto
MAAS MIE(Aust)

APPENDIX E – REVIEW OF WIND IMPACT ASSESSMENT PREPARED BY WINDTECH GLOBAL

July 24, 2020

WF578-01F02 letter

Australian Unity Investment Management Administration Pty Ltd

c/- TSA, Level 15, 207 Kent Street, Sydney NSW 2000

Attn: Mr Robert Teijeiro

RE: WIND IMPACT ASSESSMENT FOR 32 PHILLIP STREET, PARRAMATTA

1.0 Introduction

I have reviewed the Wind Impact Assessment prepared by Arup (reference PHM-ARP-WI-0003) and dated April 3, 2020, which formed part of the Powerhouse Parramatta Environmental Impact Statement. This report presents an assessment of the impact of the proposed Powerhouse Parramatta development onto pedestrians in the surrounding streets. Some of these streetscapes are particularly significant such as the Civic link to the Parramatta River, the Parramatta River foreshore, the area around the neighbouring building at 32 Pillip Street as well as wind conditons along Phillip St, Wilde Avenue and Dirrabarri Lane.

The Arup report has employed an approximate method, using Computational Fluid Dynamics (CFD) rather than a more accurate wind tunnel model study. There are reservations in the accuracy of CFD when assessing wind environment impacts and in particular the safety limit, due to the difficulty in being able to model transient effects such as the annual maximum gust wind speed, which one of the criterial stipulated in the local planning controls.

The Arup report suggests that all areas will experience calm wind conditions, suitable for stationary activities including the undercroft area below the link between the two wings. From personal experience the assessment of the wind conditions in the undercroft as being suitable for stationary activities indicates that the results are potentially optimisitic.

2.0 Impact on 32 Phillip Street

The ownership of 32 Phillip Street are currently considering upgrading the existing building in response to Parramatta City Council's plan to activate the conneciton between the Parramatta CBD and Parramatta River via the Civil Link. This includes activing the eastern aspect of their ground floor, which faces the Civic Link. Such activation will involve outdoor stationary activities. Given that the south-easterly winds are the most prevalent winds within this part of the Sydney Basin, there is some concern that the eastern wing of the proposed Powerhouse building on Phillip Street could result in accelerated wind flows onto the eastern aspect of the ground floor and potentially impacting the viability of the future retail tenancies along that aspect.

In summary, a detailed assessement is needed, using wind tunnel testing to more accurately assess the impact of the Powerhouse Parramatta building on the pedetrian amenity in the surrounding streetscapes as well as the potential for activation of the eastern aspect of the ground floor of 32 Phillip St.

Yours sincerely,

WINDTECH Consultants Pty Ltd
Tony Rofail
Director

APPENDIX F – REVIEW OF PRELIMINARY CONSTRUCTION MANAGEMENT PLAN PREPARED BY CORNERSTONE

cornerstone.

Parramatta Powerhouse Museum
Review of Construction Management Plan (CMP)

For

Australian Unity and
TSA Project Management

Australian Unity
Real Wellbeing

TSA

Document Register

Revision	Date	Description
A	14th July 2020	Draft Issue for TSA review / comment
B	14th July 2020	Section 2.8 added and reference to Smith St corrected
C	17th July 2020	Section 2.8 completed and Draft status removed.

Table of Contents

1. Introduction

1.1. Purpose of this Review

Cornerstone (NSW) Pty Ltd has been engaged by TSA Project Management, on behalf of Australian Unity, to undertake a review of Appendix R to the Environmental Impact Statement (*EIS*) , titled Preliminary Construction Management Plan (*CMP*), Revision C, as drafted by Aver Pty Ltd (dated 20th April 2020), for the Powerhouse Parramatta Museum (*the Museum*).

The purpose of the review is to examine the potential impacts and threats of construction of the Museum on Australian Unity's property and its tenants at 32 Phillip Street, which will be bound on all three boundaries by the proposed Powerhouse Museum development, as well as identifying any potential constraints on the ongoing operation or development potential of the property at 32 Phillip Street, following completion of the Museum project.

1.2 Description of the Museum Site

The site of the Powerhouse Parramatta Museum is illustrated in figures 1.2.1 and 1.2.2 below. The site occupies an area of approximately 2.5 hectares with street frontages to Phillip Street to the South, Wilde Avenue to the East and a small frontage adjacent the Parramatta River onto Church Street to the West.

The Northern boundary of the site extends along the foreshore of the Parramatta River.

Australian Unity's site at 32 Phillip Street, (also referred to as GE Office Building in the preliminary CMP) is clearly identified in figures 1.2.1 and 1.2.2 and shares its North, East and Western boundaries with the Museum site.

Figure 1.2.1 – Aerial Photograph of the Powerhouse Parramatta Museum site
32 Phillip Street

Source : Appendix R Preliminary Construction Management Plan, Powerhouse Parramatta EIS – Figure 1

Figure 1.2.2 – Site Boundary and local context
32 Phillip Street

Source: Appendix R Preliminary Construction Management Plan, Powerhouse Parramatta EIS – Figure 2

The laneway immediately to the West of 32 Phillip Street noted as Dirrabarri Lane in figure 1.2.2, is an existing vehicular access easement. Beneficiaries of the easement include:

- Our Clients property, Australian Unity's 32 Phillip Street, where unimpeded access to Dirrabarri Lane is fundamental for tenant access to the building carpark, deliveries to the loading dock, and building maintenance, and
- Meriton residential and serviced apartment: the twin Towers occupants, retail precinct operators and associated below ground public carparking

As noted in the legend in figure 1.2.2 above, the Museum site is currently occupied by structures denoted 1 to 5 as follows:

1. Riverbank carpark, a four level public carpark
2. St Georges Terrace, a two-story terrace on Phillip Street comprising seven houses built in 1880's
3. A substation building at 42 Phillip Street
4. Two story commercial / retail buildings at 36 and 40 Phillip Street
5. Willow Grove, a two-story building on Phillip Street constructed in the 1870's

Section 1.4 of the Preliminary CMP (2nd dot point) confirms that the SSD DA for the Museum, seeks consent for the demolition of all the existing structures located on the site, including structures identified as 1 to 5 above.

Furthermore, dot point five in section 1.4 of the CMP, confirms that while Dirrabarri Lane vehicular easement will be maintained, the removal of Oyster Lane and the termination of George Khattar Lane (located in the North East of the Museum site under Wilde Ave bridge, not identified

in Figure 1.2.2 above) will be included as a part of the development, as will a new vehicular access point to Wilde Ave for loading.

1.3 32 Phillip Street and the Surrounding Context

32 Phillip Street Parramatta (referred to as the GE office Building), is located in the Parramatta Council local government area (LGA). It is directly to the South of the Parramatta River, and approximately 200m East of Church Street, in the major Parramatta commercial precinct.

The building consists of 13 floors, including 4 levels of carparking and 8 levels of commercial office space and the ground floor lobby.

It is noted that 32 Phillip Street and the surrounding area is subject to inundation during flood events.

Sample plans and elevations of the building are included in Appendix A and current photos of the building are illustrated in figures 1.3.1 to 1.3.4 below.

Figure 1.3.1 : View of North West corner from Meriton Towers forecourt

Figure 1.3.2 : North Elevation

Figure 1.3.3 : South West corner from Phillip Street

Figure 1.3.4 : Loading dock & carpark entry View from Dirrabarri Lane

1.4 Museum Project Description

The proposed Museum works comprise the following (as sourced from Section 1.4 of the Preliminary CMP):

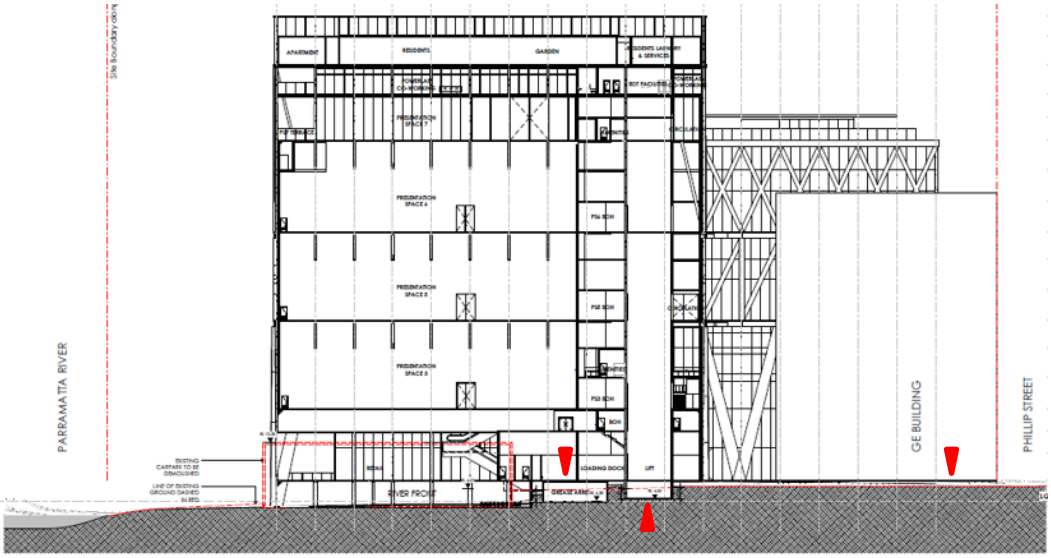
- site preparation works, including the termination or relocation of site services and infrastructure, tree removal and the erection of site protection hoardings and fencing
- demolition of existing buildings including the existing Riverbank Car Park, 'Willow Grove', 'St George's Terrace' and all other existing structures located on the site
- construction of the Powerhouse Museum Parramatta, including:
    - seven major public presentation spaces for the exhibition of Powerhouse Collection
    - front and back-of-house spaces
    - studio, co-working and collaboration spaces comprising the 'Powerlab', supported by 40 residences (serviced apartments) for scientists, researchers, students and artists, and 60 dormitory beds for school students
    - education and community spaces for staff, researchers and the Powerlab residents, the community, and education and commercial hirers
    - commercial kitchen comprising the 'Powerlab Kitchen' used for cultural food programs, research, education and events
    - film, photography, and postproduction studios that will connect communities with industry and content that will interpret the Powerhouse Collection
    - public facing research library and archive for community, industry, students and researchers to access materials; and
    - a mix of retail spaces including food and drink tenancies with outdoor dining.
- operation and use of the Powerhouse Parramatta including use of the public domain provided on the site to support programs and functions
- maintenance of the existing vehicular access easement via Dirrabarri Lane, the removal of Oyster Lane and termination of George Khattar Lane, and the provision of a new vehicular access point to Wilde Avenue for loading
- public domain within the site including new public open space areas, landscaping and tree planting across the site; and
- building identification signage.

From the introduction contained in Appendix S of the EIS, JK Geotechnical Report it is understood that the proposed Powerhouse Museum development will comprise two separate towers linked by a bridge, one of about 75m height and one of about 55m height. A single level under croft with a finished floor level at RL3.5m, is proposed below the northern portion of the site, and excavation to a maximum depth of approximately 3m below existing surface levels is expected to be required. Excavation will also be required for lift pits, stormwater detention structures, and for services.

According to references in JKs Geotechnical report, it is anticipated the buildings will be supported on piles to sandstone bedrock.

Figure 1.4.1 below illustrates the general relationship of the Museum to the GE Building at 32 Phillip Street

Figure 1.4.1 : Cross section through Museum looking East with 32 Phillip St in foreground



1.5 Reference Documents

The following additional documents have been referred to in the preparation of this report:

1. Aver Consulting Preliminary Construction Management Plan - Appendix R of EIS
2. JMT Consulting Transport Impact Assessment – Appendix F of EIS
3. Arup Noise Vibration Impact Assessment – Appendix Z of EIS
4. Wilkinson Murray Air Quality Impact Assessment – Appendix T of EIS, and
5. JBS&G Detailed Site Investigation (DSI) into potential contamination – Appendix L to EIS
6. J&K Geotechnical Assessment – Appendix S of EIS
7. Site Survey Appendix E of EIS, and
8. Architectural Plans – Appendix B of EIS

2. Observations & Recommendations

2.1 Existing Building condition and maintenance

Dilapidation

Prior to any demolition or earthworks commencing, we recommend that Australian Unity commission their own detailed dilapidation report. The dilapidation report should comprise a detailed inspection both externally and internally, with all defects thoroughly documented. The authorised representative of the Museum project should be provided with a copy of the dilapidation report and be asked to confirm that they present a fair representation of the existing conditions.

We note that Council may also require dilapidation reports be prepared for adjoining Council assets (i.e. roads and footpaths), and as such, the Museums authorised representative should be requested to supply Australian Unity with a copy of this report, in so far as it relates to the footpaths and roads in the vicinity of 32 Phillip Street.

These two reports will then provide a baseline against which to assess possible future claims for damage arising from the Museum project. Such claims may arise from the museum construction activities including:

- Vibration from demolition of existing structures or from socketing new piles into sandstone bedrock
- Plant or machinery failure / impact
- Heavy Construction Vehicle Traffic

Impacts from Dust

Section 5.1 of the EIS Wilkinson Murray Air Quality Report states:

> *"The preceding assessment of potential dust impacts from the proposed construction works indicates that, in the absence of specific mitigation measures, the works have a high risk of dust soiling impacts and a low risk of health impacts."*

As such, the close proximity of demolition and construction and the associated increased levels of dust soiling from the works, will result in a detrimental impact on the maintenance and operation of mechanical plant rooms, air conditioning filters and above ground carparking in the building as fine dust particles pass through the mechanical louvers (area defined by orange arrows) and carpark screens (area defined by red arrows) on the Western and Northern elevations in figures 2.1.1.

In addition, the glass façade will be subject to high levels dust soiling from the museum construction activities, and as a result the façade will require additional scheduled cleaning.

Figure 2.1.1 : North & West Elevations

Whilst Section 8.4 of the Preliminary CMP and the Wilkinson Murray report both nominate a number of mitigation strategies, these will not prevent additional maintenance and cleaning that will be incurred by Australian Unity over the forecast 7 month demolition, excavation and piling phase and subsequent 24 month construction period. As a result, the following recommendations should be considered in response to the additional cleaning demands:

- Independent auditing and monitoring of the implementation of controls and mitigation strategies by the museum project team
- Review of past cleaning and maintenance expenses for 32 Phillip Street and forecast additional cleaning and maintenance expenses to be paid for by the Museum project
- Investigate the potential for additional dust screening, noting the need to satisfy fresh air and / or ventilation requirements to the carpark and plant rooms

2.2 Vehicle Access and Egress

As illustrated in Figure 2.2.1 above, and further described in Section 7.2.4 of Appendix F of JMTs Traffic Impact Assessment, the route for large construction vehicle ultimately leads to access / egress points immediately to the West and East of 32 Phillip Street, with only smaller vehicles utilising George Khattar Lane (due to the limited clearance under Wilde Ave bridge).

Figure 2.2.1 : Museum Construction Traffic Routes

Source : Figure 29 of CPTMP - JMT Consulting Traffic Impact Assessment (Appendix F of EIS)

These two access points on Phillip Street, will need to be attended by traffic control to manage the flow of construction vehicles safely, as they come and go from site. Two entry / exits in such a close proximity to each other, has the potential to place a great deal of pressure, on the already existing congested Phillip Street, and on vehicle access and egress to and from 32 Phillip Street.

Unimpeded access for the tenants and for deliveries, pick-ups and garbage collection of 32 Phillip Street is an important factor to consider in the back-drop of how these two access points will function.

JMTs assessment forecasts maximum hourly construction traffic generation of 8 vehicles/hr (demolition, excavation, piling phase : 6 months) and 16 vehicles/hr (construction phase : 24 months).

In order to reduce the number of large truck movements and congestion in Phillip Street, and pressure on accessing Dirrabarri Lane and 32 Phillip Street carpark and loading dock, it is recommended that Australian Unity request heavy vehicles use the existing and future entry / exit off Wilde Avenue, illustrated by the green dot in figure 2.2.1 above, particularly during the demolition, excavation and piling phase of the program.

Furthermore, it is recommended that Australian Unity request an opportunity to review and comment on the final CPTMP prior to the issue of a construction certificate and commencement of the works.

2.3 Excavation and Site stability

Figure 2.3.1 below illustrates the proximity of the deepest known excavation identified in the vicinity of the North boundary of 32 Phillip Street, which coincides with the base of the large goods lift pit, BOH 3 that will serve the loading dock.(clouded in red in Fig 2.3.1)

At this location, the existing ground level is approx. 6.70m. The lift (BOH L3) is nominated as having an excavation level at the base of the lift pit of 4.75m AHD, approximately 2m below the existing bitumen carpark, and approximately 12m North of the boundary.

In addition, pier caps on the perimeter of the building line will need to be excavated, the depth of which, at the time of writing this report, is yet to be nominated.

Given the proximity and level of the excavations in relation to the Northern boundary, it is unlikely that instability will be a concern, however consideration should be given to how Australian Unity will in light of this excavation and future construction operations in this area, ensure ongoing maintenance and emergency access to the substation room and pump room in the North Eastern corner of the 32 Phillip Street site (illustrated by the green dot in figure 2.3.1)

Figure 2.3.1: Lift pit excavation vs North boundary

Other excavation that has the potential to impact upon 32 Phillip Street, would include service trenching in connection with new or diverted services, or any removal of hazardous materials identified in the future, which are found to be in the areas adjacent to the boundaries of 32 Phillip Street.

In this regard, it is recommended that Australian Unity seek to review the potential impact of any other excavations which are not known at this stage, once further details are available, noting that Section 12.2 of Aver's preliminary CMP sets out their understanding of the areas of cut required at this point in time, and acknowledges that;

> "*where excavation works are required close to the boundary and / or neighboring buildings further consideration with the zone of influence will be required, it is anticipated a shoring system such as either contiguous piled walls, or soldier pile walls with infill shotcrete panels would be implemented*"

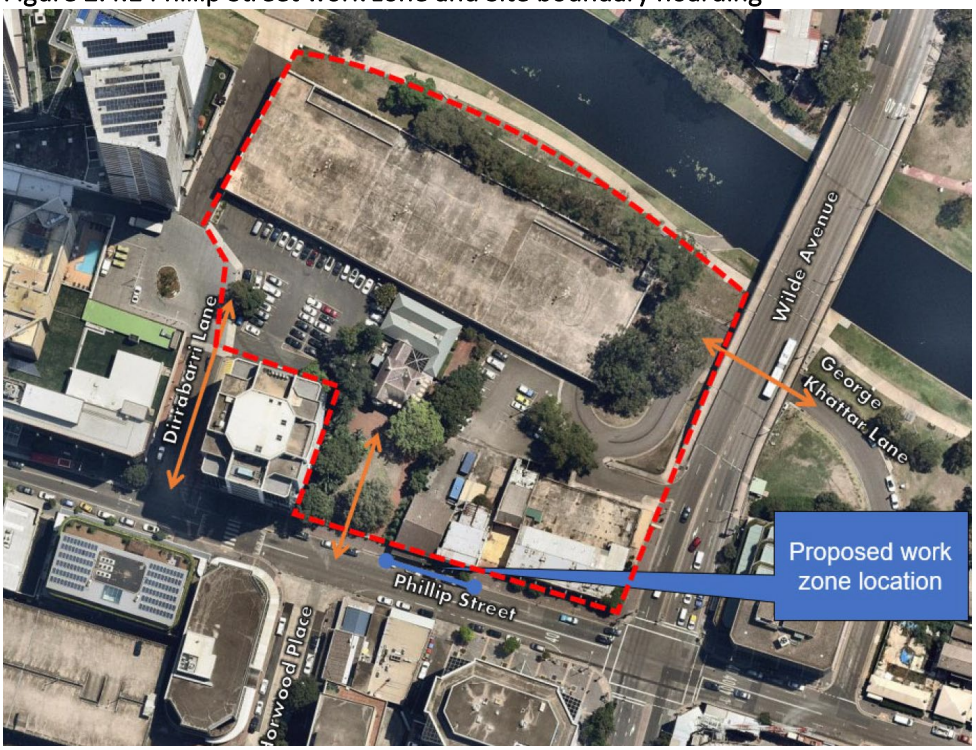
In this regard, Australian Unity should insist on the opportunity to review details of any such plans as they develop, and give particular consideration to any anchors that impact upon their property or any other threats or constraints to the property.

2.4 Hoardings and Materials Handling

Hoardings

Figure 6 in Aver's CMP and Figure 2.4.1 below sourced from JMTs Transport Impact Assessment illustrates the location of the proposed work zone in Phillip Street (shown in blue) and the perimeter site boundary hoarding (shown dotted red).

Figure 2.4.1 Phillip Street work zone and Site boundary hoarding



Source : Figure 33 of JMTs Transport Impact Assessment

The proposed work zone must include overhead protection in the event trucks will be unloaded using on site cranes offloading over the footpath.

A point of concern relating to the boundary hoarding and entry into the Museum site off Dirrabarri Lane occurs at the intersection of what may be the site gates, the end of the lane and the intersection of the carpark entry ramp to 32 Phillip St.

It is recommended that Australian Unity seek clarity as to where these gates will be located with the aim of moving them to the North away from the base of the carpark ramp, to ensure the safety of drivers exiting the carpark at 32 Phillip St.

This again provides further support to the argument that gates off Wilde Ave for heavy vehicles should be used as a minimum for the demo, excavation and piling, and early structure phases of the project, in order to take pressure off Dirrabarri Lane and Phillip Street.

Materials Handling

Section 13.3 and 13.5 of Avers preliminary CMP set out plans for craneage and materials handling, noting that they anticipate a fixed crane (Favco or Hammer-head type) will be utilized on the site.

Australian Unity should request confirmation as to the proposed location of this crane, its swing arc to confirm it will not swing over the building, and which type of crane it is, noting that a diesel (Favco) style crane may result in further impacts upon the tenants of 32 Phillip Street from the noise of the diesel motor if it is in the vicinity of Australia Unity's building, which is likely given the location of the proposed work zone in Phillip St and the footprint of the museum site.

Scaffold

Section 13.9 of Avers preliminary CMP confirms that scaffolding around the perimeter of the new building is anticipated.

It is recommended that Australian Unity should seek confirmation that;

- Shade cloth will be included on the scaffold or screens to provide dust control and some form of privacy screening for the occupants of 32 Phillip Street working near the windows on the Northern elevation of the building, and
- The scaffolding will not impede on emergency access / egress to the pump room and substation room in the North East corner of the site of 32 Phillip Street.

2.5 Noise

Section 8.1 of Aver's preliminary CMP describes a number of noise and vibration mitigation measures that would apply to the works. Included in this list is:

- The Contractor will ensure that intrusive activities such as demolition or piling works should be
    - Undertaken after 8am, and
    - Only undertaken over continuous periods not exceeding 3 hours with at least a one hour respite period in between.

In this regard, it is recommended that Australian Unity consider Independent auditing , or the establishment of a "noise logger" to monitor the implementation of controls and mitigation measures by the museum project team, to hold them accountable to this commitment.

2.6 Flooding

Section 8.10 of Avers preliminary CMP notes mitigation measures to minimize the damage and environmental impact caused by flooding.

Whilst access points across the site, water extraction methods during heavy rains and maintenance of erosion control measures during the works are acknowledged as important, consideration must be given to ensuring that the works do not temporarily, or permanently change the overland flow conditions and effectively create a low point at 32 Phillip Street, increasing the impacts on Australian Unities property during periods of heavy rain, which could have serious implications on the property and its tenants.

It is recommended that Australian Unity request details on how the project team on the museum will ensure that this does not occur.

2.7 Hazardous / Contaminated materials

Section 10.4 of Aver's draft CMP sets out controls and safeguards related to the identification, removal and disposal of hazardous / contaminated materials on the site, and Appendix L to the EIS, JBS&G Detailed Site Investigation (DSI) into potential contamination provides further detail on the outcomes of the detailed site investigation and subsequent remedial action plan (RAP) developed by JBS&G.

It is recommended that Australian Unity consider Independent auditing and monitoring of the planning and execution of the works and the RAP by the museum project team, to hold them accountable to this commitment, given the proximity of 32 Phillip Street and the open carpark and tenants to the works.

2.8 Constraints on future development of 32 Phillip Street

As a result of the proposed museum works, the following items have been identified as potential constraints on any future development opportunities for Australian Unity's site at 32 Phillip Street:

- The proximity of the museum buildings to the North and Eastern boundaries will place additional constraint on making alterations or adding additional floors, to the GE building at 32 Phillip Street. Whilst solutions such as needling and cantilevering scaffold off the carpark levels, utilizing perimeter screens, or overhead B Class hoardings supporting scaffold, could facilitate any such future works, consent would need to be obtained from the Museum to overhang or occupy any such space.
- Level changes along both Darribarri Lane and the proposed Civic Link and how these will be handled in terms of interface to 32 Phillip Streets dock, parking access, overland stormwater flow, and ground level tenancies.
- The loss of opportunity, due to the location and size of the Museum restricting any opportunity to extend the GE building at 32 Phillip Street to its maximum height, results in the highest and best use redevelopment option being potentially unavailable to Australian Unity in the future.

APPENDIX A: REFERENCE PHOTOS & PLANS

Figure A1 :
Dirrabarri Lane footpath looking North from Phillip St intersection

Figure A2 : Phillip St footpath looking East from Dirrabarri Lane intersection

Figure A3 : Existing Ground Floor plan – 32 Phillip St

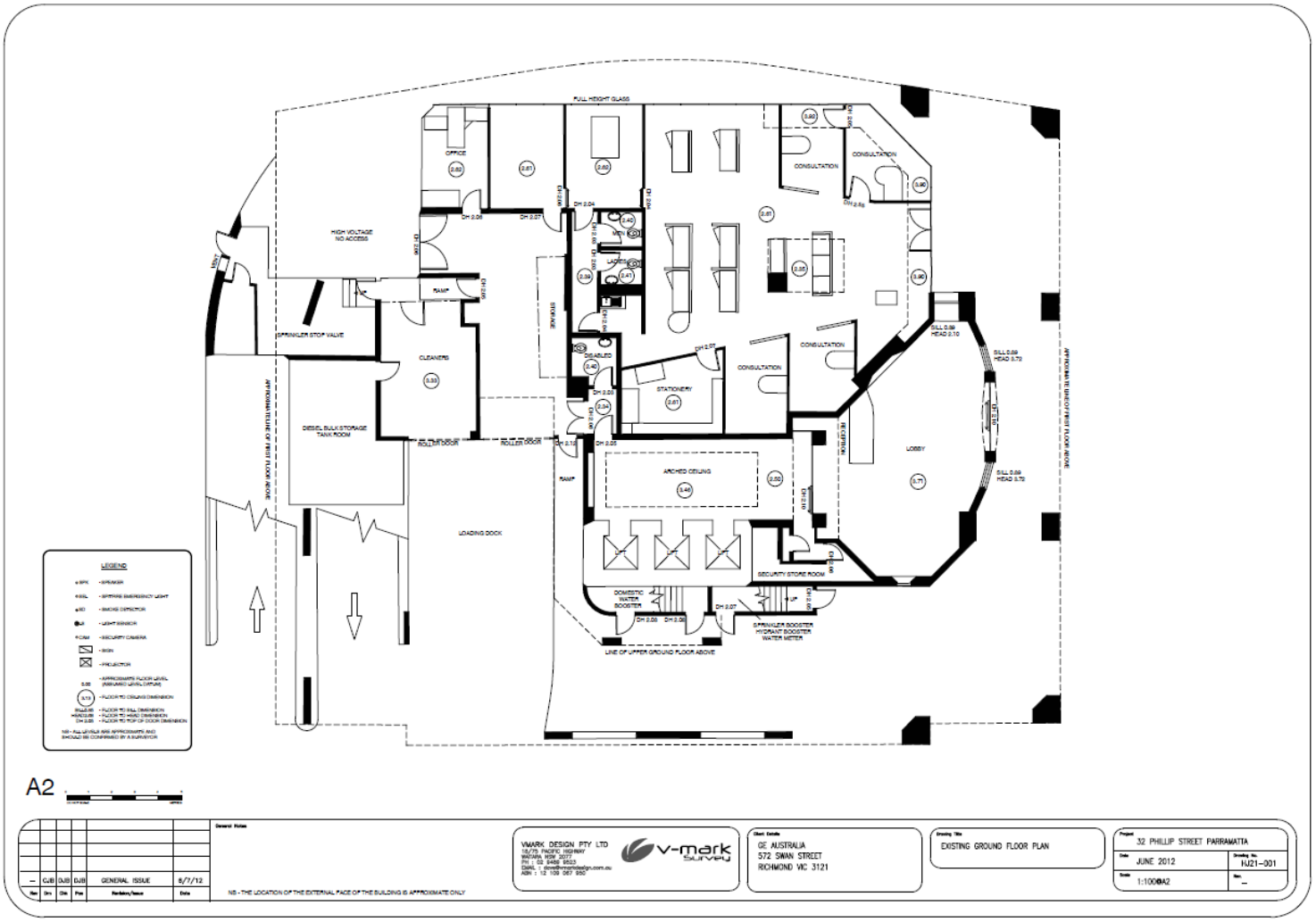


Figure A4 : Existing South and North Elevations – 32 Phillip St

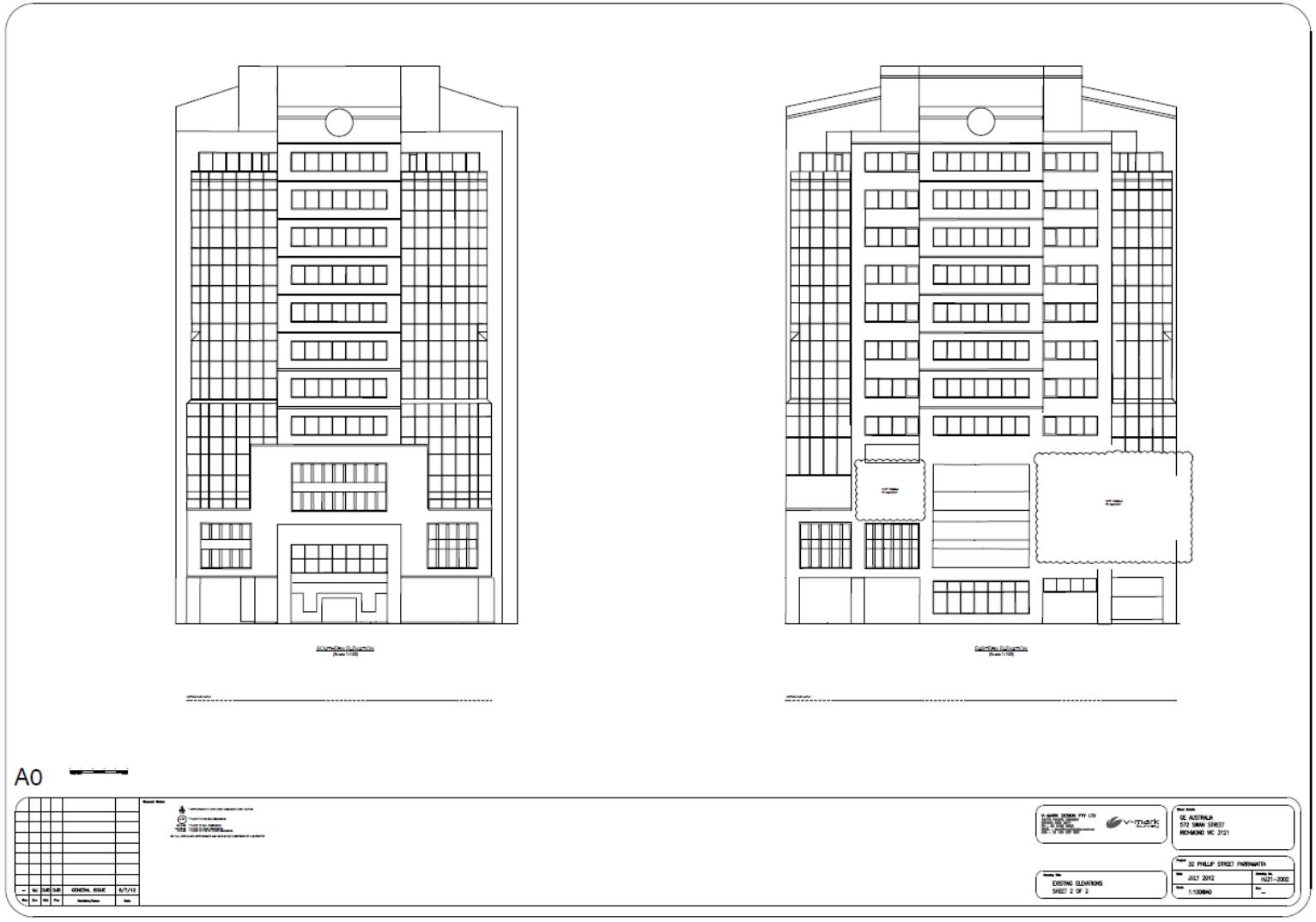
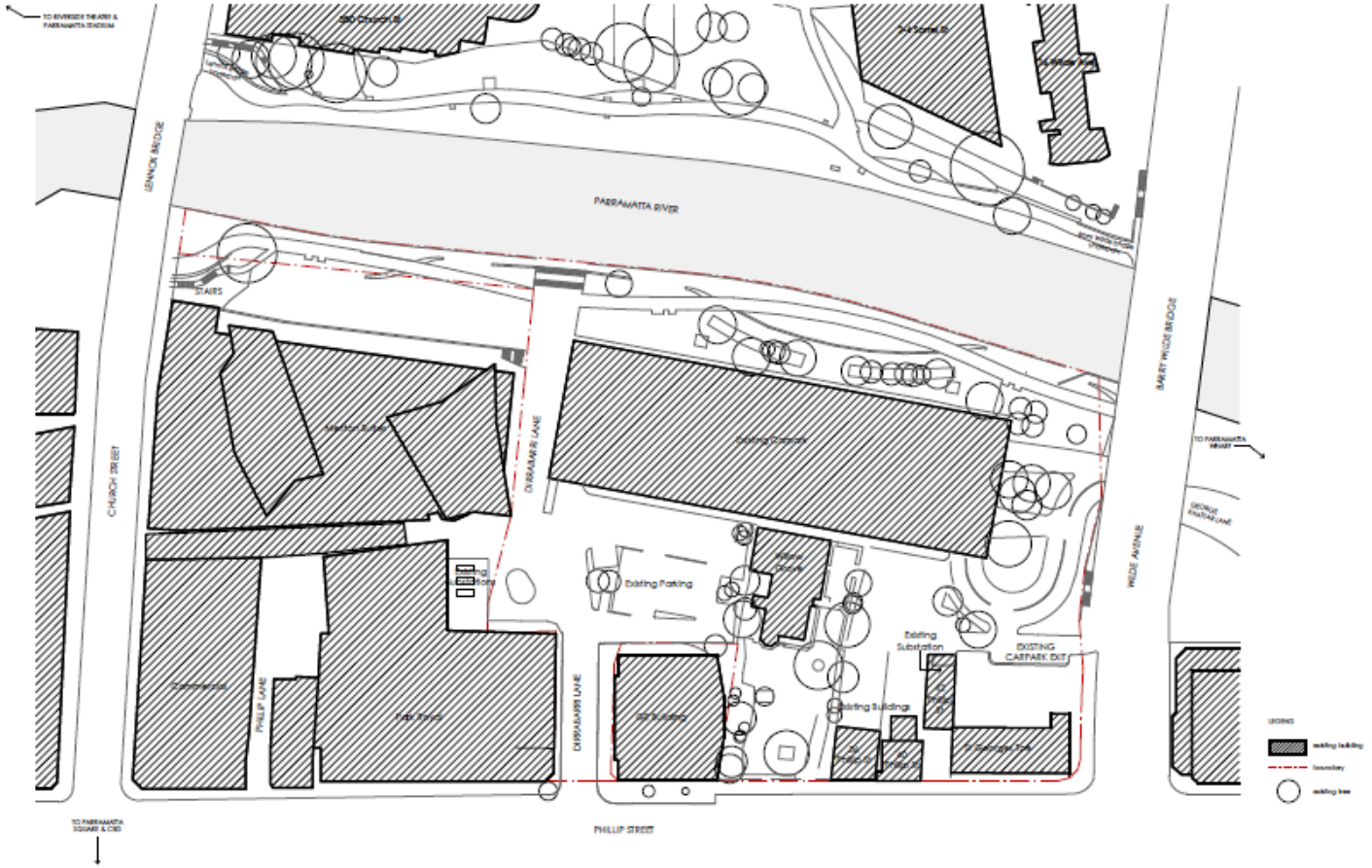
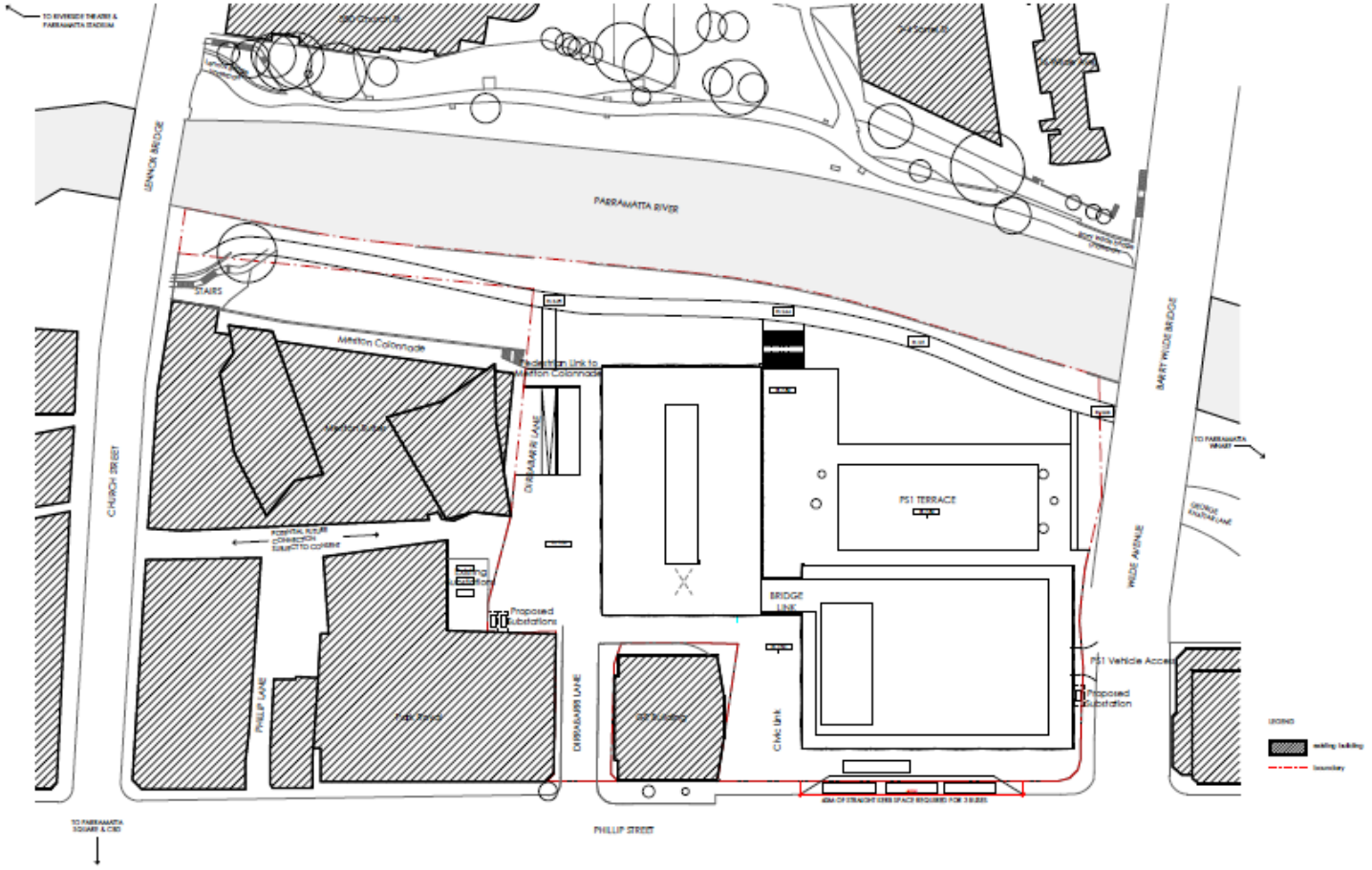


Figure A5 – A13 : Museum Architectural Drawing





ARCHITECTS		PROJECT	TITLE	SCALE	NORTH	REVISION HISTORY	DATE	NUMBER	REVISION
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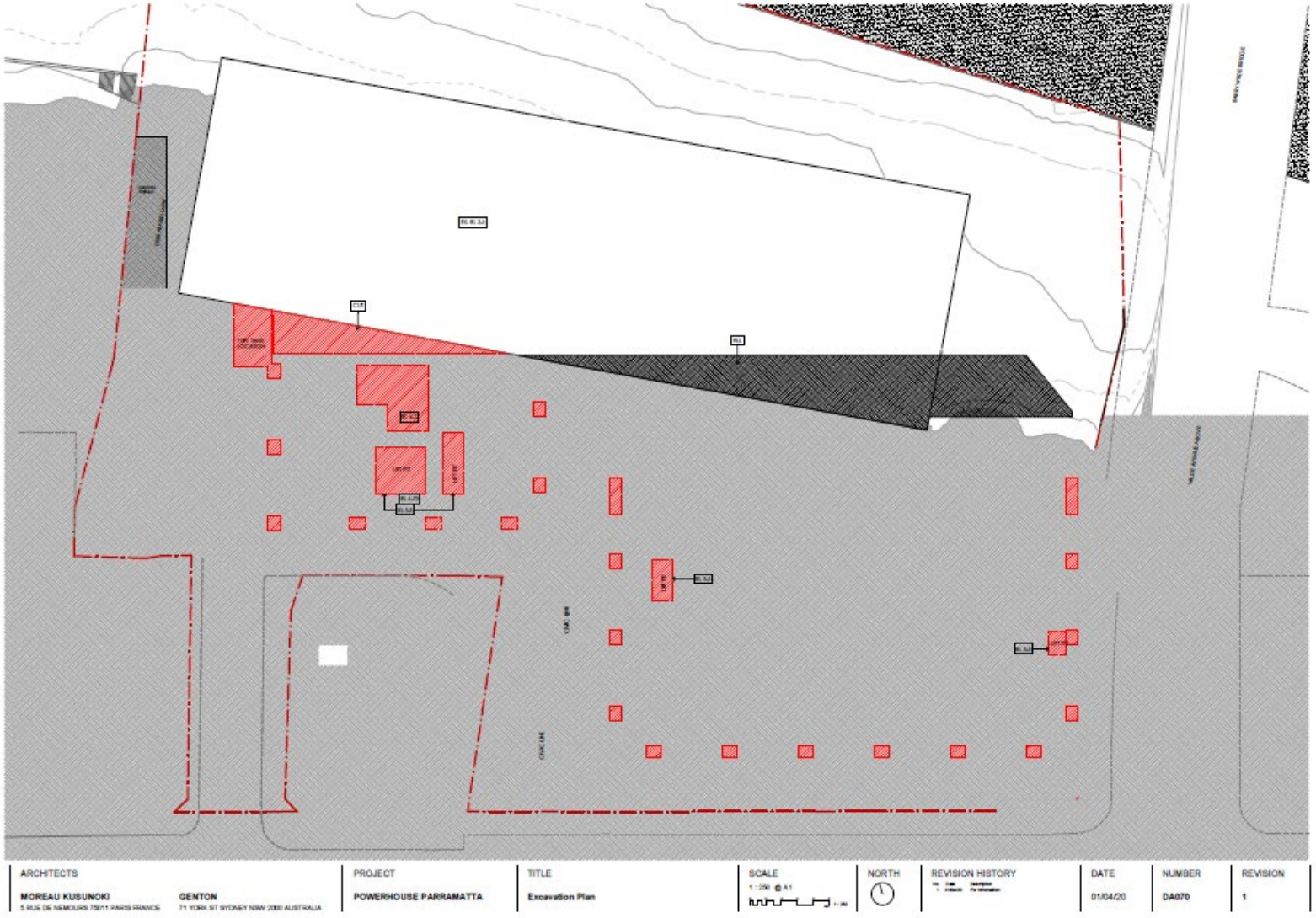
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5 RUE DE NEMOURS 75011 PARIS FRANCE
GENTON
71 YORK ST SYDNEY NSW 2000 AUSTRALIA
PROJECT
POWERHOUSE PARRAMATTA
TITLE
Excavation Plan
SCALE
1:200 @ A1
NORTH
REVISION HISTORY
DATE
01/04/20
NUMBER
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REVISION
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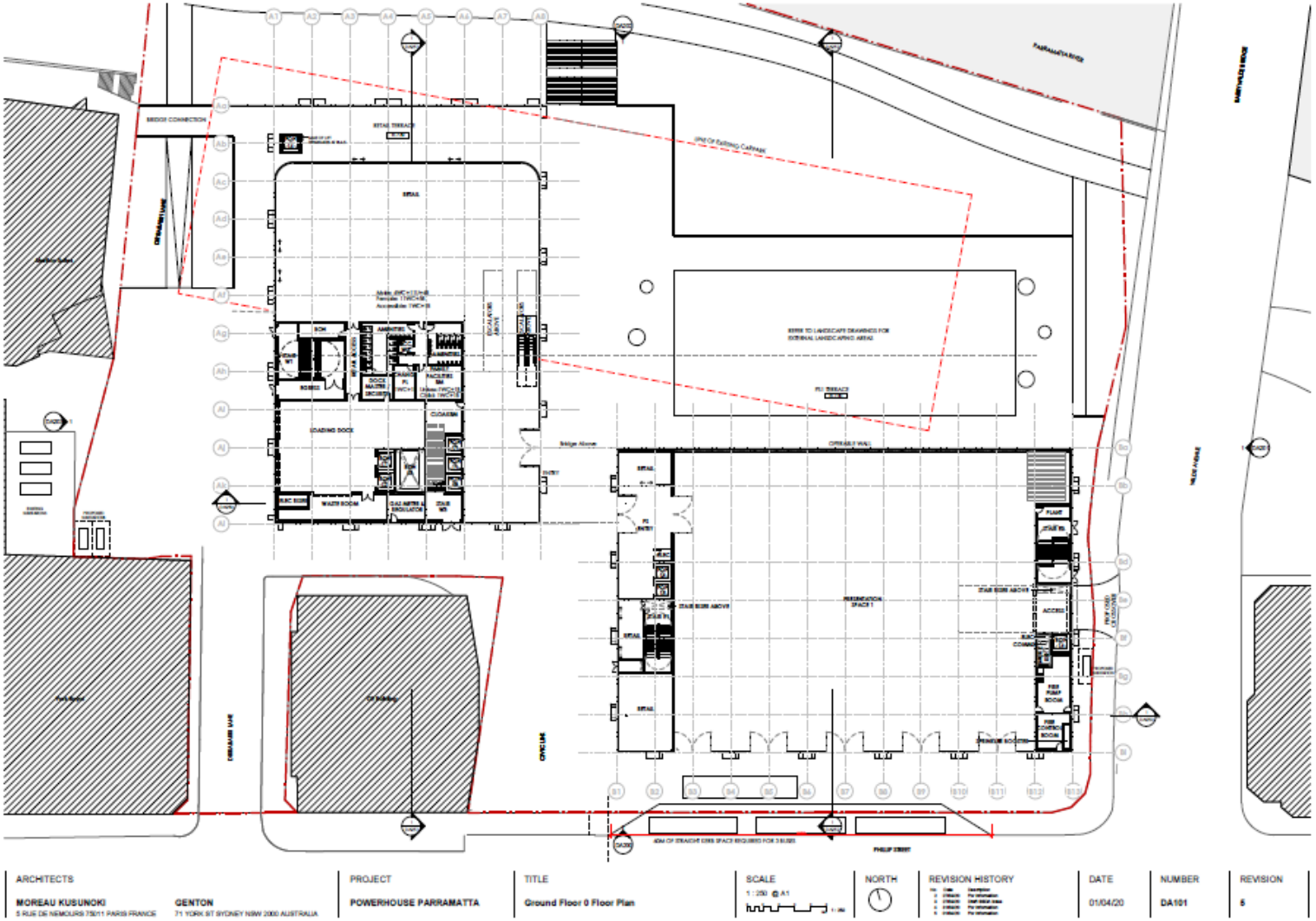
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MOREAU KUSUNOKI
5 RUE DE NEMOURS 75011 PARIS FRANCE
GENTON
71 YORK ST SYDNEY NSW 2000 AUSTRALIA
PROJECT
POWERHOUSE PARRAMATTA
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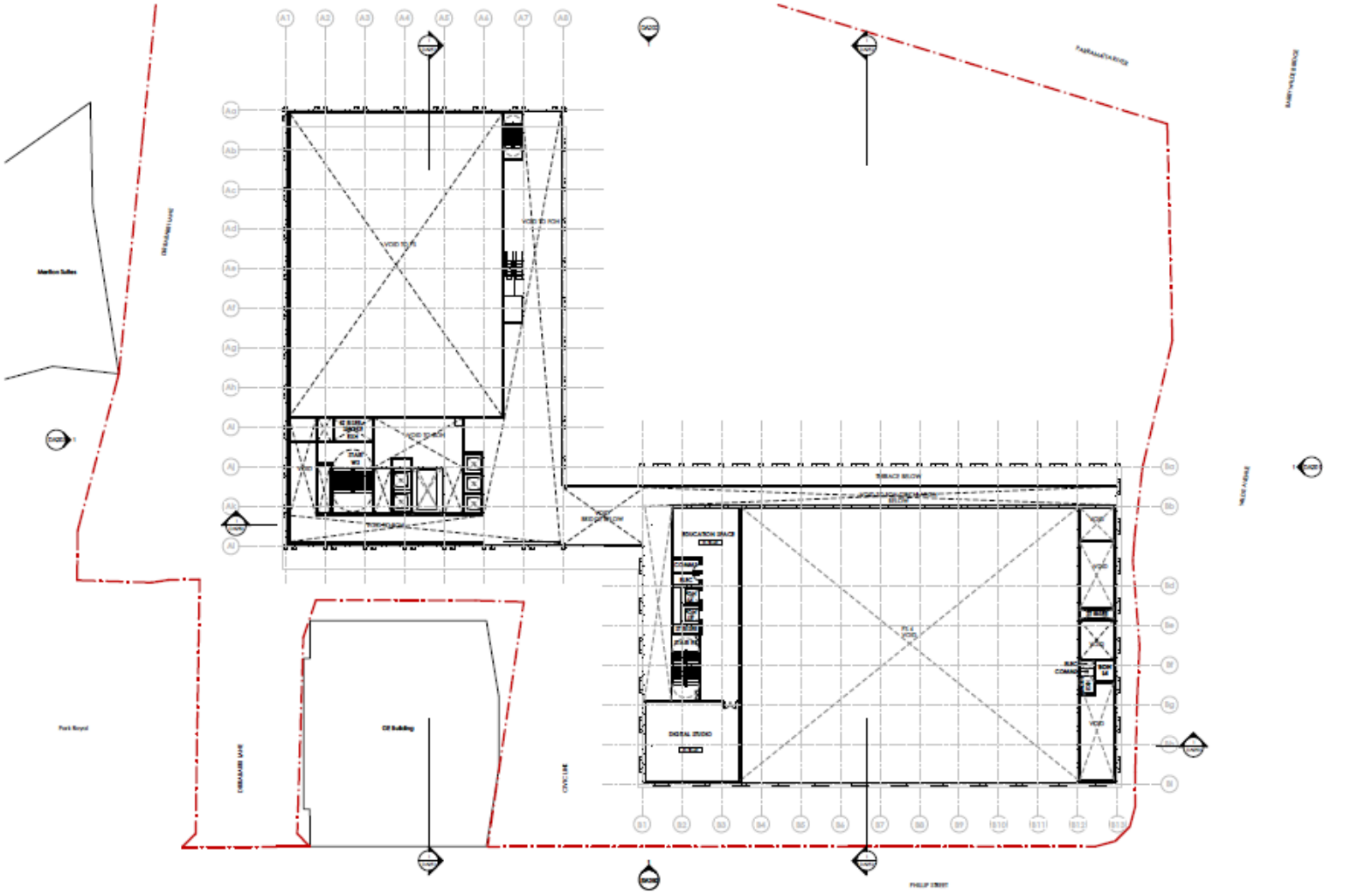
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GENTON
71 YORK ST SYDNEY NSW 2000 AUSTRALIA
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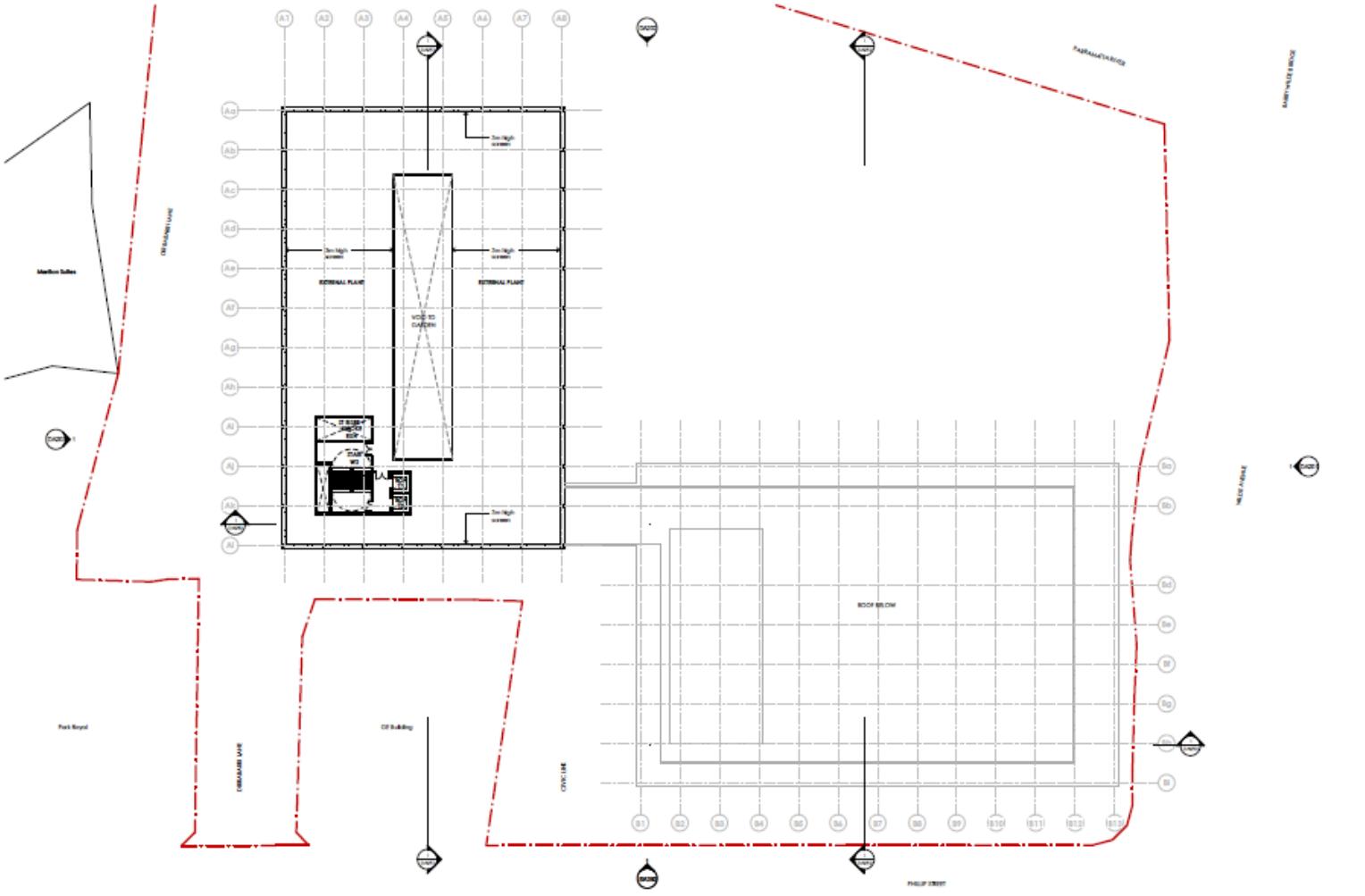
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MOREAU KUSUNOKI
5 RUE DE NEMOURS 75011 PARIS FRANCE
GENTON
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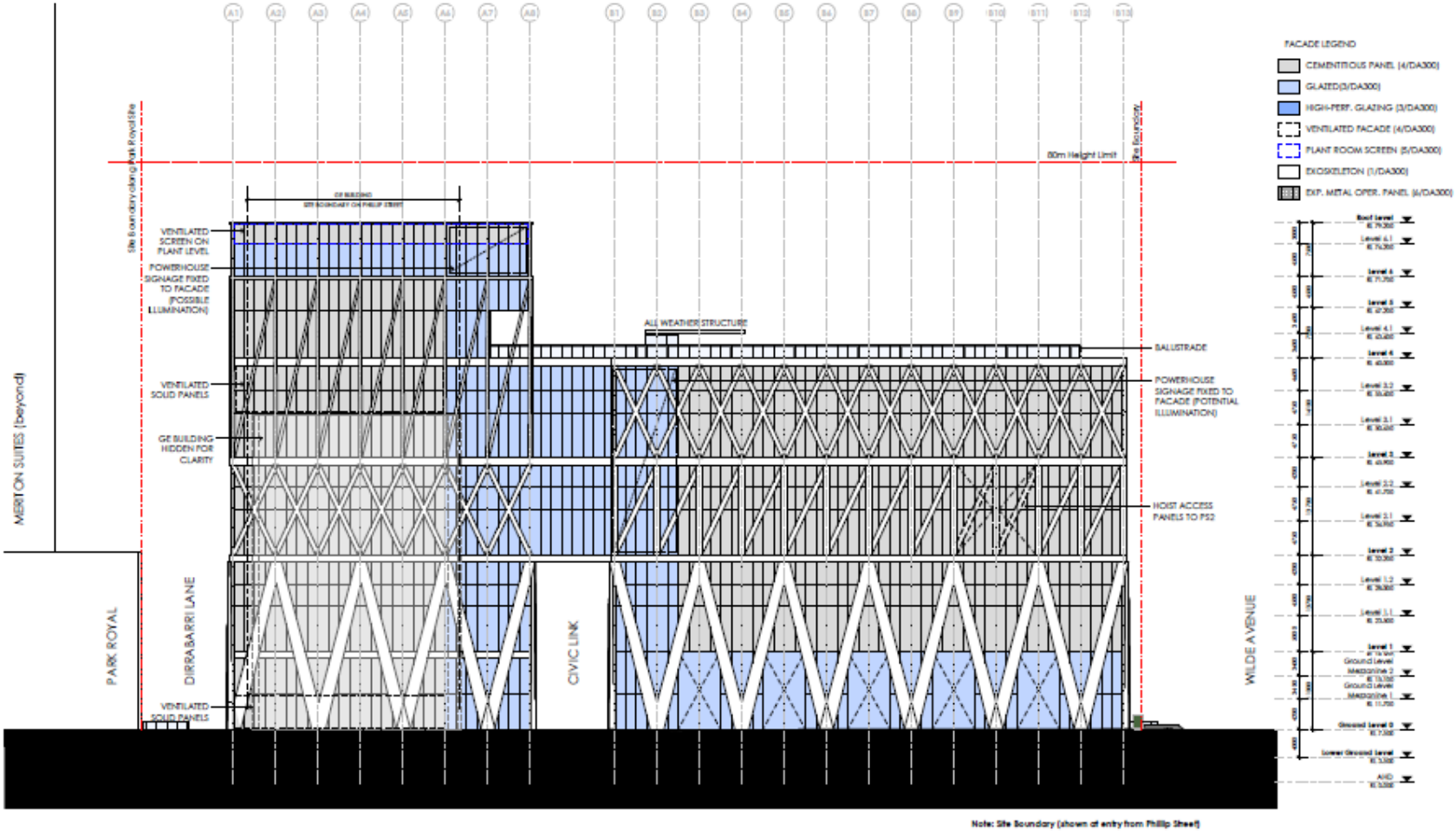

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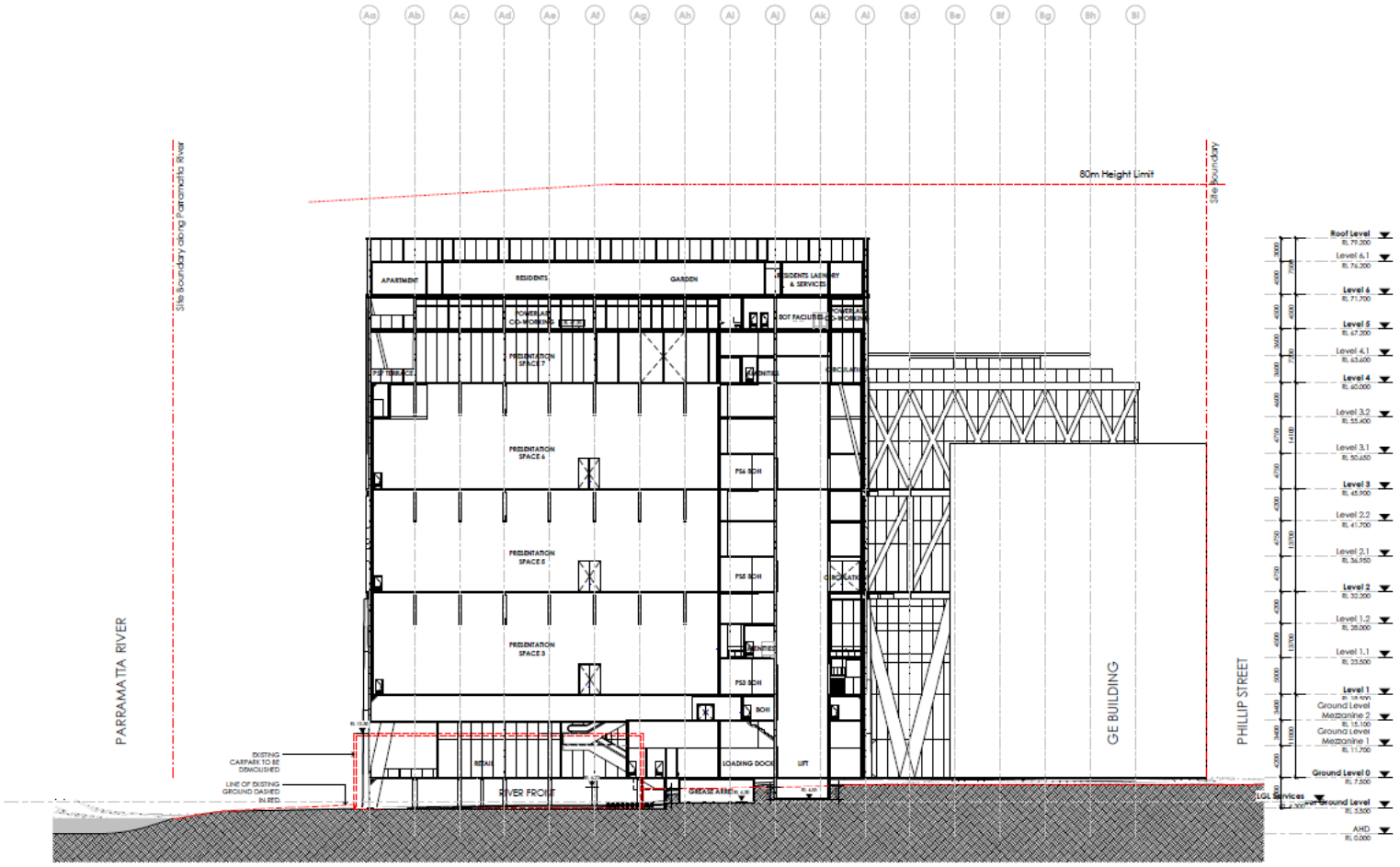

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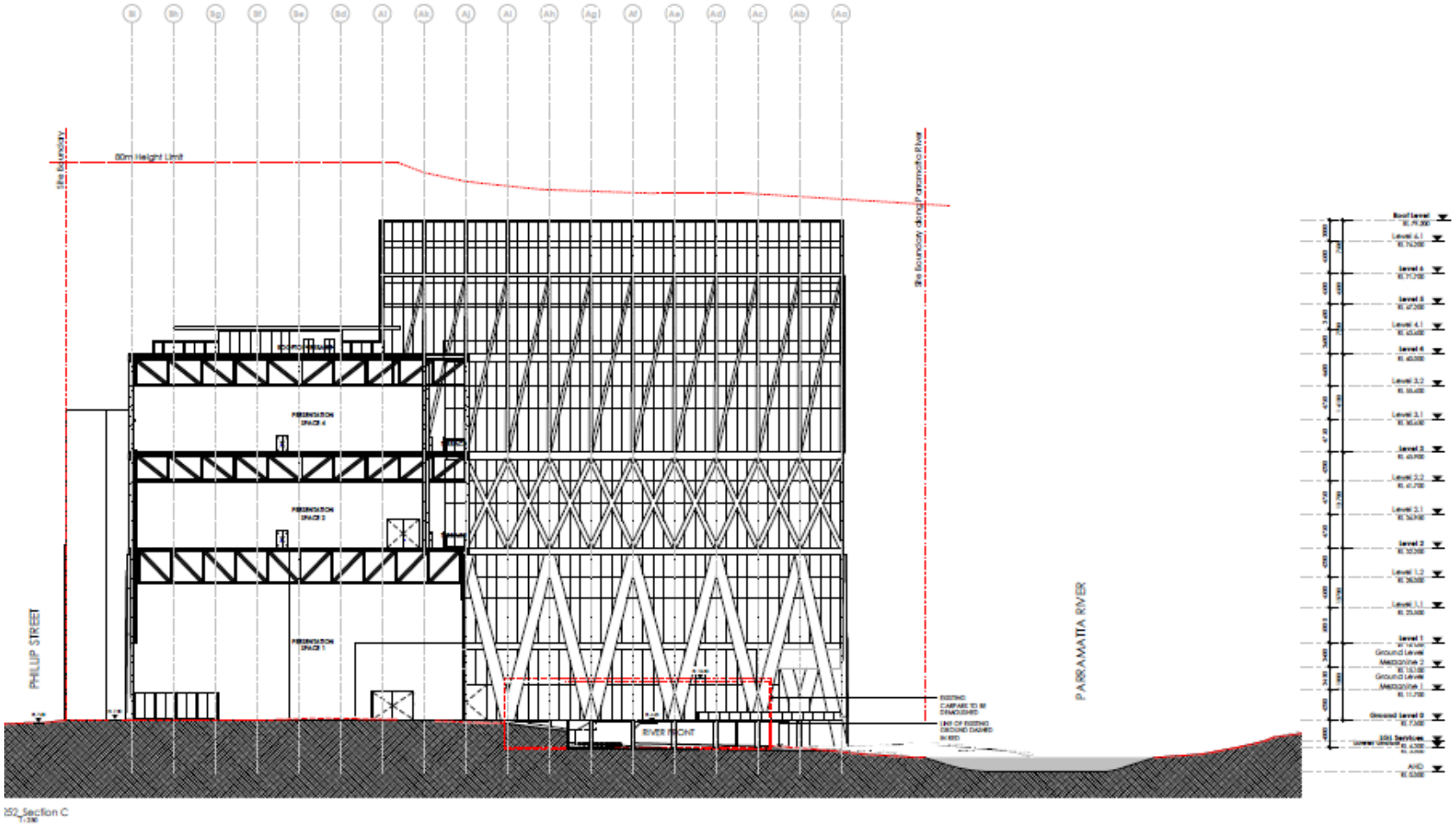
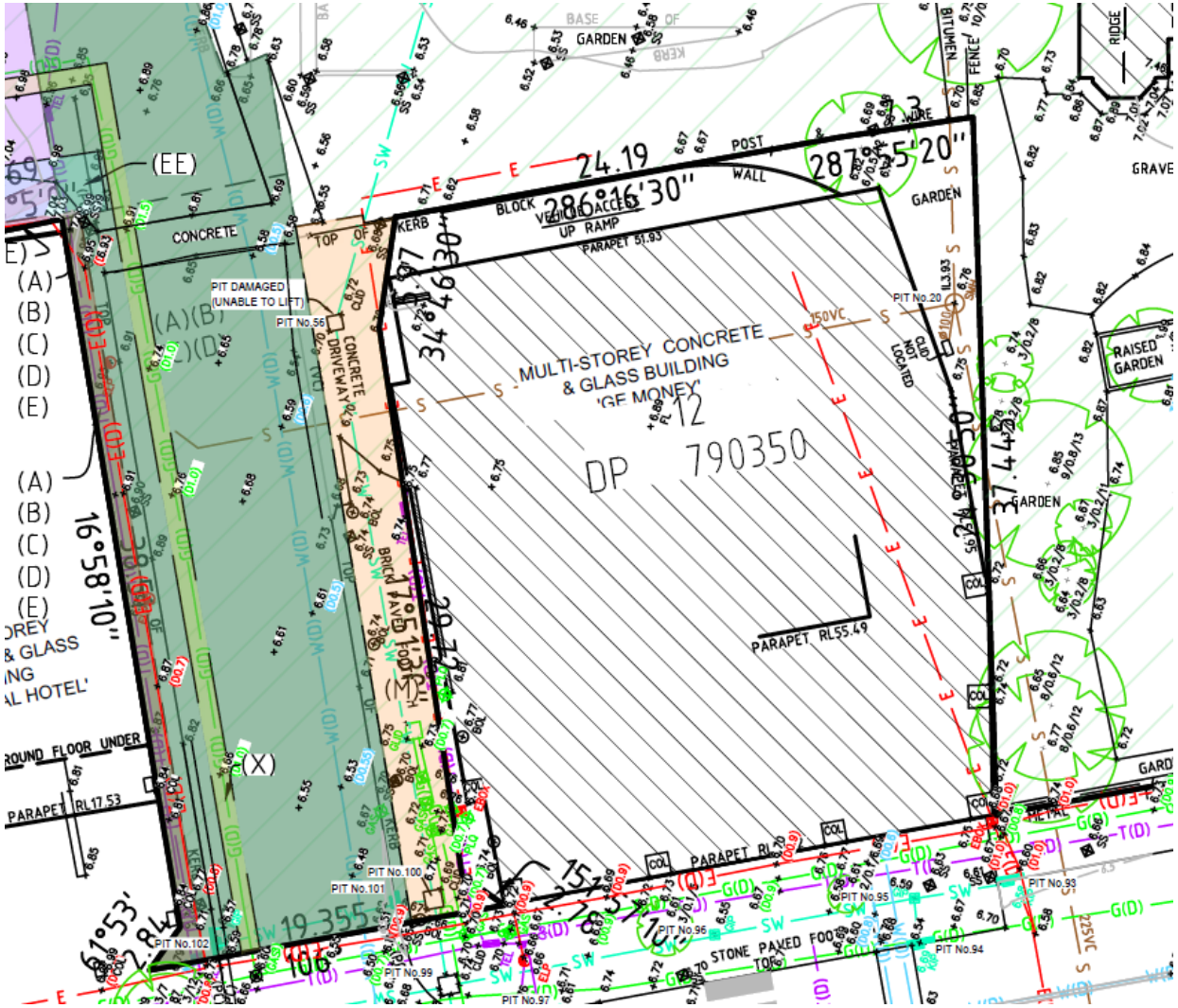
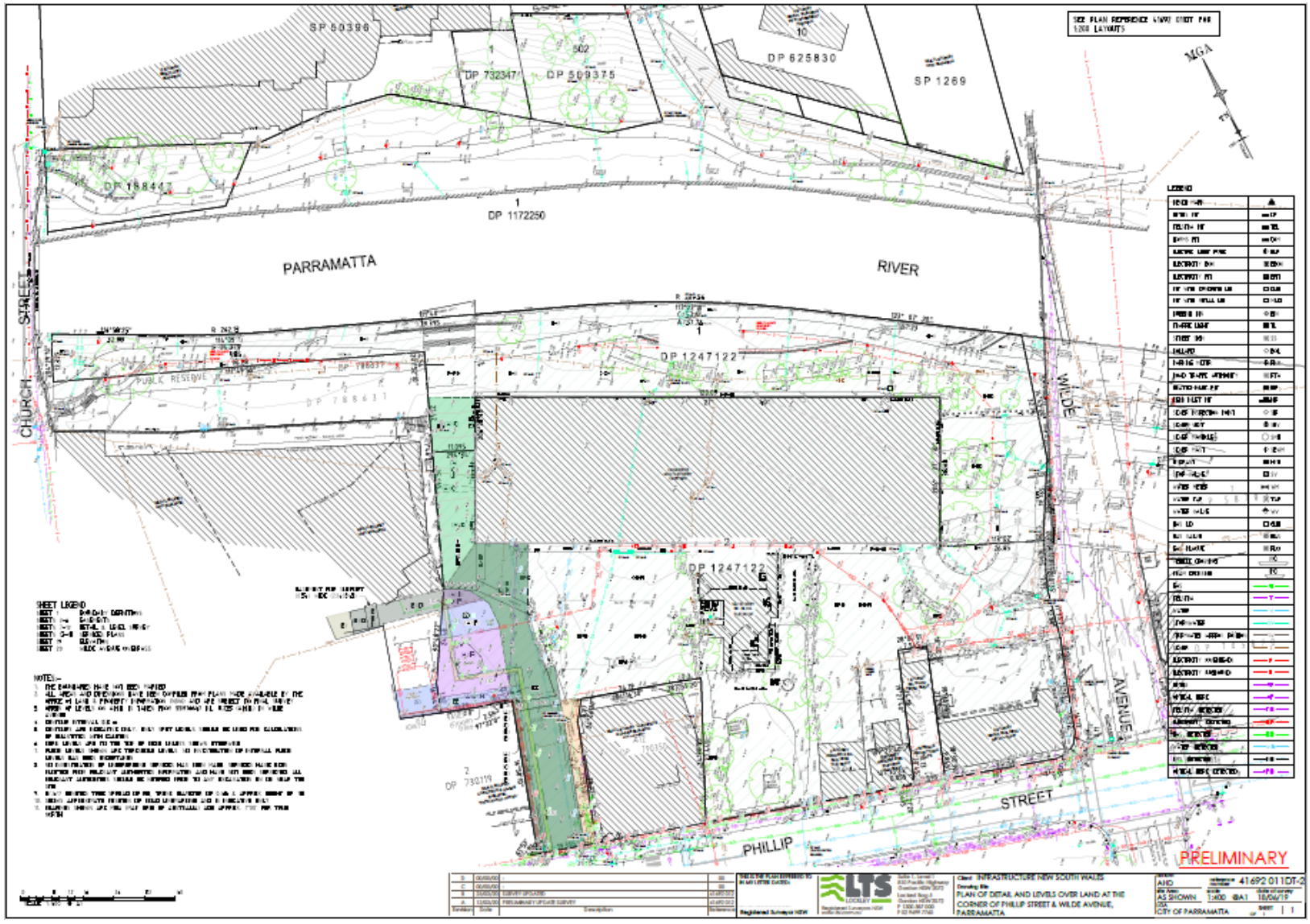


152_Section C
1:250

Figure A14 : Part Survey Plan – Appendix E of EIS

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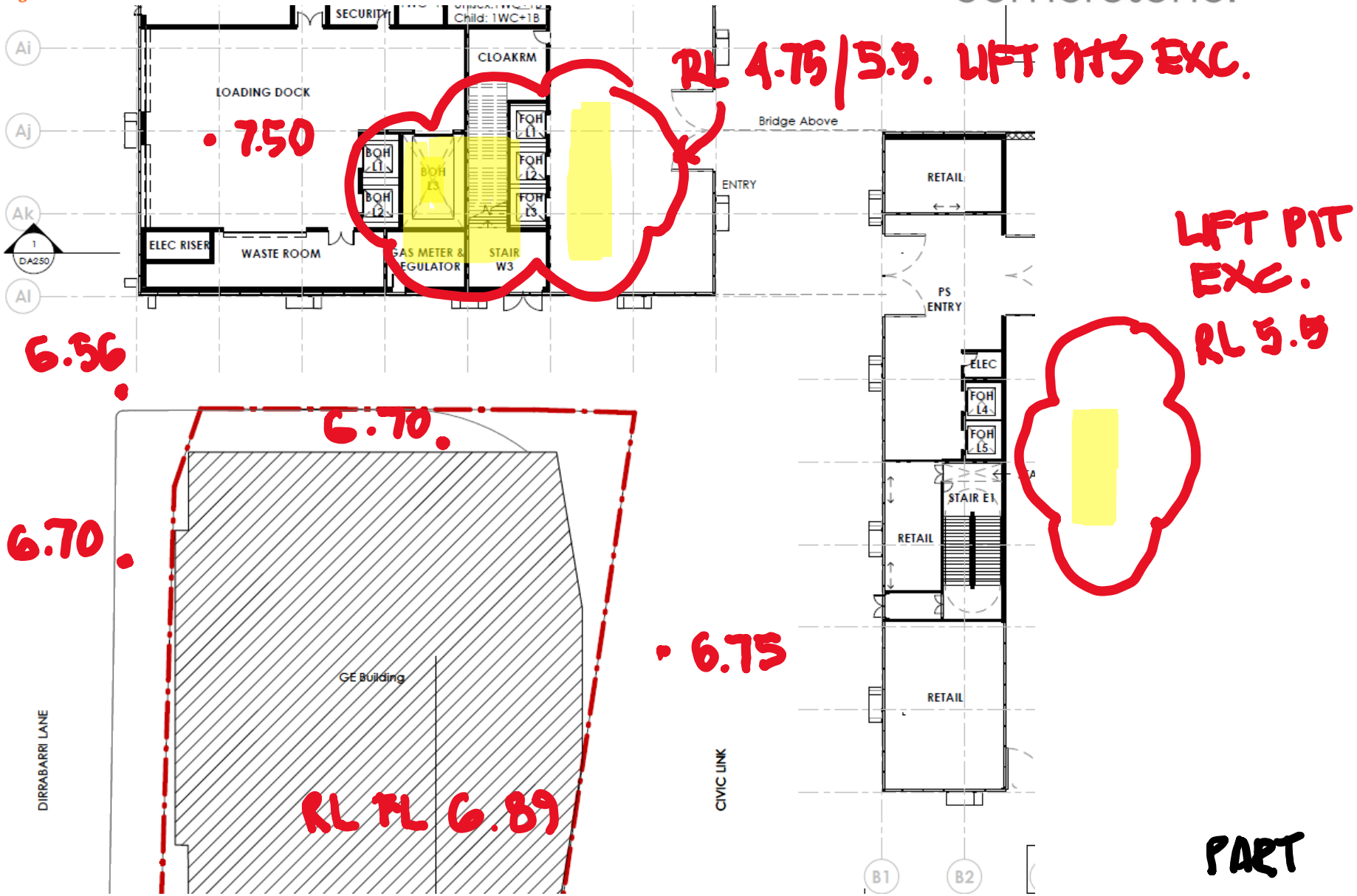
DP 569375
DP 625830
SP 1269
DP 188447
1
DP 1172250
PARRAMATTA
RIVER
CHURCH
STREET
DP 1247122
PUBLIC RESERVE
WILDE
AVENUE
PHILLIP
STREET
PRELIMINARY


SECURITY
Child: 1WC+1B
CLOAKRM
LOADING DOCK
7.50
BOH L1
BOH L2
BOH L3
FOH L1
FOH L2
FOH L3
ENTRY
Bridge Above
RETAIL
ELEC RISER
WASTE ROOM
GAS METER & REGULATOR
STAIR W3
PS ENTRY
ELEC
FOH L4
FOH L5
STAIR E1
RETAIL
RETAIL
RETAIL
Ai
Aj
Ak
Al
1
DA250
6.56
6.70
6.70
6.75
GE Building
DIRRABARRI LANE
CIVIC LINK
RL TL 6.89
B1
B2
RL 4.75/5.9. LIFT PITS EXC.
LIFT PIT EXC.
RL 5.9
PART DA101 Rev 5.

APPENDIX F – REVIEW OF UTILITIES AND SERVICES PREPARED BY AT&L

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16 July 2020

Australian Unity
C/o TSA
Level 15, 207 Kent Street
Sydney NSW 2000

Your Ref:

Our Ref: LTR001-01-20-769 Powerhouse EIS Services Review

Attention: Robert Teijeiro

Dear Robert

RE: POWERHOUSE MUSEUM EIS REVIEW – SERVICES REVIEW FOR 32 PHILLIP STREET

This letter is written in response to your email request dated 30th June 2020 to review the Powerhouse Museum EIS and relevant technical reports prepared in respect to utility services and the proposed servicing strategy for the Powerhouse Museum development.

This letter reviews any impacts the proposed development of the Powerhouse Museum has on 32 Phillip Street, Parramatta building in relation to existing and proposed utility services. In particular this letter seeks to clarify if any works associated with the Museum, in relation to utility services, impact the operation of existing utilities within the 32 Phillip Street building.

There are numerous utility services within the vicinity and adjacent 32 Phillip Street which will be impacted by the development of the Powerhouse Museum. This summary is based off the *Appendix P Infrastructure Services Strategy* report PMH-ARP_REP_IS_0003 prepared by Arup dated 17th April 2020. This report formed part of the Powerhouse Museum EIS.

Refer below for list of each service and a summary of any impacts to 32 Phillip Street building.

SEWER

Existing

Numerous Sydney Water owned sewer networks are located within the vicinity of the proposed site as highlighted within Figure 1 below. This figure is taken directly from the Arup Infrastructure Report.

Of note is an existing 150mm diameter vitrified clay pipe which drains west to east within 32 Phillip Street which connects into an existing 225mm diameter vitrified clay pipe along the eastern boundary of 32 Phillip Street and drains north through the Powerhouse Museum site.

Proposed

New sewerage connections into the existing network will be required as part of the Museum development. It is anticipated any new connections will be made into an existing 525mm diameter pipe within the foreshore north of the proposed Museum. These connections are likely to have no impacts to the existing network within 32 Phillip Street. The existing 150mm and 225mm diameter pipes within 32 Phillip Street are proposed to remain. Overall there should be no impacts to the existing sewerage network of 32 Phillip Street with the Museum development.

Initial discussions have been held with Sydney Water as part of the EIS where it is concluded the existing network has capacity to take the sewerage loads generated by the Museum development and no upsizing of the network will be required. This will need to be confirmed during the design process.

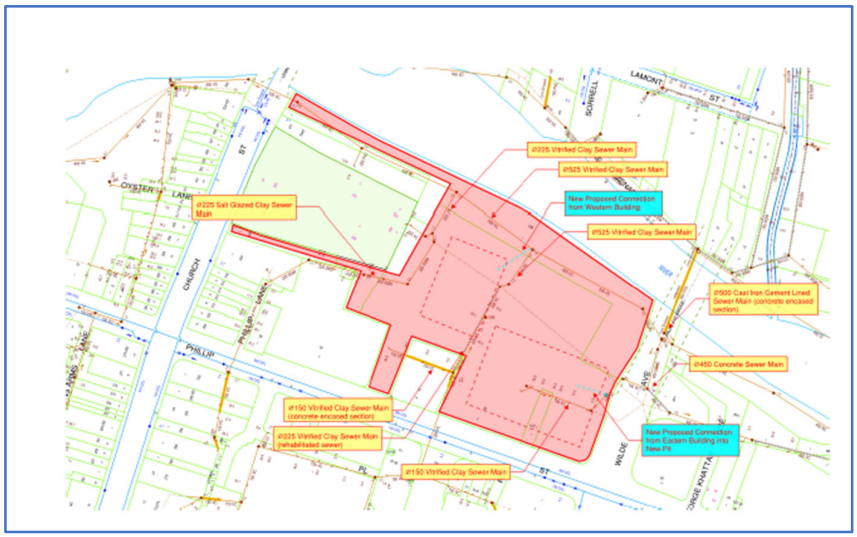

Figure 1 - Existing Sewer Map - Sydney Water

WATER

Existing

Two Sydney Water owned water mains networks are located within Phillip Street to the south of 32 Phillip Street. One is a 900mm diameter cast iron cement lined main within the centre of Phillip Street with another a 150mm diameter cast iron cement lined main in the southern verge. Refer Figure 2 below for locations as per Arup report.

Proposed

Based off initial discussions with Sydney Water it is likely a new water supply for the Museum will come off the 150mm water main in Phillip Street. It is also likely due to the expected water loads of the Museum that amplification of this main will be required to service the Museum. This will need to be confirmed during the design phase.

Whilst it is likely 32 Phillip Street has direct connection into this existing 150mm main in Phillip Street any amplification and connection works for the Museum should not have impact to water supply within 32 Phillip

Street. Confirmation of connections/ shutdowns etc will need to be confirmed with a Water Services Coordinator and Sydney Water during the construction phase.

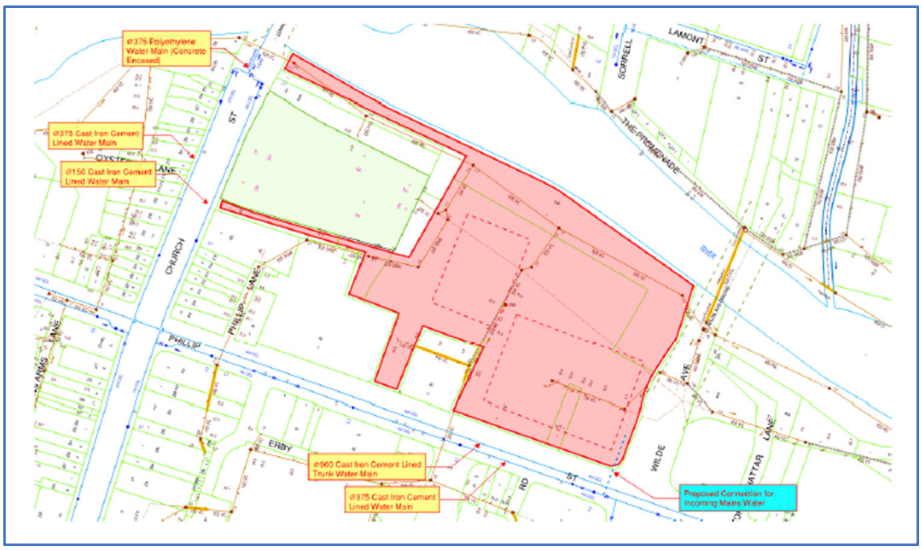

Figure 2 -Existing Water mains- Sydney Water

GAS

Existing

Three Jemena owned gas mains are located within Phillip Street to the south of 32 Phillip Street as below:

- 150mm diameter steel high pressure 1050kPa main in the northern side of the street.
- 110mm diameter nylon medium pressure main in the southern side of the street
- 50mm diameter nylon medium pressure secondary main in the southern side of the street

There is also a 100mm diameter steel high pressure 1050kPA main located within Dirrabarri Lane to the west of 32 Phillip Street. Refer Figure 3 below for locations of mains.

Proposed

Based off initial discussions with Jemena it is likely the new gas supply for the Museum will come off the high pressure main within Dirribarri Lane. Given this, it appears there will be no impacts to gas supply to 32 Phillip Street with the Museum development.

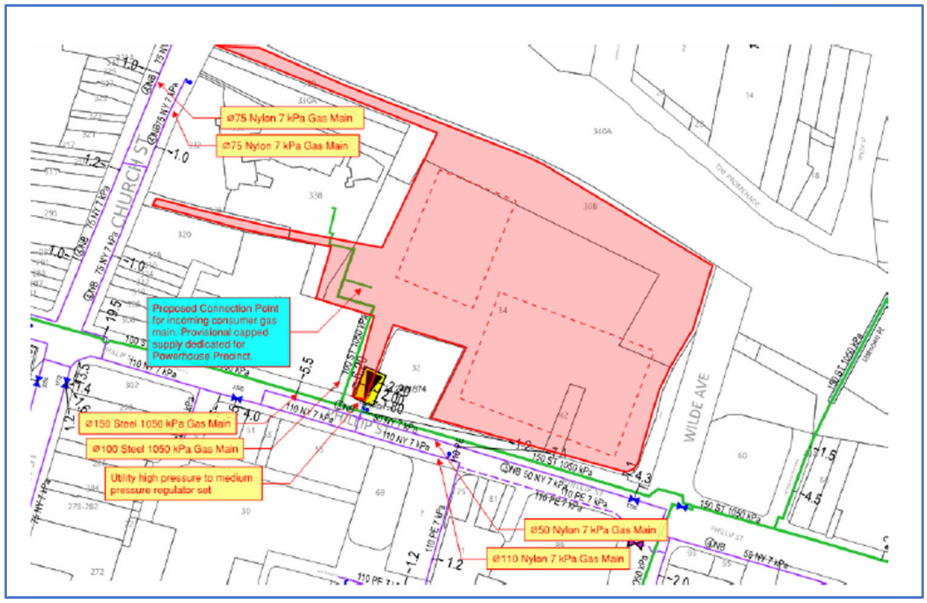

Figure 3 - Existing Gas Main - Jemena

TELECOMMUNICATIONS

Existing

There a multiple telecommunication carriers within the vicinity of 32 Phillip Street and within Phillip Street itself. These include:

- AATP
- Aarnet
- NBN
- Next Gen
- Optus
- Pipe Networks
- Telstra
- Uecomm
- Verizon
- Vocus

Proposed

Given the multiple telecommunications carries within the vicinity of the Museum specific lead in locations will be confirmed once the Museum confirms its carrier of choice. However, given the multitude of carriers within Phillip Street it is likely the Museum will directly connect off Phillip Street and potential Wilde Avenue to the east.

These connections should have no impacts to existing telecommunications connections into 32 Phillip Street.

ELECTRICAL

Existing

Existing Endeavour Energy owned LV and HV conduits are located within the northern side of Phillip Street to the south of 32 Phillip Street which currently service the building.

Refer Figure 4 below for locations of existing LV and HV conduits.

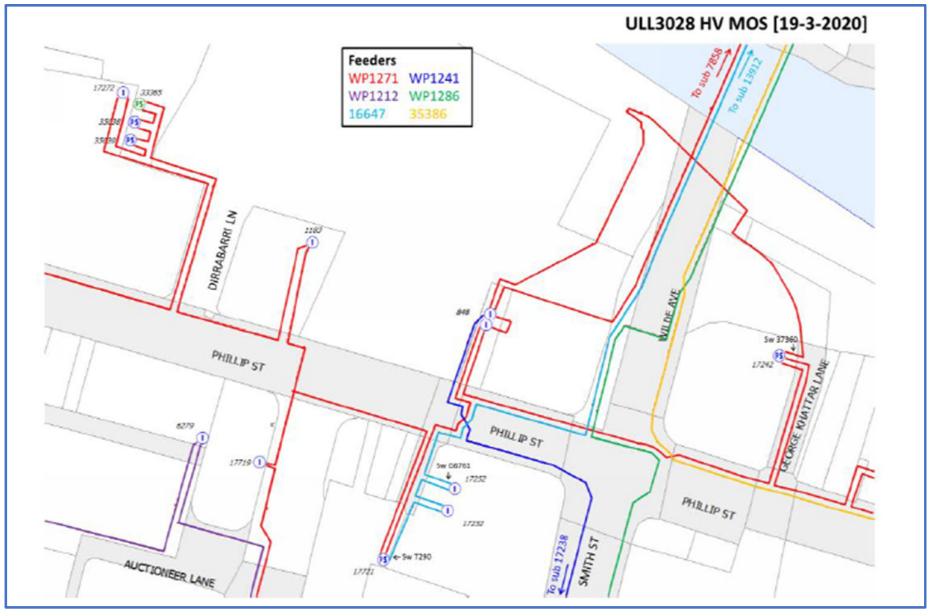

Figure 4 - Existing Electrical LV/HV- Endeavour Energy

Proposed

Based off initial discussions and after submitting a preliminary assessment of the estimated electrical demand for the Museum with Endeavour Energy, it is likely three 1500kVa distribution kiosks will be required to meet the Museum's electrical demands. These kiosks will need to be located within the Museum's land.

To service these new kiosk substations, it is proposed to extend an existing 11kVa network from Phillip and Wilde Street into the Museum's site located north -west of Dirrabarri Lane. This will require additional conduits laid within the northern verge of Phillip Street and within Dirrabarri Lane. Refer Figure 5 for concept augmentation plan.

At this stage there does not appear to be any impact to electrical distribution to 32 Phillip Street based off the Museum's requirements. This will need to be confirmed by an Electrical Designer (ASP Level 3) during the design phase.

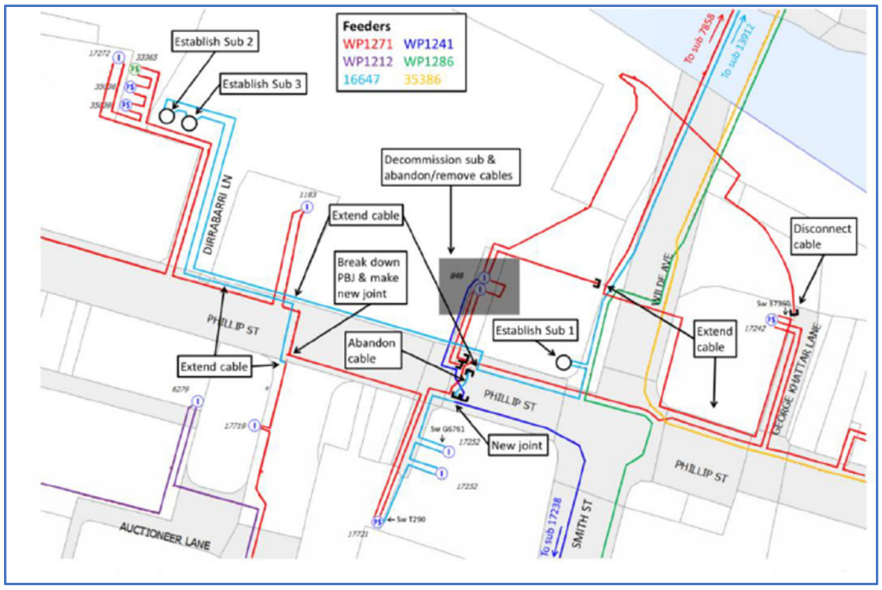

Figure 5 - Proposed Electrical Augmentation

CONCLUSION AND RECOMMENDATIONS

Based off a review of the Arup Infrastructure Report submitted as part of the EIS submission there do not appear to be any impacts to existing infrastructure assets associated with the 32 Phillip Street building. The Arup report concludes all existing infrastructure services will remain in use for 32 Phillip Street as part of the Museum development.

It is noted however the Arup Report is based only off preliminary discussions with Service Authorities and review of Dial Before You Dig Records. There are no detailed design drawings or approvals in place to review potential impacts to 32 Phillip Street. It is recommended as design development and approvals are obtained that consultation be undertaken between the Museum developer and owners of 32 Phillip Street to ensure all existing services remain in place. This should include, but not limited to:

- review of all construction and infrastructure staging plans,
- review of development staging time frames
- confirmation from all Authorities no impacts to 32 Phillip Street services

Should you have any questions, please don't hesitate to contact the undersigned.

Yours sincerely,

Andrew Tweedie
Associate Director
MIEAust CPEng NER 2423496

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