State Significant Development

Environmental Impact Statement

31 Wheat Road, Sydney
Redevelopment of IMAX Building

Submitted to Department of Planning and Infrastructure
On Behalf of Grocon Pty Ltd

September 2013 ■ 12255

JBA Urban Planning Consultants Pty Ltd ABN 84 060 735 104 w jbaplanning.com.au
North Sydney t +61 2 9956 6962 ■ Newcastle t +61 2 4927 0980

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This report has been prepared by: Robert Stark

Signature  Date 06/09/2013

This report has been reviewed by: Julie Bindon

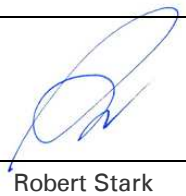
Signature  Date 06/09/2013

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT (EIS)

Prepared under the Environmental Planning and Assessment Act 1979 Section 78A

EIS PREPARED BY:	
Name:	Robert Stark
Qualifications:	Bachelor of Urban and Regional Planning
Address:	JBA Urban Planning Consultants Level 7, 77 Berry Street North Sydney NSW 2060

DEVELOPMENT APPLICATION	
Applicant Name:	Grocon Pty Ltd
Applicant Address:	Suite 1, Level 18, 420 George Street Sydney, New South Wales 2001 Australia
Land to be developed: Address	31 Wheat Street Sydney
Lot No. DP / MPS, Vol / Fol etc.	Lot 401, 402, 403, 404 and 405 in DP 862501

ENVIRONMENTAL IMPACT STATEMENT	
	An Environmental Impact Statement (EIS) is attached
CERTIFICATE	I certify that I have prepared the contents of this statement and to the best of our knowledge: ▪ it is in accordance with clauses 72 and 73 of the Environmental Planning and Assessment Regulation 2000, and ▪ it contains all available information that is relevant to the environmental assessment of the development, and ▪ that the information contained in the statement is neither false nor misleading.
Signature:	
Name:	Robert Stark
Date:	06/09/2013

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Executive Summary

This Environmental Impact Statement (EIS) is submitted to the Minister for Planning and Infrastructure in support of a State Significant Development Application (DA) for the redevelopment of the IMAX building site at Darling Harbour, 31 Wheat Street, Sydney. The proposed development is submitted pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* and Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*.

The proponent is Grocon Pty Ltd.

Overview of the Proposal

The proposed development seeks approval for:

- Demolition of the existing IMAX building, tourist office and amenities block.
- Construction of a new 20 storey building for office, retail and entertainment purposes, and a separate 2 storey building with a combined total Gross Floor Area of approximately 74,233m^2
- Approximately 62,427m^2 of GFA for office purposes, up to 15 storeys above the level of the adjoining Western Distributor.
- Approximately 11,100m^2 GFA for retail and entertainment uses, including an IMAX cinema in the 'podium' levels (below the Western Distributor).
- 86 car parking spaces to be located within the podium levels and 332 bicycle parking spaces at ground level.
- Upgrades to the surrounding public domain including new playground area.
- Signage zones and display screen on the new building.

A detailed description of the proposed development is contained in Section 3 of this report and illustrated in the Architectural Drawings prepared by HASSELL Architects and provided at **Appendix A**.

The Site

The site of the proposed development is located at 31 Wheat Street, Sydney and has a current lease area of 7,389m^2. The site contains the existing IMAX cinema building and the Sydney Information Centre tourist office. The existing building is 11 storeys in height and is a distinctive building in the Darling Harbour precinct because of its location and design, particularly the black and yellow checkerboard on its northern façade.

The site is located within the Darling Harbour precinct and is leased by the Sydney Harbour Foreshore Authority (SHFA) to Markham Property Fund No. 2 Pty Ltd. The lease period expires on 19 September 2095.

Planning Context

The proposed development has been declared State Significant Development (SSD) as it has a capital investment value estimated at $269.4 million and is located in the Darling Harbour precinct, which is identified as a State Significant Site in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*.

The Director General's environmental assessment requirements were received on 23 August 2012. A copy of the DGRs is included at **Appendix B**. An assessment

of the proposed development against the relevant statutory planning controls and strategic policy documents is provided at Section 5 of this EIS.

Consultation

Key stakeholders including government agencies, public authorities and the City of Sydney Council have been consulted during the preparation of the EIS. Details of this consultation are provided at Section 4 of this EIS.

Environmental Impacts

All environmental impacts are considered in Section 5 of this report. In conclusion and on balance, the proposed development will not have a significant adverse environmental impact and will provide a high quality, enlivening commercial and entertainment complex at Darling Harbour, consistent with the prevailing character of the precinct.

Conclusion

The redevelopment of the IMAX building responds to the ongoing renewal of the Darling Harbour precinct and provides an opportunity to deliver an upgraded public domain and new retail, entertainment and office spaces which together will further activate the precinct.

The environmental assessment in this report and supporting technical documentation has considered the proposed development and its potential environment impacts which are able to be managed through the proposed Mitigation Measures outline in Section 6. Given the planning merits of the proposed development and the opportunity for urban activation and renewal within the precinct, the application is recommended for approval by the Minister for Infrastructure and Planning.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Infrastructure (DoP&I) in support of a State Significant Development Application (DA) for the redevelopment of the IMAX building at 31 Wheat Street, Sydney. The proposed development comprises approximately 74,233m^2 of floor space in a new 20 storey building that will support office, retail and entertainment uses. Car and bicycle parking and upgrades to the public domain are also proposed.

This EIS has been prepared by JBA Planning Pty Ltd on behalf of Grocon Pty Ltd (the proponent), and is based on the Architectural Drawings provided by HASSELL Architects (see **Appendix A**) and other supporting technical information appended to the report (see Table of Contents).

This report describes the site, its environs, the proposed development, and provides an assessment of the proposal in terms of the matters for consideration under section 79C(1) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Capital Investment Value of the project is $269.4 million.

1.1 EIS Requirements

A request for the Director-General Requirements (DGRs) for the preparation of an Environmental Impact Statement was submitted to the DoP&I on the 23 July 2012. On 23 August 2012, in accordance with Section 89G of the EP&A Act, the Director-General of the Department issued the requirements. A copy of the DGRs is included **Appendix B**.

The DGRs established that the proposal must meet the requirements of Schedule 2 of the EP&A Act, specifically the form specifications in Clause 6 and the content specifications in Clause 7. Several stakeholders were identified with whom consultation must occur during the preparation of the EIS.

Table 1 provides a summary of the individual matters listed in the DGRs and identifies where these requirements are addressed in this report and the accompanying technical studies.

Table 1 – Location of Director General Requirements in the EIS

Requirement	Location in Environmental Impact Statement
General	
Statement and Declaration	EIS Declaration
Summary of EIS	Refer to Executive Summary
Statement of the objectives and description of the development	Sections 1 and 3
Analysis of alternatives	Section 3.1
Capital investment value	Section 1.0
Environmental assessment of the development	Section 5
Mitigation measures	Section 6
List of necessary approvals/licenses	Section 1.3
A list of authorities from which concurrence must be obtained	n/a

Requirement	Location in Environmental Impact Statement
List of accompanying documents	Page ii and Page iii
Justification for carrying out the development	Section 7
Key Project Specific Issues	
1. Environmental Planning Instruments.	Section 5.1
2. Relevant Policies and Guidelines	Section 5.1
3. Urban Design	Sections 5.2 and 5.3
4. Heritage	Section 5.13
5. Visual Impact	Section 5.3
6. Solar Access	Section 5.4.2
7. Ecologically Sustainable Development	Section 5.14
8. Public Domain	Section 5.2
9. Transport, traffic and car parking	Section 5.6
10. Heritage	Section 5.13
11. Wind	Section 5.4.1
11. Reflectivity	Section 5.5
12. Cross City Tunnel stack	Section 5.8
13. Ecologically Sustainable Development	Section 5.14
14. Geotechnical	Section5.9
15. Construction Impacts	Section 5.17
16. Consultation	Section 4.0
Plans and Documentation	
Existing site survey plan	Appendix C
Locality/ context plan	Appendix A and Appendix G
Drawings	Appendix A
A model of the proposal	Submitted under separate cover
Materials and finished sample board	Submitted under separate cover
Public Domain Plan	Appendix G

1.2 Overview of the Proposal

The application seeks approval for the following development:

- Demolition of the existing IMAX building, tourist office and amenities block.
- Construction of a new 20 storey building for office, retail and entertainment purposes, and a separate 2 storey building consisting retail tenancies, public amenities and SHFA workshop. These buildings have a combined total Gross Floor Area of approximately 74,233m^2.
- Approximately 62,427m^2 of GFA for office purposes, up to 15 storeys above the level of the Western Distributor.
- Approximately 11,100m^2 GFA for retail and entertainment uses and an IMAX cinema in the 'podium' levels (below the Western Distributor).
- 86 car parking spaces to be located within the podium levels and 332 bicycle parking spaces on ground level.
- Upgrades to the surrounding public domain including new playground area.
- Signage zones and display screen on the new building.

1.3 Necessary Approvals and Licences Required

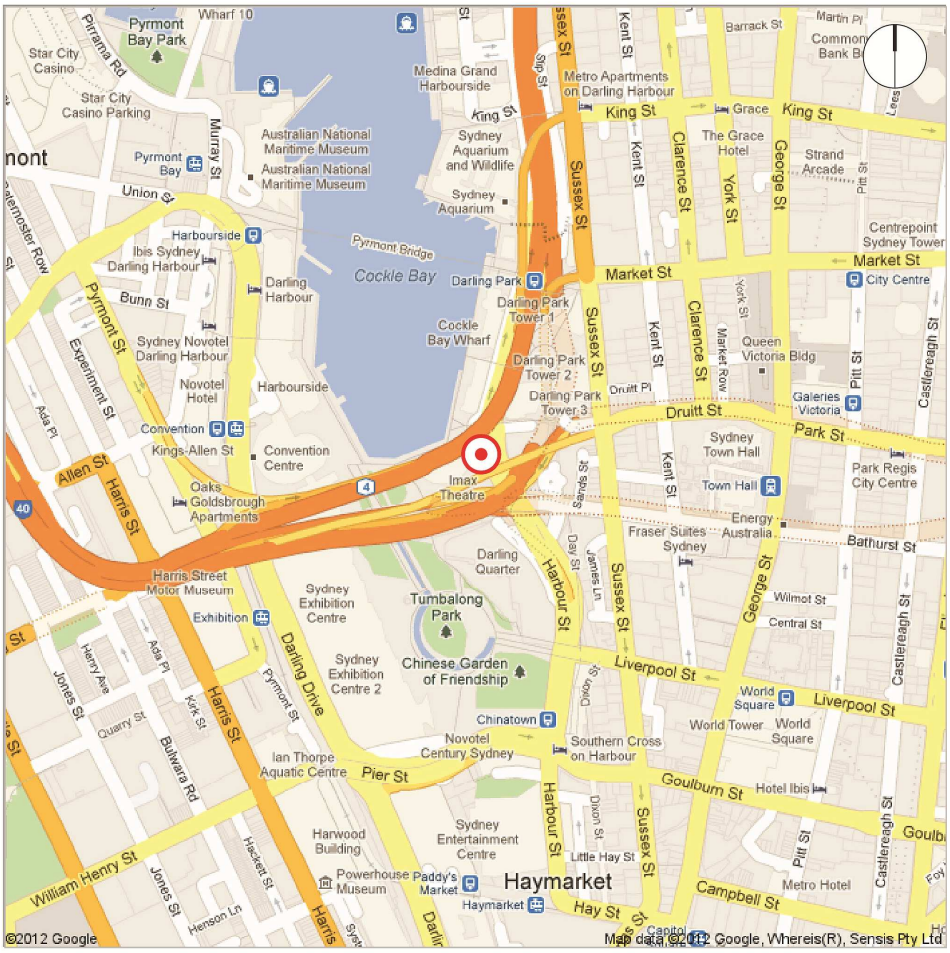
The development proposes to erect a structure over Harbour Street, which is a public road. Therefore an approval for the proposed works under Section 138 of the *Roads Act 1993* is required.

2.0 Site Analysis

2.1 Site Location

The site is located at 31 Wheat Road, Darling Harbour, on the western edge of the Sydney CBD.

Darling Harbour is a busy tourist, entertainment and retail precinct that consists of numerous restaurants, cafes and other attractions including the Sydney Aquarium and Sydney Wildlife World as well as the Darling Park and Darling Quarter commercial office buildings. **Figure 1** below is a location plan of the site.



The Site

Figure 1 – Location plan *Source: Google*

2.2 Site Description

The site has a total lease area of 5,060m² with a total 'zone of influence' area of 11,550m² surrounding the proposed building (refer to the Lease Line Plan drawing number ARC-HSL-DA-1060 at **Appendix A**). The existing footprint of the IMAX buildings is approximately 2,329m² in area. An aerial image of the site is shown at **Figure 2**.

The site is legally described as Lots 401, 402, 403, 404 and 405 in DP 862501. The registered owner is the Sydney Harbour Foreshore Authority (SHFA). The

registered owner of the head lease is Markham Property Fund No.2 Pty Ltd. The lease has 82 years left to run. A site Survey Plan is provided at **Appendix C**.

Figure 2 – Aerial photo of the site

Existing Development

The site contains the existing IMAX building and the Sydney Information Centre tourist office.

The IMAX building functions as an entertainment, restaurant and takeaway food venue. The IMAX cinema is the main use, with various food outlets, cafes and licensed restaurants, such as, 'Starbucks' and the 'Meat & Wine Company', located on the ground floor of the building.

The Sydney Information Centre is a two storey building that has been constructed under the elevated overpass and is to the south the IMAX building. The Sydney Information Centre provides an information service to visitors. The building also includes office space and public amenities.

Photographs of the site are shown at **Figures 3** to **7**.

Figure 3 – View of IMAX Building from the eastern end of the Pyrmont Bridge, with Cross City Tunnel ventilation stack behind.

Figure 4 – View of IMAX building from Cockle Bay Wharf

Figure 5 – View of retail shops at north-west corner of IMAX building

Figure 6 – View of shops at north east corner of IMAX building

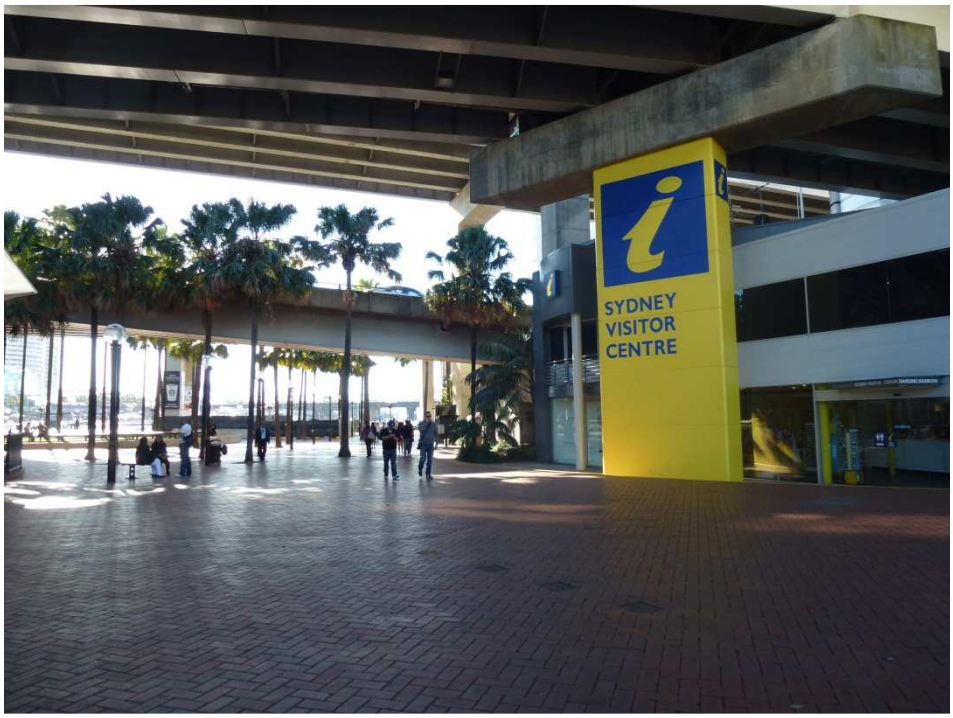


Figure 7 – View to Sydney Visitor Centre

Access

Vehicular access to the site is from Harbour Street. There is currently no parking on-site, however loading zones are on located on the southern side of the building, with access from Harbour Street. A coach and taxi drop-off and pick-up lane is also off Harbour Street in the immediate vicinity of the site (see **Figure 8**).

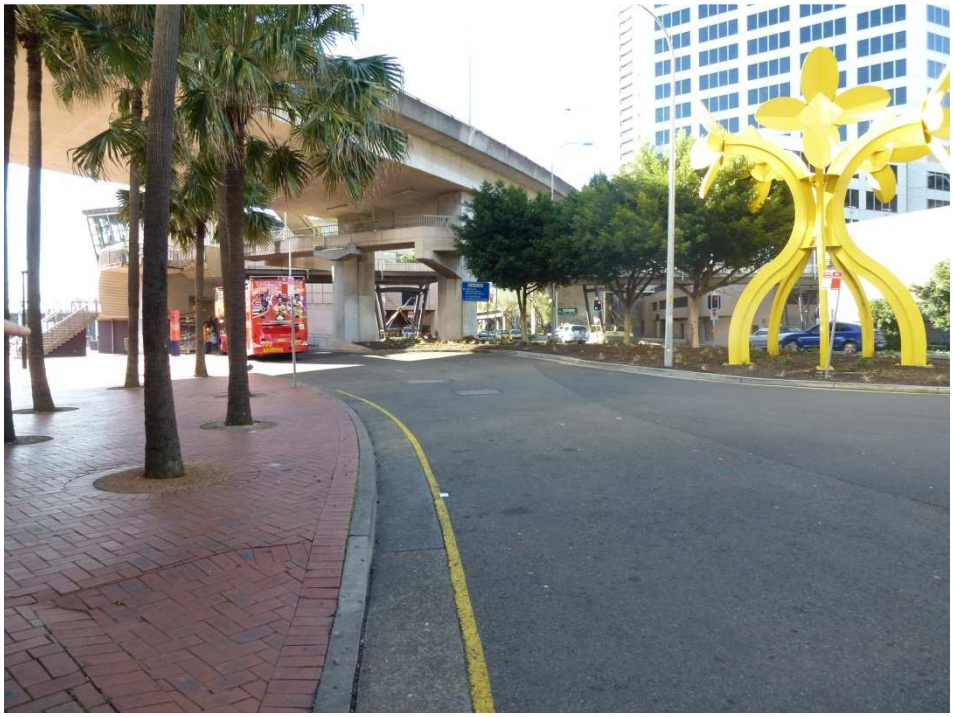


Figure 8 – Coach and taxi drop-off/pick-up lane immediately adjacent the site on Wheat Road.

Pedestrian access to the site is either from the Darling Harbour public domain or from Harbour Street/ Wheat Road. Pedestrian bridges over Harbour Street connecting to the CBD are located to the north of the site at Cockle Bay Wharf and to the south of the site at Darling Quarter. At grade pedestrian crossings on Harbour Street are located at the intersection of Bathurst, Day and Harbour Streets.

Geotechnical Conditions

The geotechnical conditions of the site have been investigated by Douglas Partners and are detailed in the Geotechnical Desktop Study provided at **Appendix D**. These investigations identified that below the surface pavement at RL 2.5m there is fill to a maximum depth of 4.6 metres. Below the fill is alluvium and organic marine clay to a maximum depth of 6.7m. Beneath this layer is residual sand and sandstone.

Groundwater Conditions

Groundwater was encountered on the site at a depth of 2.4 metres. The groundwater is however affected by tidal influences. Previous geotechnical investigations found water levels fluctuating between approximately RL -0.5 and +0.5m AHD. The groundwater level conditions can be expected to rise to RL +1.0 to +1.5m during heavy rainfall events that are coupled with a high tide.

Utilities and Infrastructure

The site is fully serviced by all utilities. The site is traversed by or located in close proximity to major electrical, water, sewer, stormwater, gas and telecommunication services. These services include:

- Two water mains located at the western and eastern ends of the site.
- Two sewer mains located on the eastern and southern sides of the site. A sewer pumping station is also located close to the site.
- Two major stormwater drains traverse the site below the existing building.
- Jemena gas mains are located at the eastern end of the site and along the south-eastern boundary of the site.
- Electrical infrastructure, including 132KV, 33KV and 11KV cabling either traverse or are in the vicinity of the site.

In addition to the utilities and infrastructure servicing the site, a major 132kV transmission cable owned and operated by Ausgrid is located to the south of the site. The 132kV cable cannot be relocated and access to the vault room must be maintained at all times.

2.3 Surrounding Development

The site's location on the perimeter of Darling Harbour places it in a busy and important tourist and commercial area. The site is within walking distance of the CBD's major commercial, entertainment and shopping districts including the Queen Victoria Building, Pitt Street Mall, Chinatown and Darling Harbour. The surrounds of the site are detailed below.

To the south of the site is the recently redeveloped Darling Quarter which includes two commercial office buildings with ground level retail, a new children's playground, and a through site link to Harbour Street (refer to **Figure 9**). Further to the south is Tumbalong Park (see **Figure 10**), the Chinese Garden of Friendship and the Sydney Entertainment Centre.

Figure 9 – View of Darling Quarter Offices

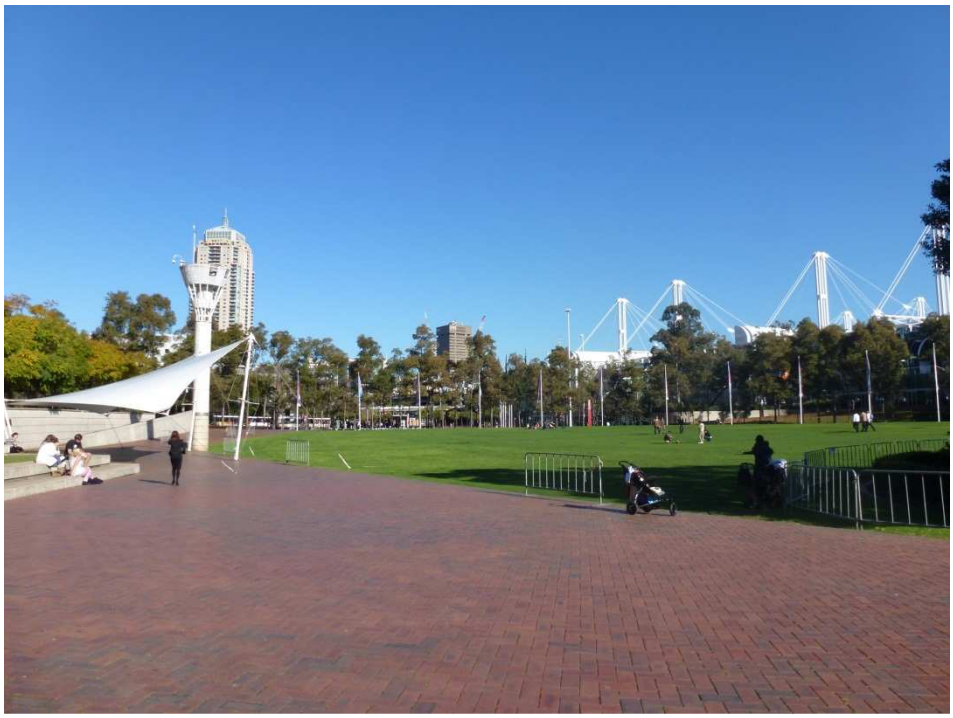


Figure 10 – Tumbalong Park

To the north of the site is Cockle Bay Wharf (see **Figure 11**), which comprises a range of restaurants, bars and cafes. Cockle Bay Wharf is connected to the Darling Park tower complex by a pedestrian bridge which crosses over Harbour Street and the Western Distributor. Further north of Cockle Bay is the Sydney Aquarium, Wildlife World and King Street Wharf mixed use precinct. To the west and south west of the site is the Sydney Convention and Exhibition Centre and to the north west is the Harbourside Shopping Centre.

Figure 11 – View of Cockle Bay and Darling Park Towers behind.

To the east of the site there is a small single storey brick and tile Sydney Water pumping station building (see **Figure 12**). On the eastern side of Harbour Street is an Ausgrid substation (see **Figure 13**) and further behind the substation is the Parkroyal Hotel located on Day Street, and to the south east are residential tower buildings overlooking Darling Harbour.

Figure 12 – Sydney Water building, with residential development beyond.

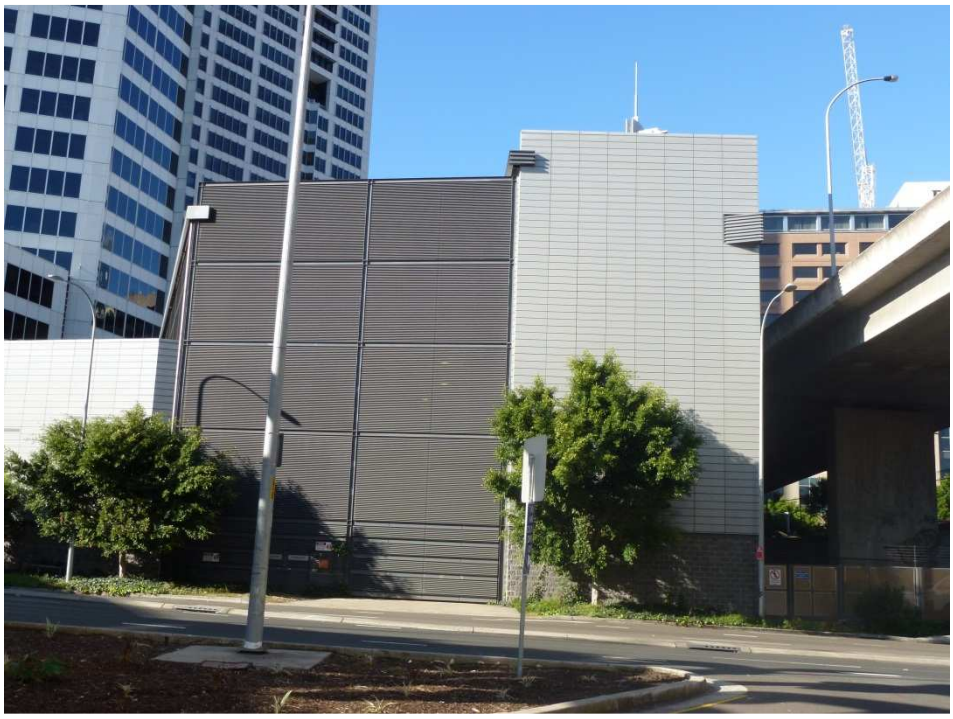


Figure 13 – Ausgrid substation on Harbour Street.

Palm Cove is directly to the west of the site (**Figure 14**) and further south-west is Darling Quarter's playground and Carousel.

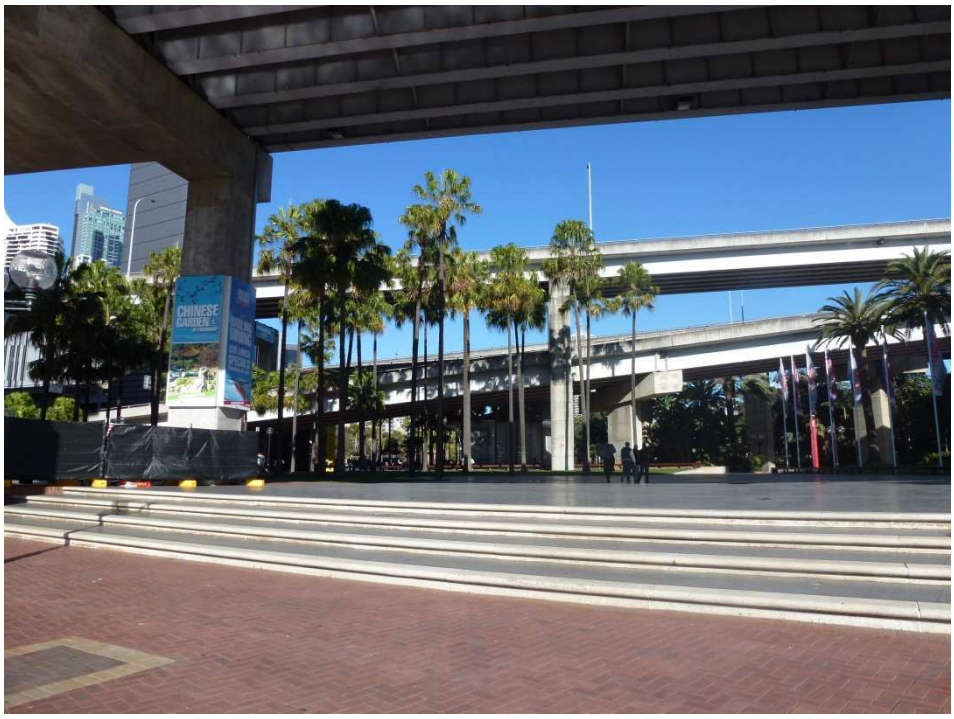


Figure 14 – Palm Grove.

Figure 15 shows the context of the site and the surrounding development.

The Site
1 Darling Park Towers
2 Cockle Bay Wharf
3 Darling Quarter
4 Sydney Convention + Exhibition Centre
5 Harbourside Shopping Centre
6 Palm Grove
7 Pyrmont Bridge
8 Tumbalong Park
9 Chinese Friendship Garden
10 Sydney Exhibition Centre
11 Residential Buildings

Figure 15 – Surrounding development.

2.3.1 Heritage Context

A Heritage Impact Statement (HIS) has been prepared by Godden Mackay Logan and is included at **Appendix E**. The HIS describes the site and the heritage listed items in the vicinity of the site and any European and Aboriginal archaeology on the site.

Heritage Items

The existing IMAX building is not listed on any heritage register, nor are any of the built or landscape items in the immediate vicinity of the subject site. However, the following heritage listed items are in the vicinity of the site:

- The Darling Harbour Carousel (proposed to be relocated)– listed in the State Heritage Register and SHFA's S170 Heritage and Conservation Register;
- Sewage Pumping Station No. 12 - listed in Sydney's Water's S170 Heritage and Conservation Register;
- Pyrmont Bridge - listed on the State Heritage Register; and

- The Vintage Building (former warehouse) 281-287 Sussex Street, Sydney - listed under City of Sydney Local Environmental Plan 2012.

European Archaeology

The site was extensively redeveloped during the late twentieth Century. While some areas may be subject to subsurface disturbance, the HIS considers that the IMAX site would have at least some potential to contain archaeological evidence related to the historical use and development of the area.

Aboriginal Archaeology

The proposed development is wholly located on land that was reclaimed after 1830, and therefore the site is unlikely to contain Aboriginal archaeology evidence.

3.0 Proposed Development

This chapter provides an outline and assessment of alternative development options, and a detailed description of the proposed development. Architectural drawings prepared by HASSELL are included at **Appendix A**.

3.1 Analysis of Alternatives

The existing IMAX building was constructed in 1988 when the Darling Harbour precinct was undergoing an extensive program of urban renewal. Approaching 25 years of age, the site and building are now in need of regeneration.

During design development a number of alternative designs were investigated and considered for development including:

- Option 1: No redevelopment, leaving the existing building as it is.
- Option 2: Provide a new building with the same building height and footprint as the existing IMAX building.
- Option 3: Providing a redeveloped building with a large ground floor base and a single tower (refer to **Figure 16**).
- Option 4: Build a development with two thin tall towers (refer to **Figure 17**).
- Option 5: Building a development with a wider built form cantilevering over the roadways (refer to **Figure 18**).
- Option 6: Provide a development with a thinner mass and a height comparable to the closest neighbouring buildings (refer to **Figure 19**).
- Option 7: Expand the existing building footprint and height and construct a new building with a unique built form (refer to **Figure 20**).

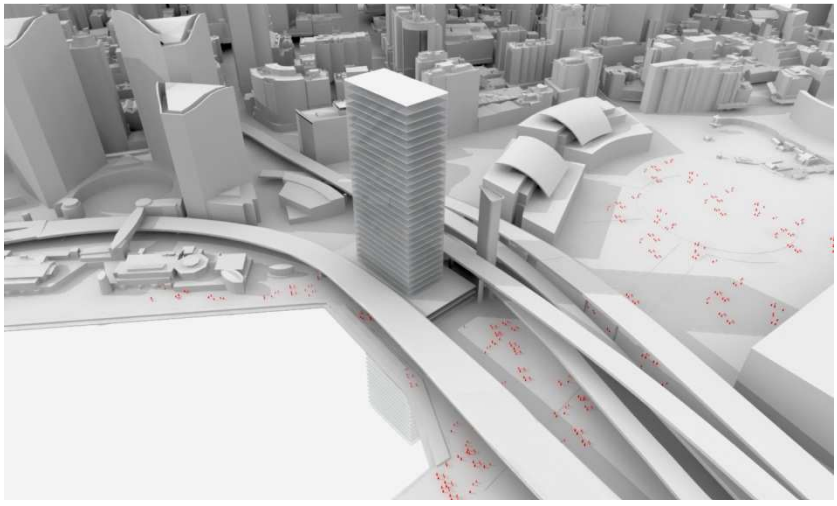


Figure 16 – Option 3: redeveloped building with a large ground floor base and a single tower. (Source: HASSELL)

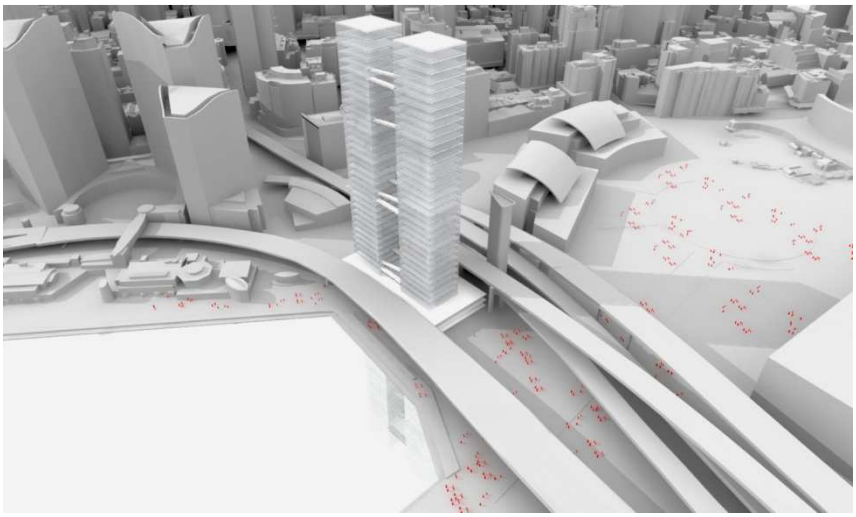


Figure 17 – Option 4: development with two thin tall towers. (Source: HASSELL)

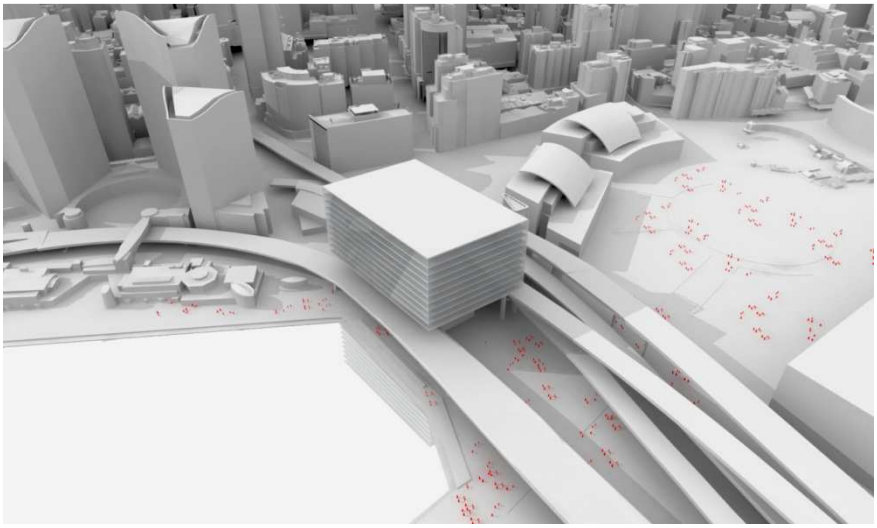


Figure 18 – Option 5: development with a wider built form cantilevering over the roadways. (Source: HASSELL)

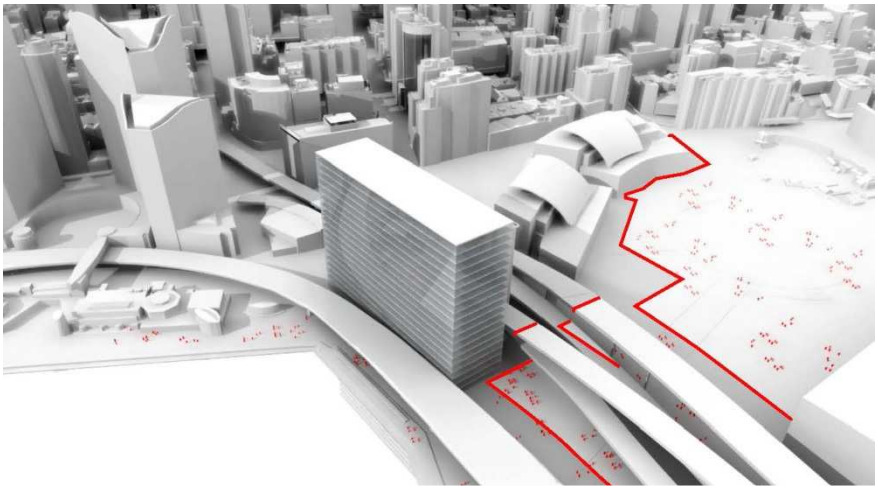


Figure 19 – Option 6: development with a thinner built form matching the height of surrounding buildings. (Source: HASSELL)

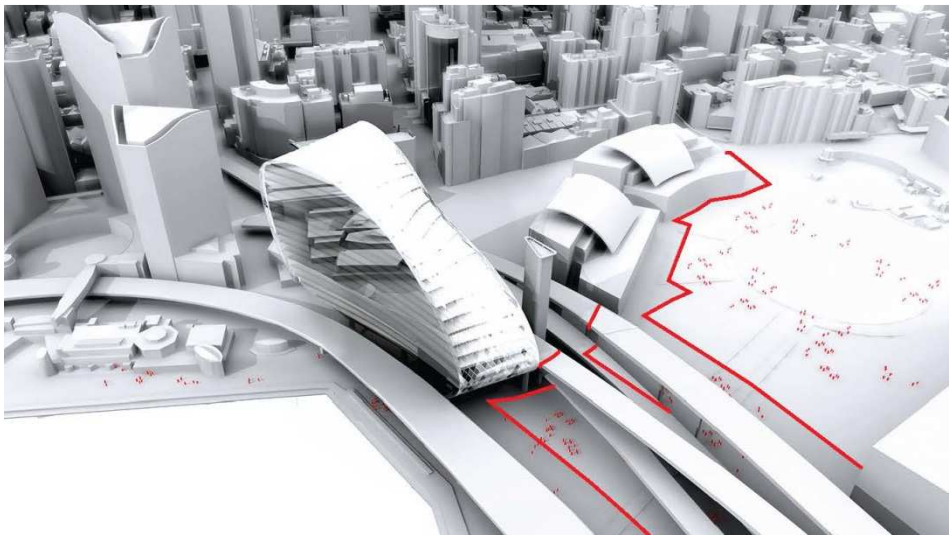


Figure 20 – Option 7: expand the existing building footprint and height and construct a new building with a unique built form. (Source: HASSELL)

In considering the design alternatives, Option 1: 'no development' would not provide any opportunity to renew and rejuvenate the Darling Harbour's urban form, increase the activation of the precinct or provide stronger connections to Darling Quarter and Tumbalong Park.

The alternative of replacing the existing building using the same building footprint and height (Option 2) was not considered to be an economically feasible alternative nor would it provide the benefit of new commercial and retail floorspace. The proposal would also only provide limited opportunities for public domain improvements.

The Option 3 design of creating a building with a large ground floor base and a single tower building would create issues of pedestrian connections and movements to the public domain, as well as creating a significant overshadowing impact to the public domain areas. Similarly, the Option 4 development with two slim towers would also have a significant adverse impact to overshadowing the public domain.

The Option 5 design would generate a bulky, top-heavy building that would be visually imposing and inappropriate. The Option 6 design of a thinner mass with a height comparable to neighbouring buildings would result in a more pleasing visual outcome, however it would result in significant overshadowing of the Children's Playground.

After an analysis of the feasible alternatives, it was identified that the proposed development (being Option 7) will produce the best possible outcome for the site. This development will contribute a landmark built form and will reduce the bulk of the development by breaking up the volume of the building and creating a fluid built form. The development will also provide new retail, entertainment and office floor space as well as delivering a revitalised public domain which will strengthen connections to Darling Quarter, Tumbalong Park, the exhibition, convention and entertainment precinct and the CBD.

3.2 Development Description

This application seeks approval for the following development:

- Demolition of the existing IMAX building, tourist office and amenities block.
- Construction of a new 20 storey building for office, retail and entertainment purposes, and a separate 2 storey building with a combined total Gross Floor Area of approximately 74,233m^2.
- Approximately 62,427m^2 of GFA for office purposes, up to 15 storeys above the level of the Western Distributor.
- Approximately 11,100m^2 GFA for retail and entertainment uses, including and an IMAX cinema in the 'podium' levels (below the Western Distributor).
- 86 car parking spaces to be located within the podium levels and 332 bicycle parking spaces on ground level.
- Upgrades to the surrounding public domain including new playground area.
- Signage zones and display screen on the new building.

3.3 Numerical Overview

A numeric overview of the proposed development is detailed in **Table 2**.

Table 2 – Numerical overview of the proposed development

Component	Proposal
Site area	The site has a total lease area of 5,060m^2 with a total 'zone of influence' area of 11,550m^2 surrounding the proposed building.
Height ▪ metres ▪ storeys	 Max RL 93.50 or approximately 90.6m above ground level. 20 storeys
GFA (m^2) ▪ Commercial office ▪ Retail ▪ Gym ▪ Entertainment (cinema) ▪ Function ▪ SHFA offices/Public amenities	 62,427m^2 4,232m^2 1,973m^2 2,734m^2 2,161m^2 706m^2
Parking	86 car spaces 332 bicycle spaces

3.4 Objectives of the Development

The proposed development has undergone a thorough design process, including consultation with various stakeholders and an analysis of the existing site conditions and surrounding locality. There have been several key objectives which have guided this process and the design of the proposed development. These objectives include:

- Reinvigorating the precinct with a new building that incorporates additional office and commercial function spaces, as well as significantly improving the retail/ restaurant and the cinema spaces.
- Upgrading the public domain in line with the new Darling Quarter redevelopment, and providing improved public amenities and retail activation (including provision of retail space for SHFA use as required).
- Improving the experience of the IMAX facilities for patrons.
- Providing a landmark building with new distinctive architectural qualities and befitting the character of the precinct.

In summary, the demand for commercial floor space and diversification of the Darling Harbour precinct's land use mix, as well as improvements to the public domain and entertainment facilities in Sydney have guided the proposed development.

3.5 Design Principles

An Urban Design Report prepared by HASSELL (refer to **Appendix F**) outlines the more specific planning and design principles which have been adopted for the proposed development. These relate to the following aspects:

- Scale and massing.
- Public domain.
- Access.
- Pedestrian connectivity.
- Solar access.
- Elevated freeways.

Consideration of these principals throughout the design process has seen the establishment of the following design objectives:

- Create an architectural response that is derived from its unique context between two elevated roadways.
- Improve linkages and connections to Darling Quarter and Tumbalong Park.
- Create a high quality workspace by providing large contiguous floor plates that take advantage of views.
- Create and enhance the experience for visitors to Darling Harbour retail/ restaurant and entertainment facilities and upgraded public domain spaces.
- Create the built form that minimises the extent of overshadowing of the new Children's Playground to the south of the site.
- Design a ground level that engages with the waterfront and provides an activated façade on the north, east and west elevations, in particular at the levels below the expressways where the pedestrian experience is most pronounced.

- Provide continuous active uses on the ground floor to establish a retail promenade between the waterfront, Darling Quarter and Tumbalong Park.
- Establish a clearly defined building entrance and street address on Wheat Road for the commercial offices.
- Provide separate entries for the IMAX Cinema and function spaces.
- Provide new public amenities and office spaces for use by the Sydney Harbour Foreshore Authority.
- Provide a building form that represents a Ribbon pattern to identify the building as a landmark design.

3.6 Demolition and Site Preparation Works

Site preparation and demolition works will include:

- Site establishment work and erection of hoardings.
- Decommissioning of site infrastructure and services.
- Demolition of the IMAX cinema building.
- Closure and demolition of the Sydney Information Centre and amenities.

Demolition works are detailed on Drawings ARC-HSL-DA-1080 at **Appendix A**.

3.7 New Buildings

The new main building will be constructed between, beneath and above the elevated Western Distributor roadways, rising to 20 storeys. A second two storey building will also be constructed south of the new tower building, partially under the elevated roadway, in the location of the existing Sydney Information Centre. Combined, the new buildings will comprise a total of 74,233m^2 GFA.

The new redeveloped building will comprise two distinctive building features, which include:

- The podium levels under the overpass that will house a mixture of uses and upgrade the public domain. The new undulating façade will deliver a distinct visual interest for pedestrians, providing a human scale interface with the adjoining outdoor Darling Harbour public areas.
- The above podium/ overpass element of the building that cantilevers over Harbour Street will provide a new commercial accommodation within a landmark building.

Table 3 below provides a description of the main building's uses by level and **Table 4** provides a description of uses of the smaller southern building.

Table 3 – Northern tower building land Use by level

Level	Proposed Use
Ground Floor	▪ Commercial office entry ▪ Retail / restaurant ▪ IMAX lobby ▪ Car park entry and loading dock ▪ Back of house, service areas and plant rooms ▪ Bicycle parking
Podium Level 1	▪ IMAX cinema ▪ Retail / restaurant ▪ Commercial office lobby ▪ Car parking
Podium Level 2	▪ IMAX cinema ▪ Function space ▪ Car parking
Podium Level 3	▪ IMAX cinema ▪ Retail office space ▪ Back of house/ service areas
Podium Level 4	▪ IMAX cinema ▪ Gymnasium ▪ Plant
Commercial Levels 1-15	▪ Office space
Plant Mezzanine above Level 15	▪ Plant

Table 4 – Southern building - land use by level

Level	Proposed Use
Ground Floor	▪ Retail ▪ Public amenities ▪ Office/ workshop
Level 1	▪ Offices

3.8 Access and Parking

Vehicular access to the site is from Harbour Street (northbound only), via a left hand turn. The drop off area will be realigned and upgraded at Wheat Road to create a new street address for the commercial and function lobbies.

A loading area is proposed within the ground level which will have an access driveway designed to service both the commercial and retail loading requirements of the building. Three loading bays are proposed that are capable of accommodating up to 8.8 metre medium rigid vehicles, in addition to four courier parking spaces.

Vehicular access for SHFA vehicles will be provided to the south of the two-storey SHFA building, from the McDonalds drive-through road. This access will allow SHFA to maintain the public domain area and access the workshop.

A stacked car park accommodating 86 car spaces will be provided within the podium levels of the main building. The car park entry will be off Wheat Road/ Harbour Street which allows cars to enter and exit the site in a forward direction. The car park will be operated by a valet and cars will be parked on the stacker on

behalf of each driver. Drivers will park their cars in one of the three car bays, reducing the incidence of queuing on entry to the site during peak periods.

Pedestrian access with be via the Darling Harbour public domain. The commercial and function area will be accessed via a lobby at the eastern end of the building near the Wheat Road drop-off area. The proposed retail areas will be accessed along the northern frontage of the building, within the Darling Harbour pedestrian precinct, and the cinema complex will be accessed via the western frontage.

3.9 Public Domain Works

All public domain areas in the immediate vicinity of the site will be upgraded. A Landscape Report and Drawings have been prepared by ASPECT and are included at **Appendix G**. As indicated on the plans, the public domain works include:

- New paving to integrate with the Darling Harbour precinct;
- Pedestrian links and lighting, with opportunity for public art;
- Upgrades of the existing Palm Grove to create an improved pedestrian environment and a strong pedestrian link between Darling Quarter and Cockle Bay as well as improving access to the waterfront from the south;
- Installing an LED Display Screen on the lower levels of the building's western elevation, to create an 'outdoor city screen' for telecasts of sporting events and concerts, and for the display of relevant information;
- Upgrades to the timber up-stand and seating area around the Palm Gove area that overlooks the harbour and the city;
- A new playground area which connects to and aligns with the existing Darling Quarter Children's playground; and
- The relocation of the Darling Harbour carousel.

3.10 Construction Staging

The construction of the project will be undertaken in a single stage. The various components of this construction stage include:

- early works (site access, provision of temporary services, site boundary and hoardings);
- demolition of existing structures;
- excavation, pilings and raft slab; and
- main building phase.

These stages are detailed in the Construction Management Plan prepared by Grocon (refer **Appendix X**). This plan also details the perimeter protection systems which will be utilised during construction, which is particularly relevant given the proximity of the site to the Western Distributor and pedestrian areas and the shape of the proposed building (with upper levels extending out beyond lower levels).

The perimeter protection systems will include protective screens at the perimeter, catch screen and decks at lower levels and specifically designed temporary safety fences. The details of the perimeter protection systems will be confirmed with the RMS prior to the commencement of works.

4.0 Consultation

The DGRs specifically required consultation with the following authorities:

- Sydney Harbour Foreshore Authority;
- City of Sydney Council;
- Roads and Maritime Services;
- Infrastructure NSW;
- Sydney Water;
- Ausgrid; and
- Jemena.

Grocon has consulted with each of these agencies and a summary of those consultations is provided in **Table 5** below.

Table 5 – Key issues from Agency Consultation

Issues	Comment / response
SHFA	
▪ Overshadowing impacts on the Children's playground ▪ Impacts on Palm Grove ▪ Access to service, emergency and special event vehicles ▪ View sight-lines from south of site to the Harbour across the public domain ▪ Reinforcement of the "Valley Floor" concept	▪ The proponent has held several meetings with SHFA to discuss potential modifications to the building form to address issues raised by SHFA. ▪ In response to issues raised the following measures have been incorporated into the design: - Public domain works to Palm Grove have been amended to widen the aperture to the water's edge from the southern Public Domain. - The building has been moved 6 metres to the east and the north ribbon has been reduced in width by 16 metres from the proposal originally presented to SHFA. - The western end of the southern ribbon has been lowered by 11 metres to minimise overshadowing. - The angle of the long roof of the southern ribbon has been adjusted to align with the stepping down of building heights towards Darling Harbour. - Vehicular access to the western public domain from the east will be provided to the south of the SHFA building proposed at the south of the development site from the McDonalds drive-through road. ▪ The above responses were presented to SHFA on July 31st, September 4th & November 2nd 2012 ▪ SHFA have provided verbal confirmation of their acceptance of the changes and their support of the design after the November 2nd meeting.
Council of the City of Sydney	
▪ Apparent building width and bulk ▪ Overshadowing to green spaces ▪ Pedestrian connectivity to the city ▪ Articulation of the north and south facades	▪ The proponent has held meetings with, and made presentations to, the Director of City Planning on 4th July 2012, 19th November 2012 and 5 August 2013. ▪ At the 5 August 2013 briefing the DA scheme was presented, which concurrently dealt with the first 4 issues: - Width and bulk has been addressed as per SHFA comments above

Issues	Comment / response
▪ Sight lines and pedestrian ways to the proposed Exhibition and Convention Centres	- The building does not cast any additional shadow over the green spaces at 1pm on any day - An enhanced street address and way finding from Harbour Street has been incorporated into the design - Articulation of all external facades has been provided in the DA scheme with the articulated ribbon device and the patterning effect provided in the north and south facades ▪ The final issue of sight lines and pedestrian ways will be facilitated by SHFA between the proponent and the SICEEP proponent
Roads and Maritime Services	
▪ Construction and operation impacts to Western Distributor ▪ Clearances to RMS structures ▪ Clearance of temporary construction gantry over Harbour Street	▪ The proponent has held meetings with, and made presentations to, the RMS executives on 29th June 2012, 22nd November 2012 and 8th August 2013. ▪ Construction and permanent clearances were presented to RMS on Tuesday November 20th. ▪ Construction Traffic Management Plan has been prepared and is included with the Environmental Impact Statement ▪ A detailed construction management plan will be prepared in consultation with the RMS. ▪ Any RMS detailed design requirements will be addressed in the final detailed design of the building. ▪ The DA design provides for all setbacks from their infrastructure as requested by RMS. ▪ The proponent has agreed to provide a 5.5m high gantry above Harbour Street at a time to be defined and agreed during the construction period.
Infrastructure NSW (SICEEP Design Review Panel)	
▪ Integration with the SICEEP[1] public domain. ▪ Coordination and communication of construction program and activities. ▪ Consideration should be given to inclusion of The Ribbon proposal within the existing SICEEP physical model. ▪ The design should pay greater respect to the 'valley floor'.	▪ The proponent has held meetings and made presentations to the iNSW executives and the SICEEP DRP on 21st May 2012, 20th November 2012, 27th November 2012, 26th February 2013 and 9 August 2013. ▪ The integration of the adjoining public domain will be facilitated by SHFA between the proponent and the SICEEP proponent. Similarly this will be the conduit for cross communication on construction activities. ▪ A scale model was produced of the DA scheme for inclusion in the SICEEP physical model which was subsequently inspected by the SHFA Executive and SHFA Board. ▪ The comment on the valley floor was made on the previous scheme. The proponent believes this feedback has now been incorporated into the DA scheme and is described in the Urban Design Report.
Sydney Water	
▪ Existing stormwater infrastructure and location of building over	▪ Meeting held at Sydney Water on 27th November, 2012. ▪ Sydney Water required several reports including a Flood Study, Services Protection Report and Deviation Report

[1] Sydney International Convention, Exhibition and Entertainment Precinct

Issues	Comment / response
▪ Existing water mains and capability to serve the project ▪ Sydney Water's requirement for building over the existing Hay Lackey stormwater channel.	to be provided to allow them to understand the development adjacent to their assets. ▪ Sydney Water has confirmed that they understand the current infrastructure has capacity for sewer and water to supply the development.
Ausgrid	
▪ Existing HV conduits pass under the proposed development ▪ Existing Vaults adjacent for HV cables require access for future cable upgrades ▪ Existing infrastructure and network to be assessed as to capability to handle the development	▪ Meeting at Ausgrid on 21st November 2012. ▪ Meeting on site on 29th November 2012. ▪ Ausgrid confirmed that the existing 33 kV conduits under the development can be diverted as they are not fully operative. ▪ Ausgrid stated that they need ongoing truck access to the vaults to allow for future cables to be installed. Grocon offered alternative access hatch in roof of vault to facilitate this and Ausgrid have provided their preliminary approval. ▪ Ausgrid confirmed that the building is currently just outside the Triplex network and on the Darling Harbour single network. They stated that the adjacent Darling Quarter (Commonwealth Bank) offices applied and received connection to the Sydney CBD triplex network and suggested an application for a similar approach.
Telecommunication Authorities	
▪ Infrastructure capability to cater for development	▪ Written correspondence with Telstra culminating with written confirmation of network capacity on 30 November 2012. ▪ Telstra have confirmed that their network and exchanges have the capacity to support this development.
Gas	
▪ Infrastructure capability to cater for development	▪ Jemena have confirmed verbally in response to written correspondence that their gas mains have the capacity to support this development.

5.0 Environmental Assessment

This section contains our assessment of the environmental effects of the proposed development as described in the preceding chapters of this report.

Under section 79C(1) of the EP&A Act, in determining a development application the consent authority has to take into account a range of matters relevant to the development including the provisions of environmental planning instruments; impacts on the built and natural environment, the social and economic impacts of the development; the suitability of the site; and whether the public interest would be served by the development.

The assessment includes only those matters under section 79C(1) that are relevant to the proposal. The planning issues associated with the proposed development are listed in **Table 6** below.

Table 6 – Planning Issues

Planning Issues	Assessment	
	SEE	**Technical Study**
Compliance with Relevant Strategic and Statutory Plans and Policies	Section 5.1	n/a
Urban Design and Built Form	Section 5.2	Appendix F
Visual Impact	Section 5.3	Appendix H
Amenity	Section 5.4	Appendices J, K, L
Reflectivity	Section 5.5	Appendix L
Transport and Accessibility	Section 5.6	Appendix M
Noise	Section 5.7	Appendix I
Air Quality	Section 5.8	Appendix N
Geotechnical and Groundwater	Section 5.9	Appendix D
Contamination	Section 5.10	Appendix O
Access	Section 5.11	Appendix P
BCA	Section 5.12	Appendices Q, R
Heritage	Section 5.13	Appendix E
Ecologically Sustainable Development	Section 5.14	Appendix S
Civil Engineering	Section 5.15	Appendix U
Services and Infrastructure	Section 5.16	Appendices T, V, W
Construction Management	Section 5.17	Appendix X

5.1 Compliance with Relevant Strategic and Statutory Plans and Policies

The following legislation, strategies and planning instruments are relevant to the proposed development:

- State Environmental Planning Policy (State and Regional Development) 2011;
- State Environmental Planning Policy 55 Remediation of Land;
- State Environmental Planning Policy (Infrastructure);
- Darling Harbour Development Plan No.1; and
- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

The DA's consistency and compliance with the relevant strategic and statutory plans and policies is located in **Table 7** below. Variations to, and non-compliance with, the key standards and guidelines highlighted in the table are discussed in detail in the following sections of this environmental assessment.

Table 7 – Summary of consistency with key strategic and statutory plans and policies

Instrument/Strategy	Comments
Strategic Plans	
NSW State Plan	The proposed development will contribute to achieving the first goal of the plan to 'improve the performance of the NSW economy' by providing a new IMAX cinema and new office, retail and function space. The redevelopment of the site will also contribute to the regeneration of the Darling Harbour precinct.
Metropolitan Plan for Sydney 2036	The Metropolitan Plan 2036 aims to strengthen Sydney's competitiveness as a global city that attracts and retains global business and investment (Objective A4). The Metropolitan Plan also plans for 760,000 new jobs with a focus on employment growth in centres (Objectives E1 and E2). The project is consistent with these objectives as it will deliver entertainment, retail and office floorspace which will help accommodate Sydney's growing workforce. The development will also contribute to Sydney's role as a global city by providing this space in a major tourist, recreational, entertainment, cultural and commercial precinct.
Draft Sydney City Subregional Strategy	This DA is consistent with the Strategy in that it will: ▪ Provide new office accommodation in the city; ▪ Provide tourist and entertainment facilities including new IMAX cinema and function facilities which contribute to Sydney's status as a Global City; and ▪ Reinforces the role of Darling Harbour as a commercial and tourist precinct.
State Planning Instruments and Controls	
SEPP (State and Regional Development) 2011	The proposed development is within the Darling Harbour precinct which is identified as a State Significant Site in Schedule 2 of the State Environmental Planning Policy (State and Regional Development). As the proposed development has a capital investment value of more than $10 million and is listed in Schedule 2, it is State Significant Development for the purposes of the Act.
SEPP 55	A Phase 1 Contamination Report prepared for the site concludes that the site is suitable for redevelopment, subject to the completion of a Phase 2 Assessment prior to the commencement of construction works.
SEPP (Infrastructure)	Under clause 104 of the SEPP Infrastructure, the development is a traffic generating development, as it is accessed via a classified road and proposes more than 10,000m^2 of commercial floorspace. The application therefore requires the concurrence of Roads and Maritime Services (RMS).
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005	The proposed development is consistent with the aims and objectives of the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005. In particular: ▪ public access to the foreshore will be maintained; ▪ there will not be any adverse impacts on the scenic quality of the waterway or foreshore area; ▪ no adverse view loss will occur to and from the public domain around the Sydney Harbour foreshore as the Darling Harbour precinct and foreshore is progressively changing;

Instrument/Strategy	Comments
	and ▪ the building will help define the southern foreshore edge of Darling Harbour. A visual impact assessment has also been undertaken and further discussion is provided at Section 5.3.
Sydney Harbour Foreshores and Waterways Area Development Control Plan 2005	The Sydney Harbour Foreshores and Waterways Area Development Control Plan 2005 relates predominately to development which directly interfaces with the foreshore. The proposal is consistent with the design guidelines in that it maintains foreshore access and is of a high quality built form that compliments the highly urbanised character of the locality.
Darling Harbour Development Plan No. 1	The proposed development is permissible with consent under Clause 6 of the Darling Harbour Development Plan No. 1 (Darling Harbour Plan). No other provisions of the Darling Harbour Plan apply to the site.
Policies	
Development Near Rail Corridors and Busy Roads – Interim Guideline 2008	Due to the proximity of the site to a major road, the Development Near Rail Corridors and Busy Roads – Interim Guideline 2008 apply. A Noise Impact Assessment is provided at **Appendix I** and detailed in **Section 5.7** of this report.
NSW Groundwater Policy Framework Document – General and NSW Groundwater Quality Protection Policy	The NSW Groundwater Policy Framework and Groundwater Quality Protection Policy have been established to manage the State's groundwater. An assessment of the existing groundwater conditions and an assessment of the impact of the proposed development are provided at **Appendix D** and **Section 5.9** of this report.

5.2 Urban Design and Built Form

Urban Design

The site sits within Darling Harbour, a major entertainment, cultural, tourist and commercial precinct on the western edge of the Sydney CBD. Within Darling Harbour, the site sits at the southern foreshore edge. The foreshore, or waterside precinct, is defined by a variety of built form elements including Sydney Aquarium, Wildlife World, Cockle Bay Wharf and the Darling Park Towers to the east, the IMAX building and Western Distributor elevated overpass to the south and the Convention Centre, Harbourside Shopping Centre and Australian National Maritime Museum to the west.

Beyond the elevated overpass structures is the commercial, recreational and exhibition precinct centred around Tumbalong Park and including the Darling Quarter offices, the Chinese Garden of Friendship, the Sydney Exhibition Centre and Sydney Entertainment Centre.

The planning controls for the site set out a broad precinct wide framework for future development. There are no detailed planning or development controls that guide future development of the site. Therefore the built form of the proposed development is derived from the urban context of the site, future development proposed for Darling Harbour, and the site's unique constraints and opportunities.

Darling Harbour is currently undergoing rejuvenation, with the recently completed Darling Quarter project comprising 68,000m^2 of commercial office and retail space, and a new Children's Playground. The NSW Government is also planning a major redevelopment of a 20 hectare area of Darling Harbour including the Sydney

Entertainment Centre and car park, the Sydney Convention and Exhibition Centre, Tumbalong Park and the monorail corridor.

The preferred design scheme for this redevelopment, known as the Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) was announced by the NSW Government on 11 December 2012 and is situated from Haymarket to the Harbourside Shopping Centre. The development includes a significant expanded International Convention Centre and exhibition facilities, two new towers up to 35 storeys in height, new residential apartment towers, student accommodation, retail and commercial space, public car parking and community space.

The redevelopment of this area is expected to include 40,000m^2 of exhibition space, 8,000m^2 of meeting room space linked to convention and exhibition areas, a convention hall and banqueting facilities. In addition an entertainment facility with a capacity of at least 8000 people is also to be provided.

The proposed redevelopment of the SICEEP represents a significant change in the scale, built form and character of development in Darling Harbour. The new and expanded facilities are expected to be complete by late 2016.

Returning to the development the subject of this EIS, as detailed in the Urban Design Report prepared by HASSELL Architects (**Appendix F**) the height, bulk and scale of the building within the context of the locality has been considered throughout the design process of the proposed development. In particular, the design of the building has been significantly influenced by the location of the elevated Western Distributor overpass, which is a major site constraint, and the need to minimise the extent of any overshadowing of the Children's Playground at Darling Quarter.

The Western Distributor overpasses dictate the footprint for the tower that is narrow in its north-south direction and wide in its east-west direction. In addition, the Roads and Maritime Services require minimum distances of between 1.5m to 2.0m be maintained between the new building and freeway structures (including support pylons) to provide access for maintenance and inspection.

Alternative design responses were considered including a taller building with a narrower footprint and lower building with a wider footprint. A taller building would have had a significant shadow impact on the Children's Playground and Tumbalong Park. A building with a wider building footprint also would have compromised the public domain at ground level.

The podium levels of the building will deliver activation at ground level through a mix of uses including retail/ restaurants, IMAX entry, office entry and function entry. The new entry on the eastern side off Wheat Road will also establish better connectivity to Cockle Bay Wharf. On the western elevation the undulating building plan will open the ground level corner to Darling Quarter to provide pedestrian sight lines, open space and an extension of event space. This space will balance and complement the new indoor event spaces proposed for the new SICEEP development.

The separate two-storey building that will sit to the south of the tower will provide a continuous activation of the site through retail outlets, and will assist to direct the pedestrian flow between Cockle Bay and Darling Quarter. All back of house facilities have been designed to be provided at the southern elevation of the building and will not be visible from the public domain.

Built Form

The building will define the southern edge of the Darling Harbour foreshore or waterside precinct, and continue to terminate vistas at the south-east edge of the foreshore.

The form of the proposed building reflects the site constraints and the elevated overpass interpreted as a twisted "Ribbon" in the landscape. The abstracted "Ribbon" forms a key design element of the building by rolling up, over and around the building, moulding its form. It is intended that this Ribbon will be an identifiable and iconic built form that will contribute to the rejuvenation of Darling Harbour and will continue to distinguish the IMAX building as a local landmark design.

The facade material of the Ribbon is proposed to be white glass IGUs in varying levels of transparency within a triangulated grid-shell structural frame. This will provide a white "glow" internally for building occupants during the day and externally at night. The main north and south tower facades are clear glass within a triple glazed curtain wall system, integrated with louvered blinds. The system will achieve high visible light transparency, low noise transmission (from the expressways) and low reflectivity. The facade framing will be white aluminium.

The north, east and west facades of the podium levels will be operable glass louvres, which will provide texture and modulation at the lower levels. The operable louvrered facades will also eliminate the need for awnings, blinds or other sun control devices. Ground floor retail shop fronts and the office entry facades will be clear glass.

The southern side of the podium will be clad in less reflective, darker, more subdued toned materials such as natural zinc and painted aluminium composite panels. Plant rooms will be screened by two-way aluminium extruded louvres.

The ground level facade has been designed to engage with the waterfront as well as soften the impact of the Western Distributor pylons and overhead roadway. All ground floor tenancies are accessible at grade, without reliance on steps and ramps. On the northern elevation, outdoor dining areas area provided in the spaces created by the undulated podium form, which enables dining spaces away from the main pedestrian thoroughfare.

At ground level a 3.5m floor to ceiling height is proposed, which reduces the apparent scale of the freeway and provides a pedestrian friendly and activated frontage for the length of the building. Together with the new two storey building to the south of the main building, active frontages will be provided from Cockle Bay Wharf to Darling Quarter. This will help improve pedestrian connectivity and flows between the two precincts and draw pedestrians down to Darling Quarter, Tumbalong Park and the Chinese Garden of Friendship.

Public Domain

As notated in the Landscape Report at **Appendix G**, public domain areas surrounding the new building will be enhanced by new paving to the Darling Harbour Precinct; new entry and street address off Wheat Road; better connectivity through to Darling Quarter and into the future SICEEP development; expansion of the Darling Quarter Kid's Playground; relocation and upgrade to Palm Grove and the new outdoor event space under the "City Screen'.

Wheat Road will be realigned and upgraded to create a new street address for the commercial and function lobbies with the objective of creating a pedestrian oriented environment. This will allow easy movement and circulation into the Darling Harbour precinct.

Pedestrian connectivity is an important element to the redevelopment and a generous pedestrian link will be provided along Harbour Street to link to Darling Quarter and beyond to Chinatown and the CBD. The paved footpath will have an upright and large scale lighting installation or will be provided with the opportunity for public art.

Site links will feed directly into the SICEEP development and these will be opened up through the relocation of the Palm Grove and existing raised barriers and edges. Movement to SICEEP from the western public domain will occur via the through links between the playground and the relocated palm grove to the existing links provided at the water's edge to the north.

To align with the new Darling Quarter Precinct, the northern portion of the playground will be extended into the zone of influence where a new eastern edge will be aligned with the existing playground edge. This will further strengthen the pedestrian boulevard and south-north connection.

The western edge of the building will be revitalised by creating an entertainment/ event space focussed on the new 'City Screen'. The 'City Screen' will display identification and business naming signage for the cinema tenant as well as promotional material for building tenants. The City Screen will also be utilised for public announcement and event and entertainment purposes, such as telecasts of live sporting events or concerts. At this stage, the naming and content is still under review and will be subject to further agreement with SHFA. Additionally, the screen will contain technical measures that will ensure there is no possibility that any moving visual content can be seen by motorists on the Western Distributor.

Safety

Throughout the design development of the project the Crime Prevention through Environmental Design (CPTED) principles were considered in order to achieve a safe and enjoyable public domain. The DGRs specifically require the four key principles of CPTED to be reviewed and considered with the aim to minimise the risk or opportunity for crime within the public domain area surrounding the building:

Natural Surveillance

- All new buildings will overlook the adjacent public domain and streetscape areas.
- The ground floor tenancies will feature active retail areas, allowing day and night time surveillance to the foreshore of Darling Harbour.
- The ground floor tenancies will provide direct access to Darling Harbour and are designed to overlook the wider public domain.
- The Wheat Road drop off and pedestrian link along Harbour Street have been orientated to allow view corridors out to Cockle Bay Wharf to the north.

Access Control

- The new public domain areas are designed to attract users of all ages.
- The only private domain area proposed is within the commercial office building. The private domain is clearly delineated and separated by controlled access points from the public domain.

Territorial reinforcement

- The proposed public open space has been designed to be clearly and openly connected to all surrounding areas with uses designed to attract regional and local users of all ages and backgrounds.
- It is envisaged that the open space will be used by all of the general public, not only the building tenants, IMAX patrons and retail/ restaurant patrons.

Space Management

- The public domain areas have been designed with regard to their ongoing maintenance and will utilise robust materials to enable an ongoing high quality level of presentation.
- Lighting will be critical and all areas are proposed to be lit using current Australian and SHFA standards for public space.
- CCTV will be positioned to cover all public domain areas, and tie in with the overall SHFA security strategy for Darling Harbour.
- The southern pedestrian access way will be controlled via security gates to restrict unauthorised entry into undesirable areas such as the pylon column bases (which require a clear space at the bases as part of the Roads and Maritime access requirements).

5.3 Visual Impact

5.3.1 View Analysis

A visual impact assessment has been prepared by GM Urban Design and Architecture (GMU) to assess the potential impact of the proposed development from a number of public domain view points as specified within the DGRs (refer to **Appendix H**).

The visual assessment methodology included:

- Review of initial documentation and meeting with project team to develop and understanding of proposal and applicable controls;
- Initial identification of likely view locations;
- Site visit to determine potential viewing points;
- Photography from identified viewing points;
- Draft review of likely visual impacts;
- Discussion of mitigation measures with the design team to reduce visual impact;
- Meeting with project team to discuss any further impacts;
- Preparation of draft visual assessment report and commentary including rating of view locations;
- Provision of draft visual assessment and commentary to design team; and
- Preparation of final report.

The visual impact assessment analysed the visual impacts from the surrounding public domain and included an analysis of:

- long distance views including views from Balmain, Pyrmont, Barangaroo, Waverton Peninsula and McMahons Point and other locations;
- medium distance views including the foreshore edge of Darling Harbour north of Pyrmont Bridge, Druitt Street, Bathurst Street and Harbour Street;

- immediate views from Pyrmont Bridge, around Cockle Bay and Tumbalong Park; and
- middle distance and immediate vehicular views from the Western Distributor.

The visual assessment assesses the impact of view significance from the importance of the view from the view location. Key factors which may influence the significance of the view location include:

- whether the view includes landmarks and iconic buildings;
- whether the view includes water and/ or land-water interfaces;
- whether the view is open or enclosed;
- the level of visitation to the space, including its use during the day, at night and on weekends;
- whether the view is appreciated from a static location or only in motion (for example moving vehicle); and
- whether the space and location are used for large events and gatherings.

GMU has identified six categories of the view significance, as follows:

- Negligible – glimpsed views from moving vehicles;
- Low – service roads, spaces and streets with little pedestrian use;
- Low – Medium;
- Medium – streets and spaces or bridges with regular pedestrian traffic during the day and/ or at night;
- Medium – High; and
- High – landmark public open space and prominent locations around Sydney Harbour with high levels of pedestrian use and major events.

In determining the view significance the assessment also considered the potential visibility of the building using the following seven categories:

- Nil – the proposal will not be visible;
- Negligible – the proposal may be visible in part but to a very minor extent and blends with the view;
- Low – the proposal will be noticeable, however does not significantly change the view;
- Low – Medium;
- Medium – the proposal may be reasonably visible and obscures a reasonable extent of the existing sky or reduces views to non-iconic built form;
- Medium – High;
- High – the proposal may be highly visible and may significantly change the scale of the view and the context or may obscure views to landmark items or water.

Using these assessment criteria GMU determined the likely visual impacts and the likely levels of acceptability. A tabulated summary of the views, significance of the view, impact, and impact acceptability can be found at both the Executive Summary and Section 4.6 of the GMU Report.

Overall, it concludes that all long distance and vehicular views are Acceptable and generally have a minor impact. All medium and immediate distance views are either Acceptable or Acceptable with Mitigation Measures.

Of a total of 33 views tested, two medium distance views and four immediate views were found to be Acceptable but subject to requiring mitigation measures as a result of a severe impact. It should be noted no views were Unacceptable and none generated a rating of Devastating.

Long Distance Views

Twelve long distance view locations were assessed with 10 tested in a detailed manner including views from Waverton Peninsula Reserve, Blues Point Reserve, Millers Point High Street, King Street Wharf, East Balmain and Pyrmont. The long distance views were obtained from approximately 0.8 to 3.8 kilometres from the site.

Most of the long distance views of the proposal are regarded to have either no impact or a minor impact, typically because the proposed building would be viewed against the context of the Darling Park Complex and other similar scale buildings within the CBD. The assessment provides that the impact on these views is acceptable with no mitigation measures required.

However, long distance views from King Street Wharf (North) (refer to **Figure 21**) and Pyrmont (Wharf 10) (refer to **Figure 22**) are considered to be significantly impacted by the proposed development. The assessment states that these significant impacts are nonetheless acceptable without the need for mitigation measures.

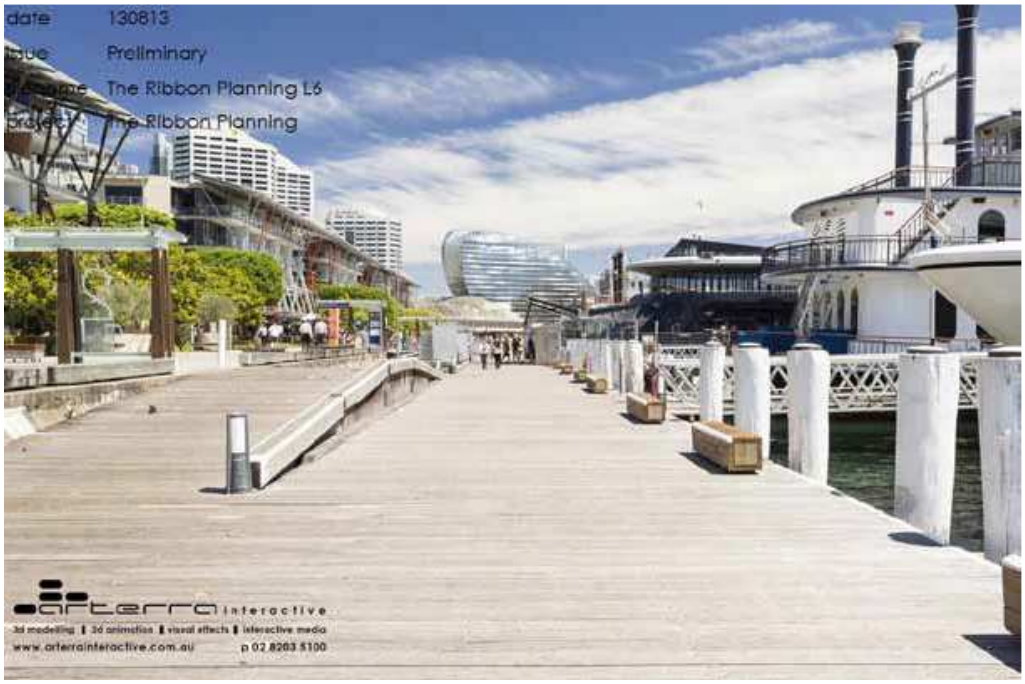


Figure 21 – Long Distance View from King Street Wharf North (Source: GMU)

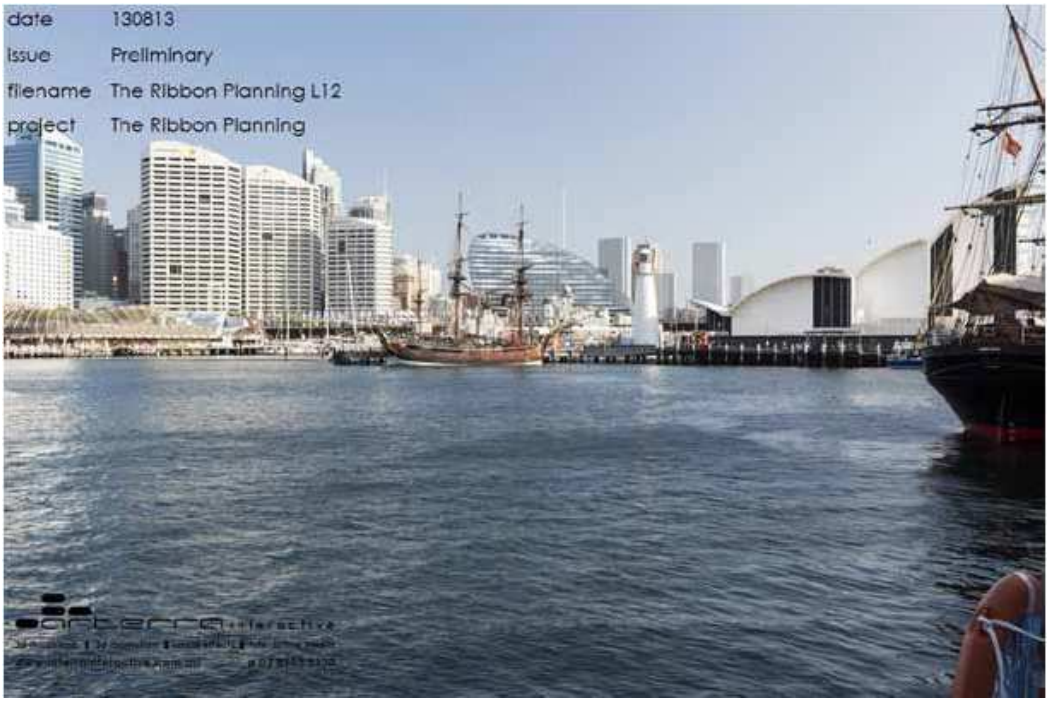


Figure 22 – Long Distance View from Pyrmont (Wharf 10) (Source: GMU)

Medium Distance Views

Eight medium distance views were assessed and tested in detail including views from the intersections of Harbour Street and Goulburn Street, Harbour Street and Day Street, Bathurst Street and Harbour Street, and Kent Street and Druitt Street (refer to **Figure 23**), as well as from the Sydney Aquarium. These medium distance views were obtained between approximately 150 to 500 metres from the site.

From the majority of the medium distance views the new building is clearly visible and provides a different scale of built form when compared to the existing view. As the proposal will act as a strong visual terminator and will occupy a large area of current open sky, GMU have assessed the medium view impacts as moderate to severe in most instances. However, these impacts are considered acceptable as the proposal will provide an interesting and unusual built form and in some instances will reduce the existing visual clutter and the visual dominance of the motorway. Mitigation measures have only been proposed for the medium distance views from Druitt Street and the corner of Kent and Druitt Streets (as shown in **Figure 23**).

The proposed mitigation measure for both these locations is to attempt to break up the visual bulk of the built form.

Figure 23 – Medium Distance view from Kent and Druitt Streets (Source: GMU)

Immediate Distance Views

Eleven immediate distance views were assessed and tested in detail including from the Druitt Street Pedestrian Bridge, Cockle Bay Wharf, Pyrmont Bridge, Harbourside and Tumbalong Park. The immediate distance views were obtained from between approximately 40 to 400 metres from the site. Three of these views are demonstrated at **Figures 24-26**.

Four views were considered to be severely impacted: Druitt Street Pedestrian Bridge from near both Blackwattle Place (**Figure 24**); Pyrmont Bridge West (**Figure 25**); and Cockle Bay / Harbourside (**Figure 26**).

When viewed from Druitt Street Pedestrian Bridge the proposal presents a major change in scale from the existing view. The proposal removes the existing views of the sky and the Cross City Tunnel stack and is very dominant within the immediate view. However, the proposal has the potential to provide an iconic building form which could assist in providing an alternative character to the view.

When viewed from the western shores of Cockle Bay, Darling Harbour and from the Pyrmont Bridge, the proposal will be highly visible as an extension of the western edge of the CBD into Darling Harbour. The proposal is in scale with the new vision for, and changing character of, the Darling Harbour precinct particularly in light of the nearby SICEEP redevelopment. Given the change in character from the lower-rise "valley" approach to Darling Harbour, and other nearby sites and foreshore developments such as Frasers' Central Park and Barangaroo, respectively, the design approach and its visual impacts are considered acceptable.

These views are considered Acceptable with mitigation measures seeking to ensure:

- that the iconic potential of the design is fully realised;

- reduction of the visual bulk of the proposal and ensuring visual interest from specific locations where the narrow end of the building is seen in close proximity; and
- built form and public domain integration and coordination between the detailed design of the proposal and the final design of the SICEEP.

Figure 24 – Immediate Distance View from Druitt Street near Blackwattle Place (Source: GMU)

Figure 25 – Immediate Distance View from Pyrmont Bridge West (Source: GMU)

Figure 26 – Immediate Distance View from Cockle Bay / Harbourside (Source: GMU)

Visual Assessment Conclusions

The Visual Impact Assessment concludes that in some locations the proposal will not be visible or will have minor impacts. In other views, the proposal will be highly visible and will alter the scale and character of those views. However, in GMU's opinion, none of the impacts are devastating, and no iconic items are obscured. While the proposal creates a severe impact from some locations, this does not necessarily mean that the impact is unacceptable. The visual impacts must be considered in the context of the redevelopment of Barangaroo and SICEEP, which is changing the scale and form of Darling Harbour. Furthermore, mitigation measures are proposed to ensure the impact from all locations considered is acceptable.

The assessment states that the proposal:

- does not block any significant views to iconic landmarks or water from the public domain;
- can potentially create a landmark at an important location;
- responds to the view corridors, creating a strong planar form to terminate this vista, where existing views are characterised by disorganised taller elements such as those of the Cross City Tunnel Stack, Peak Apartments building and UTS tower and dominated by the Western Distributor;
- is generally seen with distant views as a subservient component of the CBD skyline, continuing its gradually descending forms, particularly through its visual relationship with the Darling Park Complex adjacent;
- relates well to the current proposals for the SICEEP development;
- has the potential to provide a dramatic view termination that improves the legibility of the public domain; and
- provides a strong response to the waterway edge as suggested by the Sydney Harbour DCP.

5.3.2 Private Views

The DGRs do not specifically require a view analysis from surrounding residential buildings (which include the Millennium Towers, Emporio Apartments and Harbour Gardens Towers, located 150 to 300 metres from the site). For this reason, the Visual Impact Assessment prepared by GMU has not analysed view loss from residential properties.

Private views are difficult to quantitatively assess against numerical development controls. In *Tenacity Consulting v Warringah*, Senior Commissioner Dr John Roseth introduced a four step approach regarding the assessment of view loss, and this has been adopted as a planning principle by the Land and Environment Court.

The first step of the planning principle involves an assessment of the views potentially affected. Water views are valued more highly than land views, and iconic views are valued more highly than views without icons. Furthermore, whole views are valued more highly than partial views, for example a water view in which the interface between land and water is visible is more valuable than one in which it is obscured.

The second step outlined in the planning principle is to consider from what part of the property the views are obtained. For example, the protection of views across side boundaries is more difficult than the protection of views from front and rear boundaries.

The third step is to assess the extent of the impact. This is to be done for the whole of the property and not just for the view that is affected. The impact may be assessed quantitatively, but it is usually more useful to assess the view loss qualitatively.

The fourth and final step outlined in the planning principle is to assess the reasonableness of the proposal that is causing the impact.

There will be changes to and impacts on some views from some nearby residential apartments, primarily those located to the south-east. Those impacts will vary depending on orientation and height above ground of the affected apartment. Without access into the potentially affected apartments, it is very difficult to assess the potential view impacts on private views.

5.4 Amenity

5.4.1 Wind

Vipec Engineers and Scientists Pty Ltd have prepared an assessment of the proposed development on the wind environment for the pedestrian areas in and adjacent to the proposed development site (refer to **Appendix J**). The wind analysis assessed the regional wind climate and the exposure of the proposed development to wind, the geometry and orientation of the proposed development, the interaction of flows with adjacent development and the assessment criteria determined by the intended use of the public areas affected by wind flows generated or augmented by the proposal. The assessment is in line with the specific requirements under the City of Sydney's DCP 2012.

The report concludes the following:

- The proposed development would be expected to have wind conditions within the recommended walking criterion in all ground level areas with the proposed design.
- Wind conditions in the entrance areas would be expected to fulfil the recommended criterion for standing with the proposed design and recommended wind control measures.
- The podium roof balcony and the commercial Level 13 terrace would be expected to have wind conditions within the recommended wind control measures. However, educating occupants about wind conditions at high-level terraces during high-wing events and tying down loose furniture are highly recommended.
- A wind tunnel test should be undertaken to verify the assessment's conclusions. This will be completed prior to the issue of the Construction Certificate.

5.4.2 Solar Access

The proposed development maximises solar access due to its northern aspect, which also provides opportunities for highly energy efficient lighting and heating systems. Careful consideration has been given to minimise any proposed shadow impacts on surrounding land uses and the public realm. These potential overshadowing impacts have been a guiding factor into the design of the proposal.

HASSELL has undertaken extensive modelling and has produced a Solar Access Report (see **Appendix K**). The report shows the existing shadow effects of the IMAX building and elevated roadways, and the proposed shadow effects from the development in the 21st of March, June, September and December from 11am to 2pm.

The report diagrams show that the March, September and December months have negligible shadow impact to the surrounding public domain areas as the majority of the building's shadow casts over the elevated western distributor to the south of the site. There are no shadow casts over the northern side of the proposed building.

Through consultation with SHFA and subsequent design modifications, the south-western corner of the building has been lowered to significantly reduce the amount of overshadowing to the public domain and playground area in the afternoon period.

During mid-winter (21 June) the new building will cast some shadow over the northern façade of the Darling Quarter building and across the southern section of the Darling Quarter's Kids' Playground between 11am to 2pm. However, the diagrams indicate that the playground will have minimal additional shadowing from noon through to the end of the afternoon in mid-winter.

Given the relative minor shadow impact on the park when compared to the pre-existing shadows, it is considered that the design of the building has responded well to the potential impacts of shadowing the public domain areas and therefore will not to have significant adverse impact on the Darling Harbour precinct and public domain areas.

5.5 Reflectivity

Cundall have prepared an assessment of the façade's reflectivity to determine the potential for solar glare to drivers on nearby roads and to pedestrians (refer to **Appendix L**). Reflectivity can result in temporarily disabling glare for drivers and pedestrians.

The reflectivity assessment is limited to the proposed tower building which has significant amounts of glazing on the northern and southern facades. A cladding 'ribbon' is on the east and west facades. The podium levels were not assessed as they will be overshadowed by the elevated Western Distributor.

Cundall analysed driver viewpoints along these roads (refer to Figure 1 of **Appendix L**) to determine the significance of the impact and mitigation measures. These locations included:

- East bound traffic on Western Distributor;
- West bound traffic on the Western Distributor;
- Pedestrian view points of the Darling Harbour concourse, Darling Quarter Kids' Playground and stairs.

The analysis has assessed reflectivity during the winter, summer and mid-season periods during morning and afternoon periods. The assessment found there is potential for sun glare during some periods and recommended maximum visible light reflectivity to minimise the risk of discomfort or glare as outlined in **Table 8** below.

Table 8 – Recommended Solar Reflectivity for building facades

Facade orientation	Maximum Visible Light Reflectivity
North Glazing	8% (15% with some vertical elements as required)
South Glazing	15%
West Ribbon	15%
East Ribbon	15%

Subject to the facade material selection satisfying the above criteria, reflectivity will be within acceptable limits and be consistent with the City of Sydney DCP which requires that visible light reflectivity from facade material should not exceed 20%.

5.6 Transport and Accessibility

A Traffic Impact Assessment has been carried out by GTA Consultants and is provided at **Appendix M**.

This assessment has identified the existing transport context, including the current traffic generation and capacity of the surrounding road networks, as well as the expected traffic and pedestrian generation and access arrangements. The report also details the expected traffic impacts during construction and the required traffic management measures.

5.6.1 Traffic Generation

Current Situation

An analysis of the vehicle movements on the surrounding streets during the morning and afternoon peak periods, as well as the performance of key intersections around the site was undertaken. The analysis determined that during the afternoon peak period Harbour Street generally carries more than 1,500 northbound vehicles through the local area, while Wheat Road provides access to the area immediately east and north of the site for more than 60 vehicles. Approximately 60 and 130 vehicles use Wheat Road north of the site during the AM and PM peak periods respectively, with up to 15 of these vehicles being private cars. The existing IMAX on-site loading docks and staff parking area generate less than 10 vehicle movements per hour during any peak hour.

Impact Assessment

GTA has determined the peak period of traffic generation to be during the weekday AM and PM periods, and estimates that the proposal will generate 69 vehicle trips per peak hour. Due to the access arrangement to the site, all vehicles will approach the development via Harbour Street from the south and exit the site via Wheat Road to the north.

Given that all traffic generated by the proposal will enter the site from Harbour Street (northbound) and exit the site via Wheat Road (northbound), the impact on the operation of the intersection of Harbour Street/ Bathurst Street and Shelley Street/ Erskine Street is expected to be minimal. Site traffic will typically be evenly distributed amongst the surrounding road network.

In light of the above, and measuring against existing traffic volumes within the vicinity of the site, the additional traffic generated by the proposal is not expected to compromise the safety or function of the surrounding road network.

5.6.2 Car Parking

The development proposes 86 car parking spaces for the intended use of the commercial tenancies. No parking will be allocated for the retail, function, gym or cinema areas.

DGR 6 requires the assessment of car parking provision based on the City of Sydney's LEP 2012[2]. The LEP 2012 parking provisions provides the following calculation for the maximum number of car parking spaces based on the total GFA with the following formula:

$M = (G \times A) / (50 \times T)$

Where:

- M = Maximum car parking spaces
- A = site area
- G = GFA of specific land use
- T = total GFA of all on-site buildings.

Appling this calculation to the proposed development provides a maximum parking requirement of 90 spaces. The proposal therefore complies with the provision of maximum car parking spaces with 86 spaces proposed.

[2] The DGRs requested the compliance with the then Draft LEP 2011. Since the issue of the DGRs the Draft LEP has been gazetted as LEP 2012. The same parking provisions still apply in LEP 2012.

In addition to the proposed number of car parking spaces, the report assesses the adequacy of the proposed car park stacker arrangement. Consideration of the adequacy of the car park stacker is driven by the access driveway, height clearances, on-site queuing, set-down pick up facilities and parking for people with disabilities.

The car park stacker will be operated by a valet whereby commercial tenants will park their car in one of the three waiting bays and a valet will park the car in the stacker, and retrieve the car at the end of the day. GTA undertook an analysis of the car park stacker on its adequacy of likely queues and delays that may be experienced by patrons during peak periods.

The analysis confirms a queue of eight (8) vehicles is the maximum queue length within the site. Within this queue length, all vehicles will be contained within the site, and traffic would not be compromised on Wheat Road and Harbour Street. The analysis provides adequate turning circles designed for the car park and concludes that the site access driveway and associated waiting bays, together with on-site queuing capacity are expected to operate satisfactorily. Further, the car park has been designed to allow for rare incidents of inefficiency such as breakdowns and service delays caused by users. It should be noted that even under a worst case scenario where 80% of the on-site car parking supply was to arrive during the morning peak hour, there would still only be an 8% probability of a queue exceeding 7 vehicles.

5.6.3 Service Vehicles

As described in Section 3.6, the proposed development will accommodate three truck loading bays and four courier parking spaces, all located on the ground level and accessed via Harbour Street. The cinema and function spaces will also use these loading areas, however they are likely to largely require them during the off-peak times.

Given the opportunity for the proposal to provide for a single anchor tenant or a limited number of large tenants for the commercial uses, combined with a dock management system designed to make efficient use of the available space, GTA concludes that the proposed loading bays are capable of supporting the servicing requirements of the development.

5.6.4 Pedestrian Capacity

Current Situation

GTA Consultants undertook pedestrian surveys along the Harbour Foreshore pedestrian path during the weekday at AM, Midday and PM peak periods during weekdays. The results indicated that the two-way pedestrian volumes along the eastern boundary of the site peaked at 135 pedestrians during the PM peak hour period. In addition, the observations indicated that most pedestrians have an origin-destination in Darling Harbour to the west of the site, while the remainder arrive and depart via Cockle Bay/ King Street Wharf and from the pedestrian overpass north of the site. Further, pedestrians use the area to meet and/or wait for buses. No conflict between pedestrian flows was observed at any time.

GTA Consultants evaluated the pedestrian capacity and level of service (LOS) of the area by assessing the 'Pedestrian Flow Rate' which measures pedestrians per minute that pass a point during a specific period of time. In addition to this, the walkway widths used were based on the observations of whether pedestrians used the full footpath width or left a buffer to obstructions, such as avoiding a wall or other obstructions. The existing pedestrian volumes resulted in a LOS of A, which indicated that walking speeds are free-flowing and conflict with other

pedestrian is unlikely. Overall, the existing footpaths operate well with no queuing or delay at any time or location.

Impact Assessment

Combined with the existing pedestrian environment, it is assumed that there could be up to 320 to 370 pedestrian at any one time within the area adjacent to the eastern boundary of the site, in the vicinity of the redesigned Wheat Road set-down and pick up area. The narrowest pathway width will be 4 metres, which results in a pedestrian LOS of A, indicating that the pedestrian capacity will continue to operate at a good level of service. In addition, the other areas of the public domain within the north and western portion of the site will still provide a good level of service for pedestrian flow as the proposal will increase the amount of space for pedestrian manoeuvrability.

In summary, the redeveloped site will result in increased pedestrian activity, particularly at the eastern boundary of the site, near the entrance to the function and commercial floors. This activity will provide the opportunity for positive activation within the Darling Harbour precinct and will result in a continued good level of service for pedestrian flows.

5.7 Noise

A Noise Impact Assessment has been prepared by Acoustic Logic (refer to **Appendix I**). The Assessment was prepared in accordance with the Australian Standard AS/NZS 2107:2000 *Recommended Design Sound Levels and Reverberation Time for Building Interiors,* the City of Sydney acoustic controls and *Protection of the Environment Operation Act 1997*. The report assesses impacts of traffic noise from the Western Distributor and the potential noise emissions from the proposed building.

The report assessed the traffic noise level against the *Australian Standard AS1055- Description and Measurement of Environmental Noise – General Procedures* and the Green Star Council where the recommended design sound level is 40dB(A) for a 9 hour period between 8am to 5pm. Using logging data the report found that traffic noise levels during the day were measured at 74 dB(A). The report recommends glazing construction treatments to satisfy acoustic requirements.

Whilst detailed noise levels for mechanical plant are unable to be determined prior to detailed design, the report assessed the noise emissions from the site to ensure that nearby amenity of commercial properties within the Darling Harbour Precinct will not be adversely affected. To comply with the relevant noise legislation, the report recommends that mechanical and plant equipment be acoustically treated to control noise emissions through noise screens, enclosures and in-duct treatments. These measures can be incorporated into the detailed design of the building.

5.8 Air Quality

An air quality assessment for the proposed development has been undertaken by PAEHolmes and is included at **Appendix N**. The assessment included a dispersion modelling assessment and a screening level air quality assessment of the Cross City Tunnel (CCT) ventilation stack to assess:

- the potential impacts from the CCT stack plume on the proposed building, such as air intakes, openings, balconies and the like; and
- the potential for the building to affect plume dispersion through building wake effects, bringing the plume closer to the ground.

The modelling assessment found:

- At 60m above ground level (Office Level 11 and above) there is a risk of impact from the plume during CCT low emission periods (when there is minimal traffic in the tunnel). However the risk is significantly lower during peak periods (where there is high levels of traffic in the tunnel) as improved dispersion is achieved by higher fan speeds and increased exit velocity.
- The proposed redevelopment is predicted to have minimal impact in terms of plume grounding with a low predicted risk of ground level concentration reaching levels higher than the air quality goal.

Based on the screening assessment PAEHolmes recommends the following at detailed design stage:

- Air intakes for the building are sited at lower levels and balconies and operable windows are restricted at the top levels (above 60m building height).
- Further assessment is to be undertaken using Computational Fluid Dynamics (CFD) modelling to determine the most appropriate positioning and elevation of the air intakes.

The assessment concludes that the impacts of the CCT stack upon the building are predicted to be minimal.

5.9 Geotechnical and Groundwater

Douglas Partners has undertaken a desktop assessment of the existing geotechnical conditions of the site (refer to **Appendix D)**. The report outlines the previous geotechnical investigations undertaken and provides recommendations on suitable excavation support, foundation systems, and the geotechnical constraints of the Western Distributor overpass footings. It should be noted that the proposal has minimal excavation (to RL 2.0).

The investigations identified that sandstone was encountered at a depth of 9.55 metres below the surface. The sandstone is overlain by residual, alluvium and filling material. Groundwater was encountered at a depth of 2.4 metres.

The report notes that there are site constraints such as stormwater channels, the neighbouring wharf and elevated roadways. As such the proposed development's structure will incorporate inclined columns, large diameter piles and tension anchors.

The report concludes that the site is expected to be suitable for the proposed development and makes the following recommendations:

- Any excavation will encounter variable fill material and this excavated material should be removed from the site;
- Temporary batters should be installed to support excavation in the fill and alluvium and should be cut no steeper than 1.5(H): 1(V) up to a maximum excavation of 3 metres;
- Lateral pressure due to surcharge loads from adjacent structures, roads, sloping ground surfaces and construction machinery is to be considered in the structural design and construction methodology; and
- Further geotechnical investigation will be required to assess the strength of bedrock to allow for the detailed design of piles and tension anchors.

5.10 Contamination

A Phase 1 Contamination Assessment has been prepared by Douglas Partners and is included at **Appendix O**. The report assesses the potential for contamination on the site with regard to the historical uses and site observations.

Based on the findings and historical investigations, the potential for contamination at the site is considered to be related to imported filling and past light industrial uses.

Douglas Partners considers the site can be made suitable for the proposed redevelopment, however in order to quantify the nature, extent and the risk posed by potential contaminants at the site, a Phase 2 contamination assessment for the soil and groundwater investigations should be undertaken prior to construction commencing on site. It is recommended this intrusive investigation be carried out following demolition and removal of all structures.

5.11 Access

Disability Consultancy Services has prepared an Disability Access Review (**Appendix P**) which assesses the development's compliance with the relevant sections of the Building Code of Australia, Disability Discrimination Act Access Code and relevant Australian Standards.

The report states that at DA design stage, the proposal substantially meets the DDA Premises Standard requirements. There are various design items that can only be considered during detailed design that will ensure that the development achieves appropriate accessibility and equity.

5.12 BCA and Fire Engineering

A BCA Capability Statement has been prepared by AECOM and is included at **Appendix Q.** The Statement concludes that the proposal is able to achieve compliance by a combination of compliance with the deemed-to-satisfy provisions and the performance requirements of the BCA.

In addition to the BCA Report, a Fire Engineering Statement has been prepared by ARUP and is included at **Appendix R**. The statement concludes that the fire engineering design of the building will generally satisfy the Building Code of Australia (Deemed-to-Satisfy Provisions). The statement highlights some aspects of the design that are to be further developed at detailed design stage, however it is considered that there are no significant issues that would affect the building layout arising from fire safety.

5.13 Heritage

A Heritage Impact Assessment has been prepared by Godden Mackey Logan and is included at **Appendix E.** The report assesses the heritage significance of the subject site and its immediate context, and establishes the likelihood and extent of any potential impacts of the redevelopment, the relocation of the heritage listed Carousel, the heritage listed Sewerage Pumping Station (SPS) and any archaeological impacts.

The assessment has been prepared generally in accordance with the principles outlines in the document *Statement of Heritage Impact* and the relevant guidelines of the *Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance 1999* as well as the relevant heritage planning controls in the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 and the Darling Harbour Development Plan No. 1.

The assessment concludes the following:

- The Pyrmont Bridge and The Vintage Building heritage items are located sufficiently distant from the subject site that they would not be adversely impacted in relation to their heritage significance.
- The heritage significance of the Carousel would not be adversely impacted by its relocation as there would be no change to the scale relationship between it and the surrounding structures, and it will continue to enhance the public domain. The methodology for the disassembly and relocation of the Carousel will need careful planning and supervision.
- There will be no adverse impact to the SPS, even though the new building will be closer than existing structures as the SPS setting has already been compromised by surrounding development.
- The proposed works may have some impact on areas of the site that potentially have historical archaeological and significance.
- The proposed excavation in areas of reclaimed land would have no potential to disturb intact Aboriginal archaeological evidence.

Taking into consideration the assessment's conclusions above, the following recommendations are made:

- The location and layout of the path adjacent to the SPS should be designed to allow substantial clearance to the western corner of the SPS.
- Further assessment of the historical archaeological potential and significance of the site (including historical research, site visit and analysis of the physical condition of the site) should be undertaken to better define the areas of potential archaeological impacts, and to determine any mitigation measures that may be required, including the need for any approvals under the Heritage Act to disturb potential 'relics' within the subject site.
- The design should not include any bulk or deep excavation in the south-eastern portion of the 'Zone of Influence' to avoid any potential impact on areas of Aboriginal archaeological potential. Should excavation be proposed in this area, further assessment of the Aboriginal archaeological potential of the area will be required.
- In the event that any unexpected Aboriginal objects were discovered during site works, the Office of Environment and Heritage (OEH) should be notified in accordance with Section 91 of the *National Parks and Wildlife Act 1974*.

The above heritage recommendations have been considered and the following response is provided:

- Consideration has been given where possible for the location and the layout of the path adjacent to the SPS building, however significant clearance cannot be provided as the location of the footpath is limited to the alignment of the road and footpath crossing on Harbour Street.
- Further archaeological research and testing will be undertaken and completed prior to the issue of a Construction Certificate.
- No bulk or deep excavation is proposed within the south-eastern portion of the 'Zone of Influence' area. As such further assessment of the Aboriginal archaeological potential is not considered necessary.
- Noted. In the event of any unexpected Aboriginal objects findings, the OEH will be notified in accordance with section 91 of the *National Parks and Wildlife Act 1974*.

5.14 Ecologically Sustainable Development

Cundall has prepared an Ecologically Sustainable Design Report (ESD Report) which outlines the key ESD initiatives of the development (refer to **Appendix S**). The building is being designed to target the following green building ratings:

- 6 star Green Star – Office Design (v3) rating;
- 6 star Green Star – Office As-Built (v3) rating; and
- 5 star NABERS Energy base building rating.

The following measures and key strategies will be incorporated into the building design to maximise its environmental performance and energy efficiency:

- Energy conservation including high efficiency hybrid displacement air-conditioning, low energy lighting design and sophisticated building controls;
- An innovative closed-cavity facade system with automated internal blind for solar control, which rejects excess heat gains, provides good daylight with minimal glare, and has a carbon footprint significantly lower than other design options incorporating a large number of fixed external shading elements;
- Mains potable water conservation is ensured through high-efficiency fittings and fixtures, hybrid cooling towers which drastically reduce the water consumption, and rainwater capture and storage for reuse;
- Provision of a high quality indoor environmental quality for occupants, a thermally comfortable environment with good air quality and low levels of indoor pollutants;
- Environmentally responsibly material selection and diversion of waste from landfill during construction and operation;
- Low-emissions transport alternatives will help reduce private car use;
- Investigation of the potential for on-site, low-carbon energy generation such as tri-generation, photovoltaics or an alternative technology.

EWFW has prepared a Water Management Plan (WMP) (included at **Appendix T).** The WMP identifies the water management and efficiency measures that will be incorporated into the development to minimise water consumption. These measures include:

- Water efficient sanitary fixture and fittings including WC's, urinals, taps and shower heads.
- Efficient piping design to reduce energy loss from inefficient heating and reducing cold water wastage.
- A rainwater harvesting system (as noted above) to reduce potable water demand on site.
- Installation of a water metering system that both monitors and manages water consumption.
- Re-use of water from fire system testing. (Fire system test can consume a large volume of water and the testing system will be designed to capture water to drain to the rainwater tank.)

In addition to the above, the building is required to comply with Building Code of Australia Section J measure for energy efficiency. Where possible sustainable and recycled building products will be used and materials will be sourced locally to support local manufacturing and reduce transport emissions.

Bicycle parking and end of journey facilities such as showers and change rooms will also be provided to encourage sustainable and healthy travel.

5.15 Civil Engineering

A Civil Engineering Report has been prepared by Bonacci (included at **Appendix U**) which details the stormwater drainage, overland flow, roadworks and excavation/fill issues associated with the development.

Stormwater and Overland Flows

The stormwater system will be designed in accordance with relevant Australian Standards. The surface levels and overland flow paths are detailed on the drawings appended to the Civil Engineering Report. An existing overland flow path passes to the east and west of the existing building and discharges to the harbour via the promenade to the north of the site. The finished ground floor level is proposed at RL2.9 and has been determined based on overland flows and to ensure there are no upstream impacts. The promenade levels will be raised to RL2.9 around the building to meet the proposed floor level.

The existing seating at the edge of the promenade currently presents a potential blockage to the overland flows and the highest level of seating will be removed and replaced with a form of seating that allows flow-through to occur. This will allow the overland flow path to function more efficiently.

Building runoff and roof drainage will be captured into an on-site rainwater tank. Rainwater will be harvested and stored in a 100,000 litre tank to be used for non-potable water requirements such as irrigation, WCs/Urinals flushing and cooling tower make-up water. Where possible, site run-off will be directed to vegetated areas to allow for infiltration. Surplus water will be discharged to the existing stormwater system.

Roadworks

The proposed development requires roadworks to Harbour Street and Wheat Road. Harbour Street works include providing improved site access. Works are also proposed to the drop-off lane/taxi zone area on Wheat Road, including reconfiguration of the median between Harbour Street and Wheat Road.

A crest at approximately RL3.5 is required in the access from Harbour Street to prevent overland flow from Harbour Street entering the carpark/loading dock.

Works will be undertaken in accordance with RMS/ and Council requirements.

Earthworks

As noted above, the proposed finished ground floor level is RL 2.9. General excavation will only be required down to RL 2.0. Deeper localised excavation will be required for piers, lift pits, grease arrestors and the cinema.

The extent of earthworks and fill required is limited and no large scale deep excavation will be required. Excavated material will be classified and disposed of at an appropriate Waste Management Facility.

5.16 Services and Infrastructure

An Electrical and Telecommunications Services Infrastructure Report has been prepared by AECOM (included at **Appendix V**) and a Hydraulic Infrastructure Report has been prepared by EWFW (included at **Appendix W**). As described in Section 2.2, the site is traversed by a range of utilities infrastructure. The location of infrastructure services is shown on the maps appended to the AECOM and EWFW reports.

Electrical

A major 132kV transmission cable is in the vicinity of the site. A cable pulling vault is also located under the Western Distributor carriageway to the north of the Cross City Tunnel entrance which contains significant 132kV services that services the adjacent Zone substation. The 132kV cable cannot be relocated and access to the vault room must be maintained. Existing 33kV and 11kV cables within the development footprint are proposed to be diverted or decommissioned in accordance with Ausgrid requirements. Consultations with Ausgrid are ongoing regarding the design requirements for diverting and protecting services.

Telecommunications Services

There are no significant telecommunications services that will be affected by the proposed development. Minor service disconnections and diversions will be required for the demolition of the existing building and construction of the new building.

New telecommunications services can be supplied by Telstra from the existing City South Exchange. The new building will also be able to connect to the National Broadband Network at a future date.

Hydraulic Services

The adjacent water and sewer mains have sufficient capacity to service the requirements of the new building. The existing water and sewer mains that traverse the site will be within the building footprint and are required to be diverted clear of the proposed building footprint. The relocation and/or protection requirements for the water and sewer mains will be undertaken in consultation with Sydney Water. A Section 73 application will be made to Sydney Water to determine the augmentation and connection requirements.

Consultations have commenced with Sydney Water regarding the two major stormwater drains that traverse the site. These mains include a set of culverts which traverse through the centre of the site in a north-south direction and a set which are located on the western side of the development site. The existing building sits above these culverts and it is proposed the new building will also sit above the culverts. Sydney Water will be consulted during detailed construction design to ensure the stormwater assets are adequately protected.

Gas

The existing gas mains that traverse the site also require relocation as they will be within the footprint of the proposed building. It is proposed to relocate the mains so that they will be clear of the building footprint. This will be undertaken in consultation with Jemena and to their requirements.

5.17 Construction Management

A Construction Management Plan (CMP) has been prepared by Grocon Pty Ltd (see **Attachment X)** and will be further refined and implemented prior to the release of the Construction Certificate. The CMP addresses the following construction activities (amongst other things):

- The Project Structure;
- Site Establishment;
- Construction Methodology;
- Pedestrian Management;
- Construction traffic management;
- Traffic and Pedestrian management;
- Security and access control;
- Noise and vibration management;
- Dust suppression and air quality;
- Environmental management;
- Quality management;
- Emergency response planning;
- Work health and safety management; and
- Hours of construction.

Western Distributor

Western Distributor Clearance Diagrams are provided at **Appendix Y**. No physical works to be undertaken to the elevated overpass and the pylons. A portion of the building will overhang Harbour Street by approximately 18.5m at a height of approximately 21m above the road.

There will be no substantial deep excavation works that will compromise the stability or the integrity of the freeways and structures. Furthermore, a dilapidation survey report will be undertaken prior to the issue of a Construction Certificate to assess the RMS assets adjacent to the site. Finally, a Works Agreement Deed will be negotiated and executed between the proponent and the RMS prior to the issue of a Construction Certificate.

The plan provided at **Figure 26** shows the Western Distributor structure and illustrates the clearance and separation between the proposed building's façade and the overpass/ pylons.

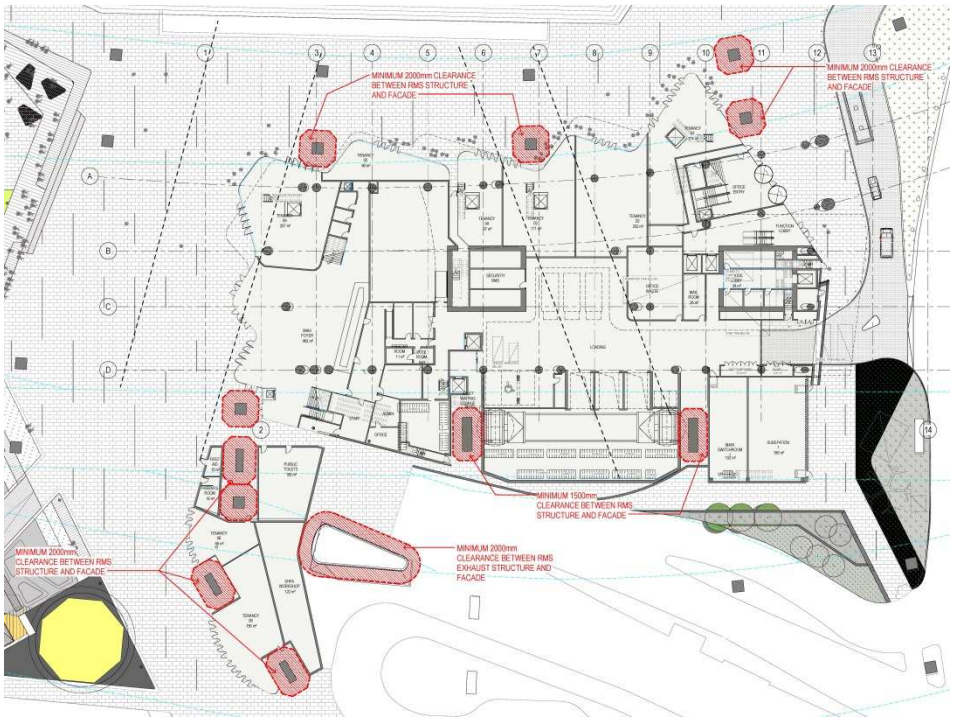


Figure 27 – Western Distributor Clearance Diagram, with clearance zones shown in red. (Source: HASSELL)

6.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 9** below. These measures have been derived from the assessment described in Section 5.0, and detailed in the appended consultants' reports.

Table 9 – Mitigation Measures

Mitigation Measures
Wind ▪ The recommendations of the Vipec Engineers and Scientists Wind Effect Statement dated 5 December 2012 are to be implemented prior to the issue of a Construction Certificate.
Solar Reflectivity ▪ The recommendations for the facade glazing provided in the Cundall facade reflectivity assessment are to be incorporated into the detail design. ▪ Subject to the facade material selection satisfying the criteria outlined in the assessment, reflectivity shall be within acceptable limits and shall be consistent with the City of Sydney DCP which requires that visible light reflectivity from facade material should not exceed 20%.
Noise ▪ The construction noise mitigation measures outlined in the Construction Noise Impact Assessment(within the Construction Management Plan) are to be adopted during construction.
Air Quality ▪ The recommendations provided within the Air Quality Assessment prepared by PEAHolmes are to be employed.
Geotechnical and Contamination ▪ The recommendations outlined in the Geotechnical Desktop Report prepared by Douglas Partners and dated November 2012 are to be implemented. ▪ A Phase 2 Contamination Assessment is to be undertaken prior to the issue of a Construction Certificate to identify the nature and risks associated with any potential contamination on site.
Building Code of Australia (BCA) and Access ▪ The recommendations of the BCA report by BCA Capability Statement and the Access Review prepared by Disability Consultancy Services are to be incorporated into the detailed design.
Ecologically Sustainable Development The following measures will be incorporated into the building design to maximise its environmental performance and energy efficiency: ▪ The ESD measures outlined in the Ecologically Sustainable Design Report prepared by Cundall are to be incorporated into the building design to maximise the environmental performance and energy efficiency of the building. ▪ The measures included in EWFW's Water Management Plan are to be incorporated into the detail design to maximise water efficiency.

Mitigation Measures

Construction Management

- A Construction Management Plan (CMP) will be finalised and agreed to with the RMS prior to the release of the Construction Certificate.
- A Works Agreement Deed is to be negotiated with the RMS and executed prior to the issue of a Construction Certificate.
- A dilapidation survey is to be undertaken on the immediate surrounding RMS assets prior to the issue of a Construction Certificate.

Heritage

- Heritage recommendations are to be implemented in accordance with the Heritage Impact Assessment prepared by Godden Mackey Logan dated November 2012 prior to the issue of a Construction Certificate.

Visual Impact

- Mitigation Measures outlined in the Visual Impact Assessment prepared by GMU Architecture dated February 2013 shall be considered in the detail design of the development.

7.0 Justification and Conclusion

This EIS considers and assesses the environmental, social and economic impacts of the proposed redevelopment of the IMAX site at 31 Wheat Street, Sydney. The EIS has addressed the issues outlined in the Director-General's Requirements (**Appendix B**) and accords with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* with regards to consideration of the relevant environmental planning instruments, the proposed built form and environmental impacts including visual, traffic, noise, construction and infrastructure impacts.

It is considered the project warrants approval for the following reasons:

- The redevelopment of the site responds to and complements the ongoing renewal of the Darling Harbour Precinct and will provide new commercial offices, entertainment and retail/ restaurant facilities within an identifiable landmark building, as well as new public amenities, workshop and offices for SHFA.
- The building form of the 'Ribbon' responds to the heights of the city buildings to the east and will be a comfortable fit with the scale and massing of the new SICEEP development to the west.
- The building will achieve a high level of Ecologically Sustainable Design measures and 6 Green Star ratings.
- The building will have a minor and acceptable level of overshadowing impact to the public domain areas and nearby commercial buildings.
- The development will have some view and visual impact on some residential apartments located 150 to 300 metres to the south east of the site.
- The redeveloped site incorporates new public domain elements, with the extension of the Darling Quarter playground, a new 'City Screen' and new paving to the Darling Harbour precinct.
- The redeveloped site will improve direct and legible pedestrian links that encourage the use of the Darling Harbour public domain.
- The redevelopment respects the existing heritage items in the vicinity of the site.
- The redevelopment will not have a significant adverse environmental impact and will provide a high quality, enlivening commercial and entertainment complex at Darling Harbour, consistent with the prevailing character of the precinct.
- The proposed redevelopment will make a positive visual impact to the cityscape, particularly in relation to the changing scale and form of Darling Harbour.

Given the planning merits of the proposed development and its public benefits, it is requested that the project be approved.