State Significant Development

Environmental Impact Statement

31 Wheat Road, Sydney
Redevelopment of IMAX Building

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

December 2015 ■ 12255

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This report has been prepared by: Chris Ferreira

Date 21/12/2015

This report has been reviewed by: Robert Stark

Date 21/12/2015

Statement of Validity

Development Application Details	
Applicant name	Grocon (Darling Harbour) Developments Pty Ltd ACN 603 512 527
Applicant address	Legion House, Level 4 161 Castlereagh Street Sydney NSW 2000
Land to be developed	31 Wheat Road, Sydney
Proposed development	Redevelopment of the IMAX Theatre, Darling Harbour

Prepared by	
Name	Robert Stark
Qualifications	Bachelor of Urban and Regional Planning, MPIA
Address	Level 7, 77 Berry Street, North Sydney
In respect of	State Significant Development Application for redevelopment of the 31 Wheat Road for a hotel, serviced apartment, entertainment and retail development

Certification

I certify that I have prepared the content of this EIS and to the best of my knowledge:

- it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000;
- all available information that is relevant to the environmental assessment of the development to which the statement relates; and
- the information contained in the statement is neither false nor misleading.

Signature

Name Robert Stark

Date 21/12/2015

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Executive Summary

This Environmental Impact Statement (EIS) is submitted to the Minister for Planning and Environment 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 to the Department of Planning and Environment ('Department') 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 (Darling Harbour) Developments 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 23 storey building for hotel, serviced apartment, retail, function and entertainment uses, 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 54,877m^2.
- Approximately 32,063m^2 of GFA for the hotel use, up to 18 storeys above the level of the Western Distributor.
- Approximately 17,352m^2 of GFA for the serviced apartments use, up to 12 storeys above the level of the Western Distributor.
- Approximately 5,016m^2 of GFA for retail and entertainment uses and an IMAX cinema in the 'podium' levels (below the Western Distributor).
- 170 car parking spaces to be located within the podium levels.
- Upgrades to the surrounding public domain including a Harbour Street pedestrian link, new playground and the relocation of the existing carousel.
- City screen on the western façade of 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 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 7,389m². 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.

Planning Context

The proposed development has been declared State Significant Development (SSD) as it has a capital investment value estimated at $375.65 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 Secretary's Environmental Assessment Requirements were issued on 11 December 2015. A copy of the SEARs 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 hotel, serviced apartment, entertainment and retail 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 tourist facilities 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.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment ('Department) 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 54,877m^2 of floor space in a new 23 storey building which will include hotel, serviced apartment, retail, function and entertainment uses. As part of the development, a new office and workshop for Sydney Harbour Foreshore Authority (SHFA) is proposed. Car and bicycle parking and upgrades to the public domain are also proposed.

This EIS has been prepared by JBA Urban Planning Consultants Pty Ltd on behalf of Grocon Pty Ltd (the proponent), and is based on the Architectural Drawings provided by HASSELL (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 $375,650,000.

1.1 EIS Requirements

A request for the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement was submitted to the Department on the 13 November 2015. On 11 December 2015, in accordance with Section 89G of the EP&A Act, the Secretary of the Department issued the requirements. A copy of the SEARs is included **Appendix B**.

The SEARs 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 SEARs and identifies where these requirements are addressed in this report and the accompanying technical studies.

Table 1 – Location of SEARs 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	n/a

Requirement	Location in Environmental Impact Statement
must be obtained	
List of accompanying documents	Page iii and Page iv
Justification for carrying out the development	Section 7
Key Project Specific Issues	
1. Environmental Planning Instruments	Section 5.1
2. Ecologically Sustainable Development	Section 5.15
3. Land Use	Section 5.1
4. Design Excellence and Built Form	Section 5.2
5. Public Domain	Section 5.2
6. Heritage	Section 5.14
7. Transport and Accessibility	Section 5.6
8. Construction	Section 5.18
9. Environmental Amenity	Section 5.4
10. Geotechnical	Sections 5.9
11. Western Distributor	Section 5.18
12. Drainage, Flooding, Climate Change and Sea Level Rise	Section 5.9 and 5.16
13. Contributions	Section 4.0 and Appendix DD
14. Subdivision	Section 3.8
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 23 storey building for hotel, serviced apartment, retail, function and entertainment uses, 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 54,877m^2.
- Approximately 32,063m^2 of GFA for the hotel use, up to 18 storeys above the level of the Western Distributor.
- Approximately 17,352m^2 of GFA for the serviced apartments use, up to 12 storeys above the level of the Western Distributor.
- Approximately 5,016m^2 of GFA for retail and entertainment uses and an IMAX cinema in the 'podium' levels (below the Western Distributor).
- 170 car parking spaces to be located within the podium levels.
- Upgrades to the surrounding public domain including a Harbour Street pedestrian link, new playground and the relocation of the existing carousel.
- City screen on the western façade of 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.

1.4 Background

On 16 June 2014 the Planning Assessment Commission granted consent to SSD-5397, to demolish the IMAX building and construct a 20 storey building for office, retail and entertainment purposes with a total gross floor area (GFA) of approximately 74,250m2. It is the proponent's intention that this consent remains in place and an additional application is made for an alternate development option. Ultimately, the proponent wishes to hold consents for two different development schemes.

The new proposal seeks to retain the maximum height, width, scale and character of the approved form, but change the dominant use from office to hotel and serviced apartments. The uses of entertainment (cinema) and retail remain as previously approved.

The overall form of the building is generally the same as approved. However, the change of use has resulted in some changes to various elements of the development. The shape of the building is now tapered in the centre, and overall the form is overall more slender. The east façade facing the city now has a significant indentation over most of the entire height. Consequently, the gross building area is approximately 15% smaller than that previously approved (i.e. a reduction in GFA from 74,250m^2 to 63,500m^2). The overall maximum building height will not increase. An atrium has been introduced through the building to provide amenity for the occupants, and amendments are required to the lobby and back of house areas to suit the new uses. Additional car parking is required, however the same access and car stacking arrangements are proposed.

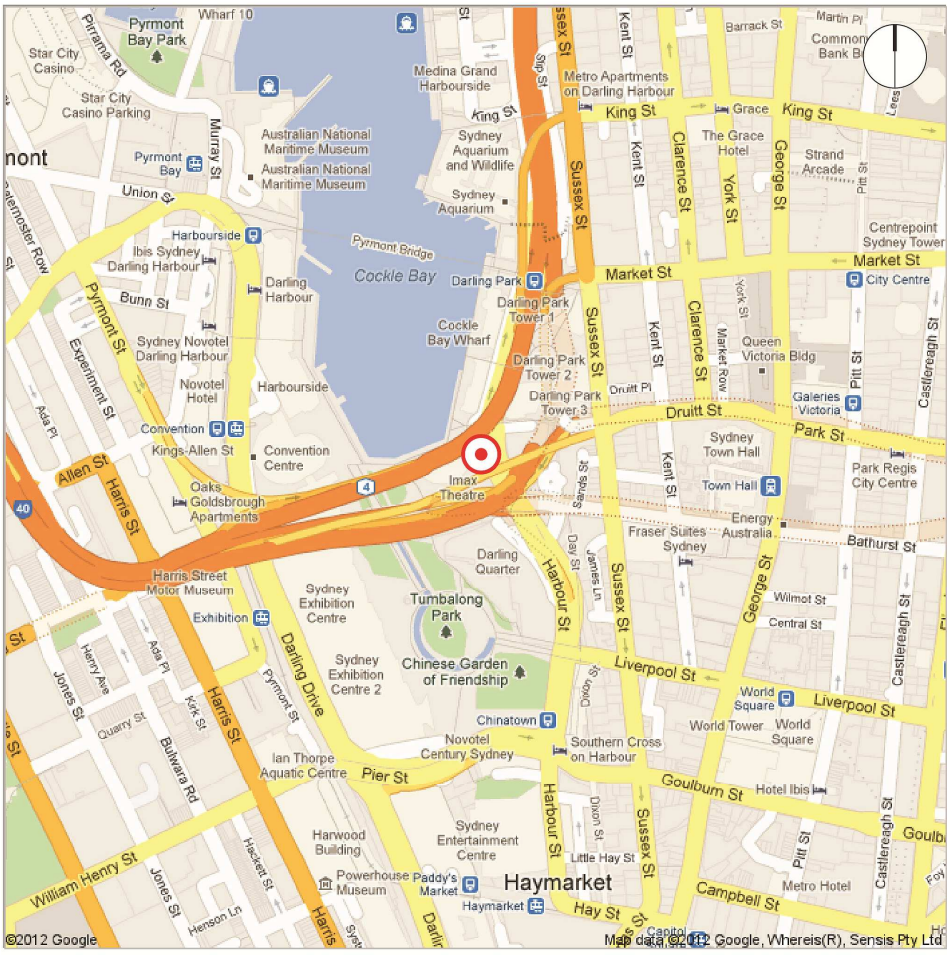
In summary, the architectural character of the approved development has been preserved, with amendments made as required to suit the new hotel and serviced apartment uses. The impacts from the built form of the proposed development will be the same or lesser than that of the approved building.

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 10,885m² surrounding the proposed building (refer to the Draft Lease Plan in **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). 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 and the under-construction SICEEP redevelopment to the right.

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**).

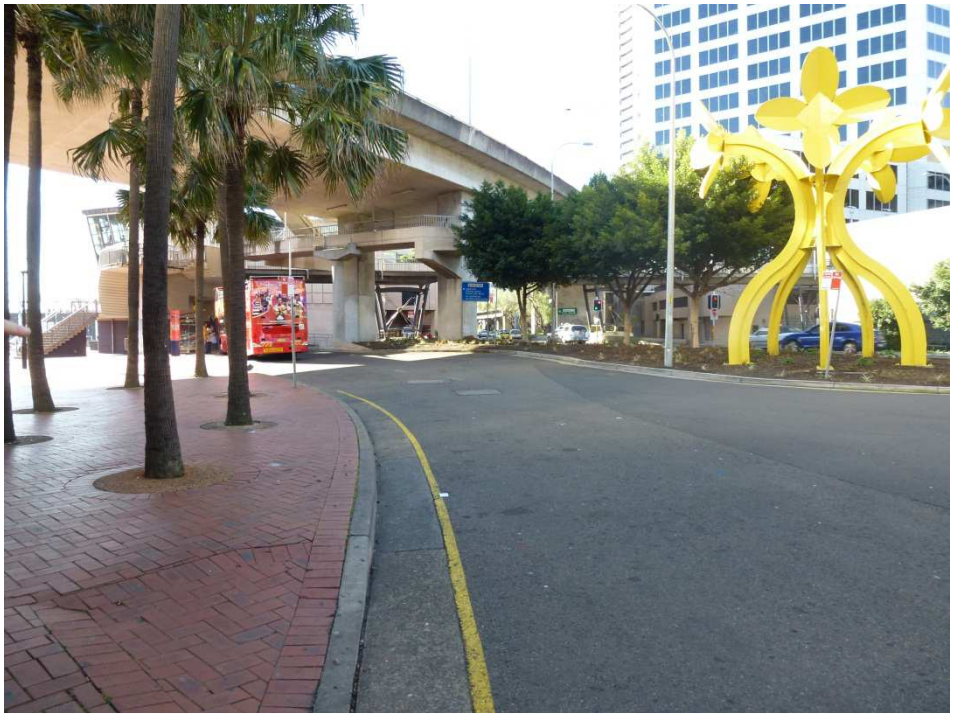


Figure 8 – Coach and taxi drop-off/pick-up lane immediately adjacent the site on Wheat Road.

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 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 International Convention, Exhibition and Entertainment (SICEEP) precinct development site, 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.

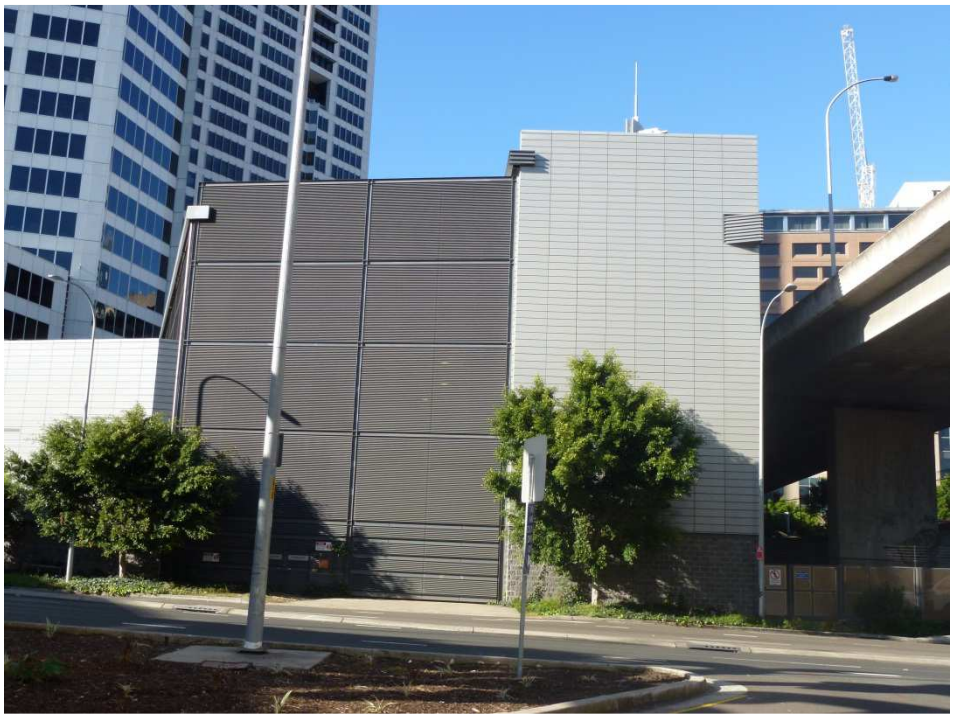


Figure 13 – Ausgrid substation on Harbour Street.

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

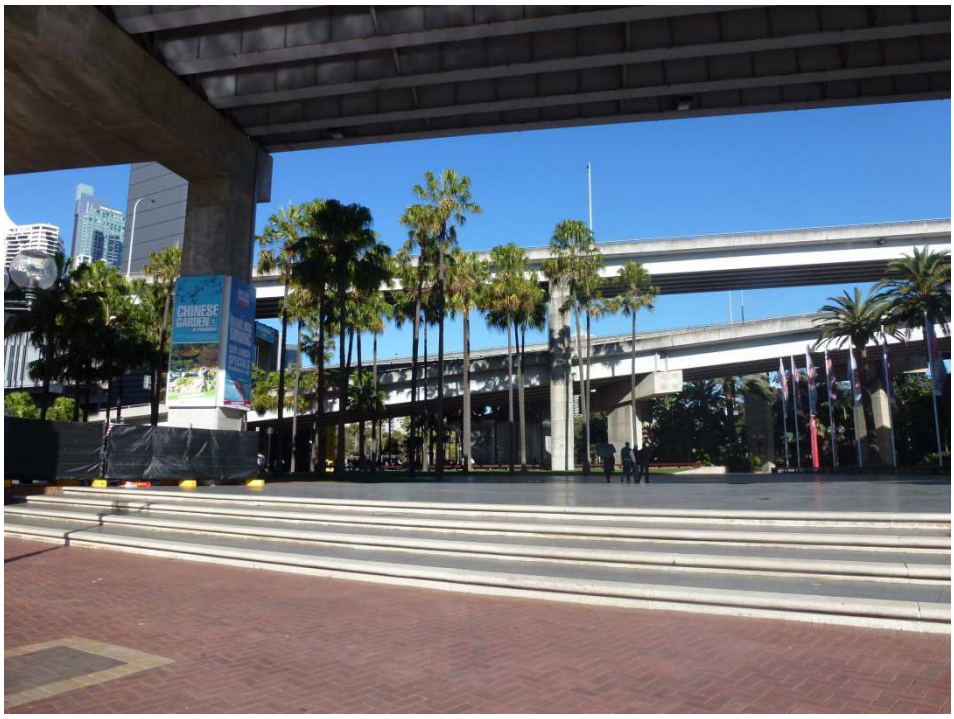


Figure 14 – Palm Grove.

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

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.

The site of the IMAX Theatre building is also considered to have historical archaeological potential at this stage, despite the presence of a major built element on this part of the site. The building does not have any basement levels or major underground elements that would have required major disturbance to the site during the construction of that building.

Aboriginal Archaeology

Based on overlays of early historical plans of the shoreline of Darling Harbour, the footprint of the proposed Ribbon building and associated elements appears to be wholly located in an area of land that was reclaimed after 1830. This area would therefore be unlikely to have any potential to contain archaeological evidence of Aboriginal occupation.

Introduced fill deposits associated with land reclamation across the site may contain isolated Aboriginal artefacts that were brought to the site from other contexts. These objects would be considered 'Aboriginal objects' under the *National Parks and Wildlife Act 1974* (NSW) (NPW Act), however, the location and extent of any such evidence would be impossible to predict.

The southeastern portion of the 'Zone of Influence' of the development extends across part of the original shoreline in this area, and subsurface archaeological deposits related to Aboriginal use of this area may survive in this part of the site.

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**).

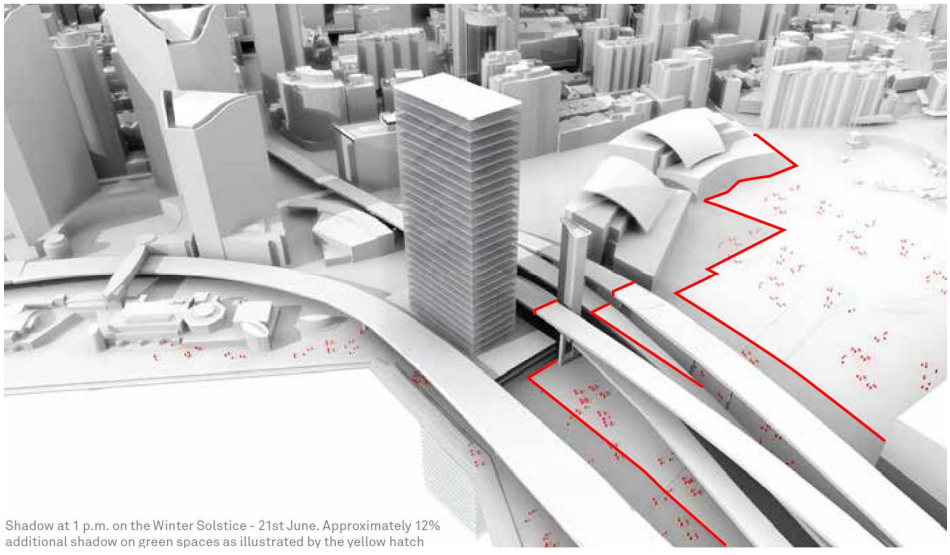


Figure 16 – Option 3: redeveloped building with a large ground floor base and a single tower. (Source: HASSELL)

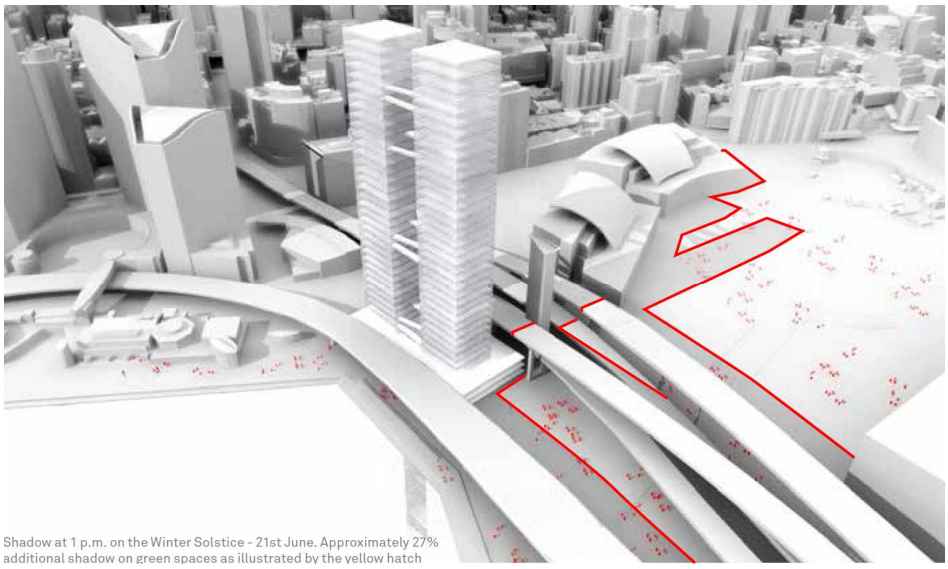


Figure 17 – Option 4: development with two thin tall towers. (Source: HASSELL)

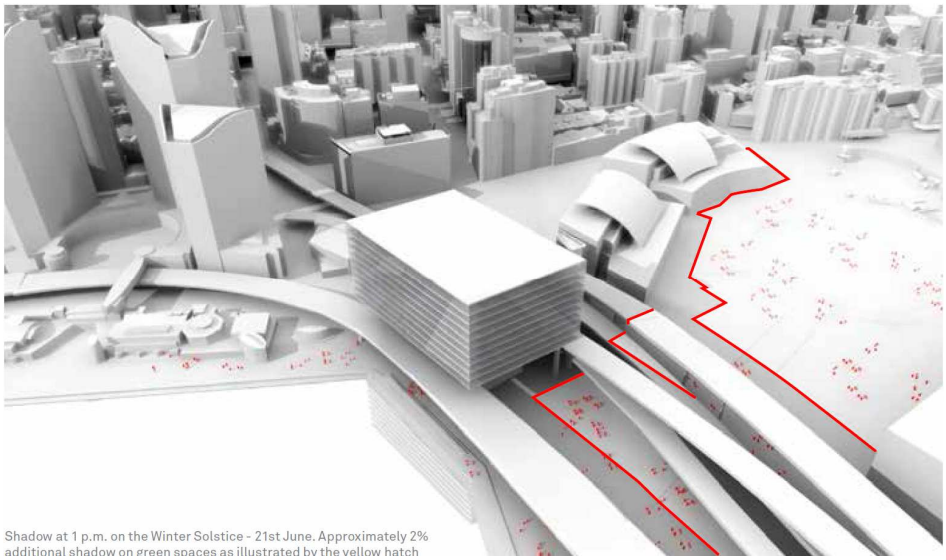


Figure 18 – Option 5: development with a wider built form cantilevering over the roadways. (Source: HASSELL)

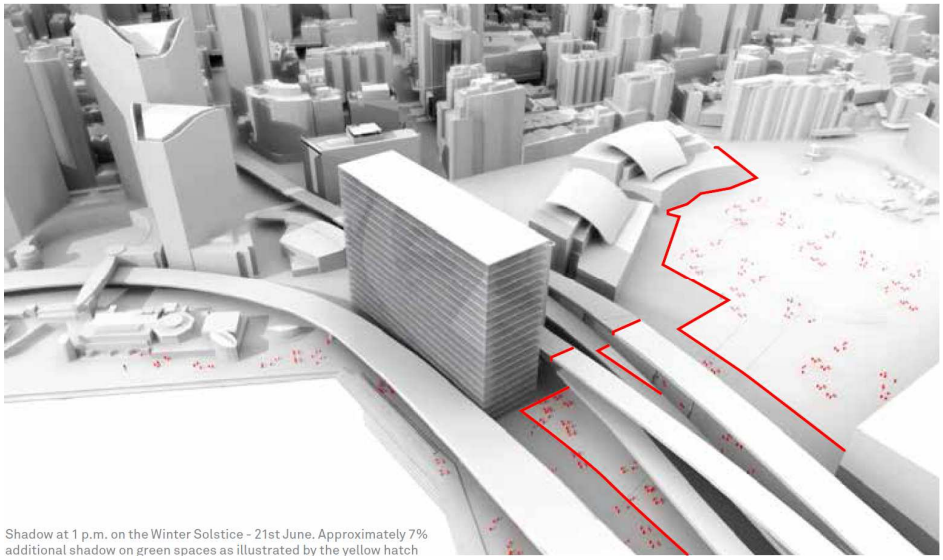


Figure 19 – Option 6: development with a thinner built form matching the height of surrounding buildings. (Source: HASSELL)

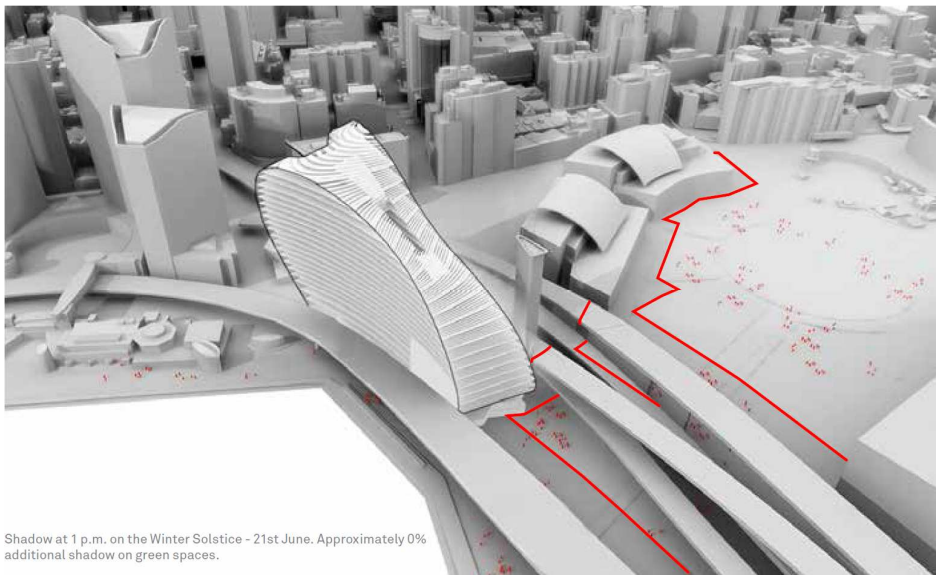


Figure 20 – Option 7: expand the existing building footprint and height and construct a new building with a unique built form. (Source: HASSELL)

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 hotel, serviced apartment, retail and entertainment 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 23 storey building for hotel, serviced apartment, retail, function and entertainment uses, 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 54,877m^2.
- Approximately 32,063m^2 of GFA for the hotel use, up to 18 storeys above the level of the Western Distributor.
- Approximately 17,352m^2 of GFA for the serviced apartments use, up to 12 storeys above the level of the Western Distributor.
- Approximately 5,016m^2 of GFA for retail and entertainment uses and an IMAX cinema in the 'podium' levels (below the Western Distributor).
- 170 car parking spaces to be located within the podium levels;
- Upgrades to the surrounding public domain including a Harbour Street pedestrian link, new playground and the relocation of the existing carousel.
- A 'City Screen' on the western façade of 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. 23 storeys
GFA (m^2) ▪ Hotel ▪ Serviced apartments ▪ Cinema ▪ Retail ▪ SHFA offices/Public amenities	 32,063m^2 17,352m^2 3,217m^2 1,799m^2 446m^2
Parking	170 car 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 hotel and serviced apartment floor space, 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 tourist 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 world class hotel and serviced apartments which take advantage of views and iconic location.
- 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 hotel lobby.
- Provide separate entries for the IMAX Cinema and function spaces.
- Provide new public amenities and office spaces for use by SHFA.
- 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-DD-1080 in **Appendix A**.

3.7 New Buildings

The new main building will be constructed between, beneath and above the elevated Western Distributor roadways, rising to 23 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 54,877m^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 world class hotel and serviced apartments 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	▪ Hotel lobby entry ▪ Retail / restaurant ▪ IMAX lobby ▪ Car park entry and loading dock ▪ Back of house, service areas and plant rooms ▪ Bicycle parking ▪ Serviced apartment storage
Podium Level 1	▪ Hotel lobby upper level ▪ IMAX cinema ▪ Retail / restaurant ▪ Car parking ▪ Hotel office ▪ Hotel bar ▪ Serviced apartment housekeeping
Podium Level 2	▪ IMAX cinema ▪ Car parking ▪ Serviced apartments storage ▪ Hotel back of house areas, employee facilities and plant ▪ Gymnasium
Podium Level 3	▪ IMAX cinema ▪ Hotel restaurant ▪ Hotel spa ▪ Hotel kitchen, staff café and administration areas ▪ Plant rooms
Podium Level 4	▪ IMAX cinema ▪ Hotel meeting rooms ▪ Hotel function space ▪ Hotel ballroom ▪ Hotel offices
Level 5	▪ Hotel ▪ IMAX
Level 6	▪ Hotel ▪ Serviced apartments ▪ IMAX ▪ plant rooms
Level 7-18	▪ Hotel ▪ Serviced apartments
Level 19-23	▪ Hotel ▪ Swimming Pool ▪ Plant rooms ▪ Kitchens
Plant Mezzanine above Level 23	▪ Plant

Table 4 – Southern building - land use by level

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

3.8 Subdivision

A future application will address the subdivision of the development. It is anticipated that each of the hotel, serviced apartment, entertainment (cinema) and retail components will reside within a separate stratum, with the serviced apartment and retail components subsequently subdivided into strata lots.

3.9 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 hotel lobby.

A loading area is proposed within the ground level which will have an access driveway designed to service the hotel, serviced apartments 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 170 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 will be via the Darling Harbour public domain. The hotel lobby will be accessed 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.

3.10 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.

3.11 Signage

Signage relating to the proposed development, including detailed wayfinding and heritage interpretation signage, will be subject of future development applications.

A 'City Screen' is proposed to be provided on the lower levels of the western façade of the proposed building. The City Screen is intended to be used for the following:

- Promotions and advertisements from businesses that are tenants of the building;
- Security announcements and information;
- Precinct information and promotions overseen by SHFA;
- IMAX movie trailers and "what's on" information; and
- Special events (sporting finals, NYE events and the like).

The screen will not be used for any third party advertising. It should be noted that the City Screen will not be visible from the Western Distributor, and therefore will not be a hazard to traffic.

3.12 Construction Staging

The construction of the project will be undertaken is estimated to take up to 38 months, and would be undertaken through the following phases:

- **Phase 1 Early works (6 months):** Site establishment and demolition of all the existing on-site structures including the IMAX Cinema building and associated retail/ restaurants. Construction of piling and initial structure.
- **Phase 2 Main building works (32 months):** Construction of all on-site facilities including the main 23-storey tower and IMAX as well as ground level retail tenancies.

These stages are detailed in the Construction Management Plan prepared by Grocon (refer **Appendix H**). 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 SEARs 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	
▪ Land Use Mix to ensure the recognition and retention of Darling Harbour's role as a tourism and entertainment precinct for all visitors, both international and domestic ▪ Overshadowing impacts on the Children's playground ▪ Alternative location recommended for the heritage-listed carousel ▪ Amenities available for the public in the proposed new Authority building are not less than those currently available on this site ▪ Public domain improvements to have regard to the latest draft Darling Harbour Public Domain Manual 2015 ▪ Recommend the development of a Pedestrian Management Access Plan and Way-Finding Signage Strategy	▪ The proponent has held several meetings with SHFA to discuss the design and uses of the proposed scheme. ▪ In response to issues raised, the following measures have been incorporated into the design: - The proposal's complementary mix of leisure, business and tourism uses has been developed to ensure a development that supports precinct activity seven days a week and the creation of an activated precinct. - The proposed building envelope is within the previous approved development application to ensure that the resultant shadow effects on the public domain will not change from that previously assessed. - Ongoing review and design development of the Authority building to ensure accommodation of appropriate public amenities whilst also allowing for sufficient floor area for commercial retail purposes to activate that part of the site and to complement the proposed new playground. - Proposed public domain improvements have incorporated the Authority's preferred carousel location and have also been developed in accordance with the principles and specifications of the latest draft Darling Harbour Public Domain Manual 2015. - Pedestrian Management Access Plan and Way-Finding Signage Strategy have been developed and are embedded amongst the reports submitted with the current application. ▪ The above responses have been developed and presented to SHFA as part of regular consultations. Consultations to date have been conducted on July 27th, September 23rd, November 10th, 17th and 23rd, December 1st, 8th and 15th, 2015. Ongoing consultation is planned with weekly meetings scheduled throughout January and February 2016. ▪ SHFA has provided confirmation of their in principle support for the overall scheme.

Council of the City of Sydney	
▪ Ensure residential amenity for serviced apartments ▪ Governance structure for the hotel and serviced apartment use ▪ Upholding residential waste servicing access to the site in consultation with the City's Waste Services Unit ▪ Reaffirmation of the public benefit commitments of the previously approved application ▪ Signage Strategy, including a schedule of compliance with the signage provisions of Sydney DCP 2012 ▪ Integration of signage and any display screen with the SICEEP development ▪ Incorporation of Public Art	▪ The proponent has held meetings with, and made presentations to, the Director of City Planning on 1st September 2015. At that presentation the Director provided his comments on the amenity of the serviced apartments and the governance structure for the development uses. The submitted design responds to the amenity issues raised. It is proposed that a briefing with the Director occurs in January to present the proposed governance structure. ▪ The City's Waste Services Unit will be appropriately consulted. ▪ The public benefit commitments of the previously approved application are maintained (refer **Appendix DD**). ▪ A Signage Strategy will be prepared consistent with the DCP, subject to a future development application. This Strategy will include coordination with the display screen. ▪ Public Art will be incorporated into the development.
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 in June 2012, November 2012 and August 2013. ▪ The proponent held fortnightly workshops with RMS representatives from June 2014 to November 204 to work through the required Works Authorisation Deed (WAD). ▪ 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.	▪ The proponent has held meetings and made presentations to the iNSW executives and the SICEEP DRP in May 2012, November 2012, February 2013 and 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. ▪ The currently proposed built form is substantially the same as that previously presented to the DRP and subsequently approved.
Sydney Water	
▪ Existing stormwater infrastructure and location of building over ▪ Existing water mains and capability to serve the project ▪ Sydney Water's requirement for building over the existing Hay Lackey stormwater channel.	▪ Sydney Water was issued on 16 April 2015 with a Flood Study, Services Protection Report and Deviation Report 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. ▪ In June 2015 Sydney Water requested further clarification in regards to 'Building Over Assets' and the structural design required to verify adequacy.
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 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 to receive connection to the Sydney CBD triplex network. ▪ The proponent has received confirmation of Design Information Packages (DIP) for decommissioning, 11kV, 33kV and substation from Ausgrid.
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 the gas supply will come from the Bathurst Street connection.

[1] Sydney International Convention, Exhibition and Entertainment Precinct

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 K and L
Amenity	Section 5.4	Appendices N, O
Reflectivity	Section 5.5	Appendix P
Transport and Accessibility	Section 5.6	Appendix J
Noise	Section 5.7	Appendix K
Air Quality	Section 5.8	Appendix Q
Geotechnical and Groundwater	Section 5.9	Appendix D
Contamination	Section 5.10	Appendix R
Access	Section 5.11	Appendix S
Signage	Section 5.12	Appendix T
BCA	Section 5.13	Appendix U
Heritage	Section 5.14	Appendix E
Ecologically Sustainable Development	Section 5.15	Appendix W
Civil Engineering	Section 5.16	Appendix Y
Services and Infrastructure	Section 5.17	Appendices Z, AA
Construction Management	Section 5.18	Appendix H

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-compliances 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	
A Plan for Growing Sydney	A Plan for Growing Sydney aims to Sydney remains a competitive economy with world-class services and transport. Direction 1.1 seeks to grow a more internationally competitive Sydney CBD. Under this Direction, the plan includes the following actions: ▪ Create new and innovative opportunities to grow Sydney CBD office space by identifying redevelopment opportunities and increasing building heights in the right locations; ▪ Diversify the CBD by enhancing the cultural ribbon which connects new and revitalised precincts including Barangaroo, Darling Harbour, Walsh Bay and the Bays Precinct. ▪ Deliver the government's vision for Sydney Harbour, incorporating Sydney's cultural ribbon including the new and revitalised precincts of Barangaroo, Darling Harbour, Walsh Bay, The Bays Precinct and surrounding foreshore lands The project is consistent with these objectives as 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. The iconic design of the development and proposed public domain improvements will ensure the cultural ribbon is enhanced.
NSW Long Term Transport Master Plan	The project is consistent with the Masterplan in that it will: ▪ support the expansion of the Light Rail System, by providing housing in direct proximity to existing Metro Light Rail stations; ▪ assist in unclogging the Sydney CBD transport system by connecting more people to existing Light Rail Infrastructure and encouraging patronage on an existing network with spare capacity; ▪ encourage public transport use by providing hotel,

Instrument/Strategy	Comments
	serviced apartments, retail and entertainment uses in close proximity to light rail, rail, bus and ferry services; and ▪ support a reduced reliance on private vehicles, assisting in improving the modal split between cars and public transport.
Sustainable Sydney 2030	The project is generally in accordance with the Strategy in that it will: ▪ support public transport usage by encouraging Rail/Light Rail patronage; and ▪ improve pedestrian and cyclist access to the Sydney Harbour foreshore.
Sydney City Centre Access Strategy	The Sydney City Centre Access Strategy highlights a number of major changes which could be implemented to achieve three key outcomes in the Sydney City Centre, including: ▪ Reduced congestion ▪ Provision for future growth ▪ Improved customer experience. The overarching aim of the strategy is to ensure a greater proportion of people utilise public transport to access key locations around the city. This proposal complements the outcomes of the Strategy, with a suitable car parking, bicycle parking and end-of-trip facilities and adequate links to public transport. In addition, the proposal is not expected to have an adverse impact on the surrounding pedestrian and cyclist network. Further consideration of the Access Strategy is provided at **Appendix I**.
SICEEP Urban Design and Public Realm Guidelines	The proposal will be consistent with the SICEEP project vision as it will: ▪ Through design excellence, support the delivery of world-class core functions of convention, exhibition and entertainment facilities that exceed the expectations of domestic and international visitors; and ▪ Reaffirms Darling Harbour as Australia's premier gathering place by creating an exciting, connected, active and vibrant precinct that brings delight to visitors and Sydney-siders alike. In addition, the project is consistent with the principles of the SICEEP Urban Design and Public Realm Guidelines: ▪ Place making – the proposal will integrate built forms, incorporate landscaping and Public Realm to create a functioning whole; ▪ Permeability – the proposal will invite tourists, business visitors and locals to explore everything that the Precinct has to offer; ▪ Identity – the proposal will provide a distinct personality, and create a new 21st century signature for Sydney; ▪ Flexibility – The proposal will deliver facilities that can

Instrument/Strategy	Comments
	effectively change from day-to-night, from week-to week and from year-to-year; ▪ Variety – The proposal will provide a range of activities and experiences that provide something for everyone and attract repeat visitation; and ▪ Connectivity – The proposal will deliver seamless linkages to each of the surrounding precincts, and create an active dialogue with our neighbours.
Darling Harbour draft Public Domain Manual	The public domain surrounding the proposed development has been designed through a collaborative process including SHFA and SICEEP, to ensure that it is consistent with the relevant requirements of the draft Darling Harbour Public Domain Manual.
Guide to Traffic Generating Developments **Guide to Traffic Management- Part 12: Traffic Impacts of Development**	The Transport Impact Assessment (refer **Appendix J**) assesses the traffic generation of the proposed development with reference to RMS Guidelines, with adequate capacity in the surrounding road network to accommodate the proposal.
NSW Planning Guidelines for Walking and Cycling	The project will improve walkability and cycle access across the City and support a reduced reliance on private vehicles.
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 hotel, serviced apartments, retail and function space. The redevelopment of the site will also contribute to the regeneration of the Darling Harbour precinct.
Interim Construction Noise Guideline	A Noise and Vibration Management Plan has been prepared (included within the CMP in **Appendix H**) to appropriately address noise impacts to surrounding receivers.
Crime Prevention through Environmental Design Principles	Refer to **Section 5.2.**
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 - Remediation of Land	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 65 - Design Quality of Residential Apartment Development	The provisions of SEPP 65 and the associated Apartment Design Guidelines do not apply to the proposed development as it does not include any residential accommodation component. Clause 4(4) of the SEPP specifically provides that the policy does not apply to serviced apartments.

Instrument/Strategy	Comments
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 has ancillary parking for more than 170 motor vehicles. The application therefore requires referral to the 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; 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.
Sydney Development Control Plan 2012	The proposal is consistent with the aims of the Sydney DCP 2012, in that: ▪ The development responds to its context and is compatible with the existing built environment and public domain; ▪ The development will contribute to the variety of land uses in the area, including tourist, entertainment, recreational and cultural uses. ▪ The development recognises and reinforces the distinctive characteristics of the City of Sydney's neighbourhoods and centres; ▪ The proposal will enhance and protect the public domain; ▪ The proposal will achieve the objectives of the City's Sustainable Sydney 2030 Strategy; ▪ The proposal design maintains and enhances the character and heritage significance of heritage items and heritage conservation areas; and ▪ The proposal encourages ecologically sustainable development reduces the impacts of development on the environment.

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 K** 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 SICEEP development site 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.

The NSW Government is undertaking 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 2012 and is situated from Haymarket to the Harbourside Shopping Centre. The development includes a significant expanded International Convention Centre and exhibition facilities, including:

- Convention, exhibition and entertainment facilities;
- Hotel complex at the northern end of the precinct;
- 'Darling Square', a new neighbourhood at the southern end of the precinct including apartments, student accommodation, shops, cafes and restaurants;
- Public domain upgrades and pedestrian connections.

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, hotel 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 main facades of the Ribbon (north and south elevations) are proposed to be a high performance, triple glazed curtain wall system. The system will achieve a high level of visible light transparency with low reflectivity. The façade framing will be light grey aluminium.

The façade to the podium levels on the north, west and east will be a combination

of fixed and operable aluminium louvres. This operable louvred facade will eliminate the need for drop down plastic curtains, awnings or other external devices in the event of inclement weather.

The southern side of the podium, adjacent the lower freeway will be clad with a low reflective, darker and subdued toned material such as natural zinc and painted aluminium composite panels. All plant rooms will be screen from view by two-way aluminium extruded louvres in a colour matching the surrounding cladding.

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.

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 hotel and serviced apartment 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 four key principles of CPTED have been 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 critical consideration in determining the visual impact of the proposed development is the fact that a building of an identical height and very similar built form, bulk and scale has already been assessed and found to be acceptable in this location. Notwithstanding that the visual impacts of the proposed development will be the same or slightly less than that of the already approved building, a comprehensive visual impact assessment was undertaken as detailed below.

5.3.2 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 SEARs (refer to **Appendix L**).

The visual assessment methodology included:

- Review of initial documentation and discussions with project team to develop an understanding of the 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; 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 3.6 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) and Pyrmont (Wharf 10) 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.

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, 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.

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.

Four views were considered to be severely impacted: Druitt Street Pedestrian Bridge from near both Blackwattle Place and Harbour Street; Pyrmont Bridge West; and Cockle Bay / Harbourside.

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; and
- built form and public domain integration and coordination between the detailed design of the proposal and the final design of the SICEEP.

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:

- follows carefully the profile of the existing approval on site;
- 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 SICEEP redevelopment;
- has the potential to provide a dramatic view termination that improves the legibility of the public domain;
- provides a strong response to the waterway edge as suggested by the Sydney Harbour DCP; and
- in the case of the lower level public domain interface, it will enhance the pedestrian experience.

5.3.3 Private Views

The key concern in relation to potentially affected private views is typically the absolute view loss resulting from any new built form, with the architectural merits of the proposed development as subsidiary concern. In this regard, given the current proposal has a similar or reduced built form compared to the approved development, the conclusions of the previously prepared visual impact assessment are valid.

GMU conducted view testing for six different developments in the vicinity of the proposal. These include two commercial buildings (Meriton Towers and the PARKROYAL Hotel), one mixed use building (World Tower) and three residential buildings (Millennium Towers, Emporio Apartments and The Peak Apartments). A total of twenty views were tested as part of the general view testing. The results of this initial view testing are provided below.

PARKROYAL Hotel

In general, the significance of the views from the PARKROYAL Hotel were found to be low to medium with the impact levels ranging from minor to moderate and two instances of significant impact. In general, the impact was found to be reasonable in light of the commercial nature of this development and because the majority of the views are of low significance with the majority of the views having

a minor to moderate impact. This development was not selected for further detail view analysis.

Meriton Towers

In general, the views from this development were found to be of medium to high significance; however, the level of impact for all the views was moderate and therefore the acceptability of the impact was considered to be reasonable, especially in light of the commercial nature of this development. This development was not selected for further detailed view analysis.

World Towers

The views from this development were found to be generally of high significance; however the level of impact for all the views was moderate to significant with some instances of the proposal providing an improvement to the view. Therefore the acceptability of the view was considered to be reasonable and this development was not selected for further detailed view analysis.

Millennium Towers

The views from this development were found to be generally of low to high significance and the level of impact is considered to be severe to significant. Therefore this development was selected for detailed view analysis with inspections taking place on 19 December 2013 at a selection of apartments that were made available. The findings of the detailed view analysis are contained in Section 4 of the Residential Visual Impact Assessment.

GMU analysed 6 units and a total of 21 views for the Millennium Towers. In general, the views ranged from low to medium to high significance. The views of high significance were generally from upper level with open views to the Cockle Bay and significant amounts of water/land interfaces. The level of impact for the majority of the units was found to range between minor to moderate for the majority of the views. One view had a significant level of impact and eight units had a severe impact. Two units had a severe to devastating impact. However, only one unit was found to have a devastating impact. The main reason for the severe and devastating assessments is due to the level of change in scale where the proposal was seen as a prominent element within the view. While the level of impact for the majority of the units was severe, the level of impact is considered to be reasonable due to the following factors:

- The proposal has been required to mitigate overshadowing to Tumbalong Park, pushing the development potential to the east. A reversal of this would undoubtedly result in a greater overshadowing of the park. The impacts to a reduced number of units have to be weighed against the public benefit to a highly used green open space.
- The most important reason for the designation of the impacts as being reasonable is that the proposal adheres to the principles of “view-sharing” as the view partially retains the horizon line, Pyrmont Bridge, the Maritime Museum, and some water and land interface to the south and north of Pyrmont Bridge.

Mitigation measures were considered in order to reduce the apparent scale of the proposal within the view; however, any significant change will only be achieved by shifting or relocating a substantial portion of the building toward the west or above the lower western levels resulting in a more traditional tower form. However, this will result in substantial overshadowing of the Tumbalong Park and the narrowing of the view corridor between Cockle Bay and Tumbalong Park. The current form has been arrived at after long months of redesign and negotiations with stakeholders in order to avoid overshadowing to the park at critical times of

the day and to preserve a critical width of the view corridor between the proposal and the SICEEP.

Other mitigation measures considered included a sharper tapering of the lower levels of the eastern curvature. However, this will allow only a marginal increase in the view retained and potentially compromise the structural integrity of the proposal as the proposed form is the result of a finely balanced equilibrium between the structural capacity and required alignment of the inclined structural members. This limits the extent to which the slab edges can be cantilevered beyond the inclined supports and therefore a more tapered solution may not be structurally possible. Therefore, mitigation measures were considered, but not recommended.

The individual impacts to a reduced number of private units need to be weighed against the overall employment and economic benefits to the area. Therefore, the level of impact is considered to be reasonable based on the following reasons:

- The general change in scale taking place in Darling Harbour and Barangaroo suggests that the retention of views for properties immediately behind development sites facing Darling Harbour will become increasingly difficult and accepted as an inevitable outcome in order to allow the redevelopment of Darling Harbour.
- A more skilful reduction of the lower levels of the curvature will not mitigate the overall apparent scale of the proposal and compromise the finely balanced equilibrium between the structural capacity and required alignment of the inclined structural members.
- There is a lower expectation of view retention for development located a distance away from the water's edge where developable land exists between the residential development and the water's edge.
- There are no applicable controls to the site and therefore the proposal is considered to be a compliant development.

Emporio Apartments

The views from this development were found to be generally of low to medium significance and the level of impact is considered to be moderate to significant. Therefore this development was selected for detailed view analysis with inspections taking place on 7 January 2014 of a selection of apartments that were made available. The findings of the detailed view analysis are contained in Section 4 of the Residential VIA.

GMU analysed 8 units and a total of 24 views for the Emporio Apartments. In general, the views ranged from low to medium to high significance. The views of medium to high significance were generally from upper level terraces with open views to the Cockle Bay. However, due to the existing distance from this development to Cockle Bay and due to the level of existing development framing the view, none of the views are considered to be of high significance. The level of impact for a reduced number of the units was found to range between minor to moderate. The majority of the impacts were significant, but no impacts were found to be severe or devastating. Therefore the acceptability of the impact is considered to be reasonable due to the following factors:

- There is a lower expectation of view retention for development located a distance away from the water's edge where developable land exists between the residential development and the water's edge.
- The general change in scale taking place in Darling Harbour and Barangaroo suggests that the retention of views for properties immediately behind development sites facing Darling Harbour will become increasingly difficult and

accepted as an inevitable outcome in order to allow the redevelopment of Darling Harbour.

Even though the Emporio Apartments are located approximately two blocks away from the harbour's edge and their reasonable expectation to retain the view is lower, the proposal does adhere to the principles of "view-sharing" as the views from the Emporio Apartments partially retain a sky view, the horizon line, the eastern end of Pyrmont Bridge, and some water and land interface to the north of the Sydney Wharf Apartments. Therefore, no mitigation measures were considered for this development.

The Peak Apartments

The views from this development were found to be generally of high significance; however, the level of impact was considered to be low in light of the potential impacts from the approved envelops of the southern towers of the SICEEP. Therefore this development was not selected for further detailed view analysis.

View and Visual Impact Conclusions

The Residential Visual Impact Assessment provides the following conclusions at Section 5.1. The visual impact assessment shows that out of all the developments tested, the most significant view impacts are on two residential developments in close proximity to the development. These are the Millennium Towers and The Emporio Apartments.

The majority of the impacts for the Millennium Towers are moderate and severe. However only one view out of 21 views tested for this development was found to be devastating. The majority of the views tested (11 out of 24) for the Emporio Towers were found to have a significant impact, but none of the impacts were found to be severe or devastating.

The most significant impacts are experienced by units located in the Millennium Towers due to the proximity of the development to the proposal. The extent of the impact is mainly due to the level of change in the scale and focus of the view, where the proposal becomes very prominent within the view. In assessing the acceptability of the proposal's impacts upon these existing views, GMU took into account the following issues:

- All severely affected units retain partial views of the horizon line, Pyrmont Bridge, the Maritime Museum and some water and land interface to the north or south of Pyrmont Bridge.
- The City of Sydney controls do not privilege private residential views. To do so would severely constrain development within the CBD and its edges. Recent approvals such as Barangaroo indicate an intention by the Government to change the scale of the edge of Darling Harbour. This will also result in loss of views to development within the CBD's western edge.
- There is a lower expectation of view retention for development located a distance away from the water's edge where developable land exists between the residential development and the edge of the water.
- The general change in scale taking place in Darling Harbour and Barangaroo suggests that the retention of views for properties immediately behind development sites facing Darling Harbour will become increasingly difficult and accepted as an inevitable outcome in order to allow the redevelopment of Darling Harbour.
- The proposal has been required to mitigate overshadowing to Tumbalong Park, pushing the development potential to the east. A reversal of this would undoubtedly result in a greater overshadowing of the park. The impacts to a

reduced number of units have to be weighed against the public benefit to a highly used green open space.

- The proposal could not significantly reduce or mitigate its view impacts on the residential apartments without severely compromising its development potential due to the extent of the site's constraints and the complexity of the structural balance between the structural capacity and the required alignment of the inclined structural members.
- The individual impacts to a reduced number of private units need to be weighed against the overall employment and economic benefits to the area.
- Out of all of the 6 different developments and a total of 65 individual views analysed including 20 general views and 45 detailed views, only one view from a residential unit in the Millennium Apartments was found to have a devastating impact. This is a positive outcome considering the proposal's prominent location and densely developed urban surroundings to the east.

GMU found through this analysis that the proposal adheres to the principles of "view-sharing" as most of the views analysed retain partial views to the horizon line, Pyrmont Bridge, the Maritime Museum, and partial water and land interface to the north or south of Pyrmont Bridge. On balance, it is therefore considered that the view impacts are reasonable.

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 N**). 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 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 windscreens.
- As a general statement, educating occupants about wind conditions at high-level terraces during high-wind 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 O**). 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.

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 P**). Reflectivity can result in temporary, 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 P**) 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 specular reflectivity requirement for each facade

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

The northern glazed elevation should have a maximum reflectance of 8%. If double-glazing is selected and the reflectivity is less than 15%, then some vertical shading elements could be used to mitigate the glare for pedestrians on the elevated walkway. The southern glazed elevation should have a maximum reflectance of 15%. For the ribbon a maximum reflectance of 8% is recommended to reduce the risk of disability veiling glare for drivers travelling along the Western Distributor from the east and from the west and discomfort glare for pedestrians on the elevated walkway and looking up from the Darling Harbour concourse.

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 J**.

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. The study has also responded to the issues raised in the SEARs with regards to transport.

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 70 vehicle trips per peak hour in the AM peak, and less than 115 vehicle movements in the PM peak with an additional 115 vehicles associated with passenger set-down / pick up in Wheat Road. 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, with site generated traffic typically being 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 a total of 170 car parking spaces within the car stacker and intended for use by the hotel (including function centre) and serviced apartments with little, or no allocation of parking for the retail tenancies and IMAX.

The SEARs require the assessment of car parking provisions based on the Sydney DCP 2012's requirements. The parking requirements are as follows:

Description	Size (GFA), No.	Parking Rate (max.)	Maximum Parking Requirement
Hotel	402 rooms	1 space for every 4 bedrooms up to 100 bedrooms, and 1 space for every 5 bedrooms more than 100 bedrooms	85 spaces
Serviced apartments	159 apartments (including 267 bedrooms)	1 space for every 4 bedrooms up to 100 bedrooms, and 1 space for every 5 bedrooms more than 100 bedrooms	58 spaces
Function Centre	1,092m^2	1 space per 30m^2	36 spaces
Total			**179 spaces**

Appling this calculation to the proposed development provides a maximum parking requirement of 179 spaces. The proposal therefore complies with the provision of maximum car parking spaces with 170 spaces proposed.

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 6-7 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.

In the event that queuing does occur, valet would manage the area accordingly and also potentially make use of the valet lane to allow vehicles to both wait and recirculate as required.

5.6.3 Service Vehicles

A dedicated loading area with capacity for seven service vehicles is proposed within the ground level and has been designed to provide for the day-to-day servicing needs of the hotel/ serviced apartments, together with IMAX and retail tenancies.

The loading facilities are proposed as follows:

- Three loading bays on the northern side for use by 8.8m medium rigid vehicles.
- One loading bay on the southern side for use by 6.4m small rigid vehicles.
- Three bays on the southern side for use by cars, vans, couriers etc.

All loading bays have been designed to ensure service vehicles can enter and exit the site in a forward direction and generally in accordance with the requirements of AS2890.1:2004 and AS2890.2:2002.

Loading for the development would largely be utilised during off-peak times with most loading likely to occur before 3:00pm and prior to the peak car stacker demand during the weekday PM peak. With a detailed dock management system designed to make efficient use of the available space, the proposed loading arrangements are expected to be capable of supporting the servicing requirements of the site.

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

GTA's review of the future pedestrian activity associated with the proposal assumes the following maximum patrons at the Ribbon complex:

- Hotel/ serviced apartments – 1,000 guests and 280 staff
- Function centre – 350 patrons
- IMAX – 300 patrons and 20 staff
- Retail – 300 patrons and 50 staff

Accordingly, the maximum peak demand of people making use of the proposed development uses at any one time is 2,300 people.

Given the nature of the proposed development, it is likely that the main pedestrian activity will involve people leaving the building during the morning with a peak demand in the evening given that people generally return to the hotel/ serviced apartments or attend a function or IMAX. It is likely that this peak demand will occur relatively evenly between 5:00pm and 7:00pm.

As the pedestrian movements will be relatively spread out with no land use causing a peak influx or outflow of pedestrians in a short period of time, and the existing pedestrian facilities in the vicinity of the site operating at a LOS A, the proposed development is not considered to have a detrimental effect on the surrounding pedestrian network.

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

Operational Impacts

A Noise Impact Assessment has been prepared by Acoustic Logic (refer to **Appendix K**). 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.

Construction Impacts

A Construction Noise and Vibration Management Plan has been prepared by Acoustic Logic and is included in the Construction Management Plan at **Appendix H**. The plan assesses whether these activities would impact sensitive receivers around The Ribbon site based on the requirements of the City of Sydney Council. The Management Plan outlines the development of controls and safeguards that would be applied to all activity on the site by the construction contractor, with the objective of these controls to ensure that all work is carried out in a controlled and predictable manner that will minimise emissions and protect the amenity of the sensitive receivers surrounding the site.

The report identifies that all construction work will be undertaken during the standard construction hours as defined by the City of Sydney Council, being:

- 7:00am to 7:00pm Monday to Fridays
- 7:00am to 5:00pm Saturdays.
- No work to be carried out on Sundays or public holidays.

There is no basement excavation required on the project. There may be some demolition of the existing promenade structure over Cockle Bay to construct a new ground slab.

The demolition phase of the project will include removal of part of the existing IMAX structure based on the Grocon management plan and includes the erection of a hoarding for the full length of the property perimeter, setting up of site sheds and services etc. Demolition of the structure using excavators and hydraulic hammers. Internal demolition will be undertaken using jackhammers, angle grinders, electric saws; Bobcat and trucks for loading demolition material and clearing rubble from site.

Noise generated by plant and equipment throughout the duration of the project will be managed to generally comply with the background + 5 or 10dB(A) criterion (as applicable), and where this noise goal may be exceeded noise will be managed in strict compliance with AS2436. Overall, management and engineering measures will be needed to limit noise impacts to the surrounding receivers. Noise emissions to the remainder of the buildings surrounding the project site will generally be within the recommended goals.

Minimal vibration impacts are expected as a result of construction activities. Notwithstanding this, safeguards to ensure no adverse impacts at the residential buildings have been recommended in the Construction Noise and Vibration Management Plan.

5.8 Air Quality

An air quality assessment for the proposed development has been undertaken by Pacific Environment Limited and is included at **Appendix Q**. 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 levels below 60m, there appears to be low risk of the CCT stack plume resulting in concentrations of 1-hour NO_2 above the air quality goal, at the location of the proposed building.
- At levels above 60m, there appears to be significant risk of impact from the plume on the building, under the low emission scenario. The risk at 90m is lower for the high emissions scenarios, due to the improved dispersion achieved with higher operating fan speeds and associated increased exit velocities. However, the assessment outlines that whilst it is not possible to determine the frequency at which this risk of impact might occur, it is not expected that this would occur on a frequent basis (i.e. for many hours of the year).
- The proposed building is predicted to have an impact in terms of plume grounding, with higher predicted ground level concentrations (glcs) predicted when building wake effects are included when compared to the 'no building' scenario. However, there appears to be a low risk of glcs reaching levels higher than the air quality goal.
- It is understood that air intakes for the building are proposed to be positioned at a low level (approximately 20m). At this level, impacts from the stack are predicted to be minimal. It is recommended that access via balconies, roof terraces and operable windows are restricted above 60m.

Based on the screening assessment PAE 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 R**. 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 a Disability Access Review (**Appendix S**) 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 Signage

Building identification, wayfinding and heritage interpretation signage will be the subject of future development applications. An assessment of the proposed City Screen (which can be considered a sign) against the criteria of Schedule 1 of SEPP 64 is provided at **Appendix T**.

5.13 BCA and Fire Engineering

A BCA Capability Statement has been prepared by Group DLA and is included at **Appendix U.** The Statement confirms 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 V**. 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.

5.14 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, rather, the proposal includes public domain improvements that will enhance the setting of the Carousel in its new location. However, the methodology for the disassembly and relocation of the Carousel will need to be carefully planned and supervised to avoid damage to the heritage item.
- 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 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 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 impacts on areas of Aboriginal archaeological potential, and the need for approval under the NPW Act. If any excavation is proposed in this area, further assessment of the Aboriginal archaeological potential of this area would 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*.

- An interpretation strategy should be prepared to recommend appropriate options for interpreting within the public realm the history and significance of this section of the Darling Harbour precinct.

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*.

5.15 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 W**). The building is being designed to target the following green building ratings:

- 5-Star Green Star – Design and As-Built v1 rating for the entire development;
- 4.5-Star NABERS Energy rating for the hotel;
- 3.5-Star NABERS Water rating for the hotel.

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

- Selection of non-toxic finishes to ensure an optimum Indoor Environmental Quality (IEQ) is achieved;
- Efficient fittings, fixtures and appliances will minimise water consumption;
- Rainwater harvesting and storage for reuse in non-potable uses such as toilet-flushing, cooling towers and/or landscape irrigation;
- Efficient building fabric and services will achieve operational energy savings;
- Active transport facilities will encourage healthier living while reducing carbon emissions from other transport modes;
- Construction waste recycling targets;
- Enhanced commissioning and tuning practices to ensure performance in operation.

The ESD report concludes:

- The proposed 'The Ribbon Hotel, Serviced Apartments and Retail' development exceeds minimum requirements and represents excellence in sustainable development in Australia.
- Key strategies such as a high performance façade, careful lighting design and selection of non-toxic finishes will ensure an optimum Indoor Environmental Quality (IEQ) is achieved. Efficient fittings, fixtures and appliances will minimise water consumption which, when combined with rainwater capture and reuse,

will assist in meeting water saving targets. Efficient building fabric and services will achieve operational energy savings, and active transport facilities will encourage healthier living while reducing carbon emissions from transport.

- Further to energy, water and IEQ, the project considers a broad range of environmental impact categories, including ecology, materials, transport and ongoing management.

EWFW has prepared a Water Management Plan (WMP) (included at **Appendix X).** 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.

5.16 Civil Engineering

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

Stormwater Drainage and Overland Flow

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.

It is proposed to locally raise the promenade levels around the building to match the proposed building floor level (which is nominated as RL 2.9m). The proposed promenade levels will match the existing promenade levels (at approximately RL 2.3m at the north edge of the promenade and RL 3.1m at the southern extent of works) as shown on drawing 2001320 01 CSK02.

The design of the stormwater system for the development will be based on relevant national design guidelines, Australian Standard Codes of Practice, the standards of Sydney City Council, and accepted engineering practice.

Runoff from buildings will be designed in accordance with AS 3500.3 National Plumbing and Drainage Code Part 3 – Stormwater Drainage. Roof drainage will be documented by the hydraulics consultant. Roof drainage will be directed to rainwater harvest tank/s for re-use.

Stormwater quality will be addressed through the use of water sensitive urban design measures incorporated into the landscape design documentation. A rainwater reuse tank is proposed for the building. This will collect all roof water. It is envisaged that rainwater will be reused for toilet flushing and irrigation of adjoining landscaping of the promenade.

Where possible, all site runoff will be directed to vegetated areas to allow for infiltration. This is to satisfy Item 12 of the SEARs.

Roadworks

The proposed development will require roadworks to the site access from Harbour Street. Reconstruction of a section of the existing median between the proposed building and Harbour Street is also proposed. This will allow for vehicles to turn off Harbour Street to access the carpark/loading dock and the drop-off section at the east of the proposed building.

A crest at approximately RL 3.5m in the access from Harbour Street is proposed to prevent overland flow from Harbour Street entering the carpark/loading dock. An overland flow path will be maintained at the northern end of the existing median. It is proposed to adjust the existing median and roadway to compensate for the reduction in overland flow path caused by the construction of the crest (which protects the carpark/loading dock from overland flow).

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.

5.17 Services and Infrastructure

An Electrical and Telecommunications Services Infrastructure Report has been prepared by AECOM (included at **Appendix Z**) and a Hydraulic Infrastructure Report has been prepared by EWFW (included at **Appendix AA**). 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.

Advice from Ausgrid is that while some services have been disconnected, all should be treated as "in-service" cables as the may be re-energised in the near future to serve significant future customer loads at the western fringe of the CBD. Some services are also reticulated through the cable vaults adjacent to or within the proposed footprint of the development.

The site will require new dedicated substation(s) and augmentation of the existing HV network. Actual details of HV supply to the development cannot be confirmed until a formal application for connection is made to Ausgrid. Ausgrid Application for Connection of Load will be required to confirm actual infrastructure connection details.

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. In addition to this, it is proposed that the 150mm and 200mm mains will be interconnected to extend the Sydney Water network within this region, as required by Sydney Water. 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.

5.18 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;
- Design finalisation and procurement;
- Site location and public domain works;
- Hours of work;
- Site interface;
- Early works;
- Construction temporary services;
- Site boundary and hoardings;
- Site access;
- Site establishment;
- Pedestrian management;
- Traffic management plan;
- Programming and planning;
- Stormwater and erosion management plan;
- Construction methodology;
- Materials handling;
- Perimeter protection systems;
- Environmental management plan;
- Noise and vibration;
- Quality management;
- Workplace safety;
- Emergency response procedures.

Western Distributor

Western Distributor Clearance Diagrams are provided at **Appendix BB**. No physical works to be undertaken to the elevated overpass and the pylons. A portion of the building will overhang Harbour Street by approximately 17.76 metres at a height of approximately 16.73 metres above the road at its lowest point.

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.

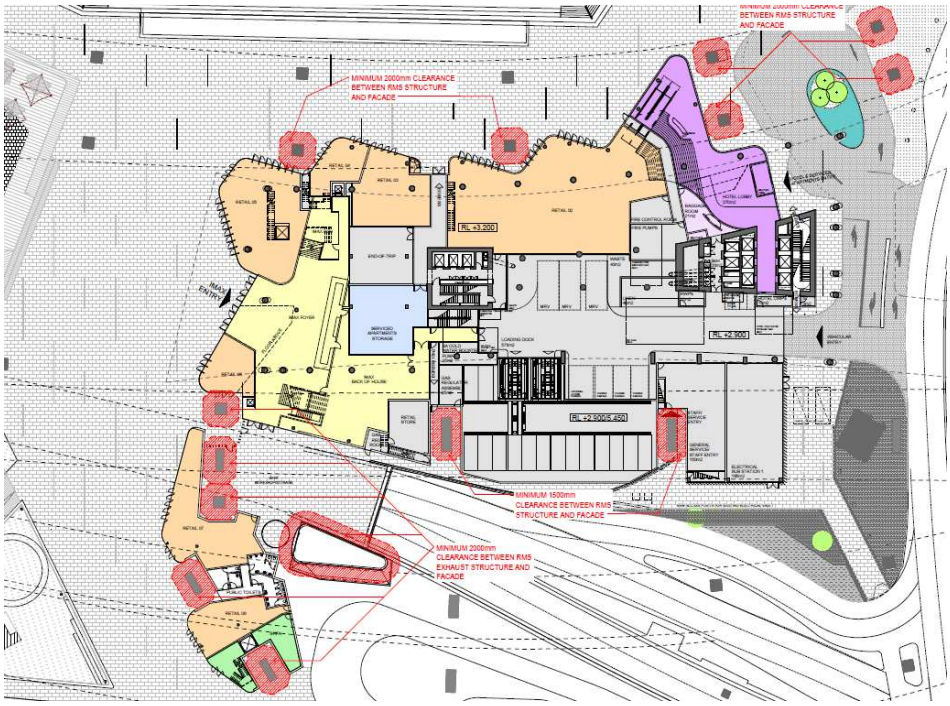


Figure 21 – Western Distributor Clearance Diagram, with clearance zones shown in red. (Source: HASSELL)

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 Vipac Engineers and Scientists Wind Effect Statement dated 23 July 2013 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 PEA 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 December 2015 prior to the issue of a Construction Certificate.

Visual Impact

- Mitigation Measures outlined in the Visual Impact Assessment prepared by GMU Architecture dated December 2015 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 SEARs (**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 a world class hotel and serviced apartments building, 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 target a high level of Ecologically Sustainable Design measures.
- 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.