State Significant Development Application – SSDA12

Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP)

Darling Square - Residential Building W1 (Student Accommodation)

Submitted to NSW Department of Planning and Environment
On Behalf of Urbanest Darling Harbour No.2 Pty Ltd

November 2015 ■ 15420

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Development Application Details	
Applicant name	Urbanest Darling Harbour No.2 Pty Ltd, ABN: 19604428784
Applicant address	Suite 102, Level 1 Australia Square Plaza Building 95 Pitt Street Sydney NSW 2000
Land to be developed	Sydney International Convention, Exhibition and Entertainment Precinct, Haymarket
Proposed development	Development of the Darling Square Western Plot (Darling Drive) Building W1 for a residential building (student accommodation) with associated infrastructure and public domain works.
Prepared by	
Name	Brendan Hoskins
Qualifications	BPlan (Hons) MPIA
Address	Level 7, 77 Berry Street, North Sydney
In respect of	State Significant Development Application for Sydney International Convention, Exhibition and Entertainment Precinct, Darling Square Western Plot (Darling Drive) Building W1
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	Brendan Hoskins
Date	9/11/2015

Executive Summary

Purpose of this report

This Environmental Impact Statement (EIS) is in relation to a State Significant Development Application for the construction and use of a residential building (student accommodation) within the Western Plot (Darling Drive) of Darling Square and associated public domain works (SSDA12). The proposal relates to a portion of Darling Square, a new mixed used neighbourhood within the overall Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP). This EIS is submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD). The proponent is Urbanest Darling Harbour No. 2 Pty Ltd (Urbanest) who will own and manage the future building. Urbanest has secured the development rights to the Western Plot from Lend Lease (Haymarket) Pty Ltd, who along with Darling Harbour Live (previously referred to as Destination Sydney) - a consortium comprising Lend Lease, Capella Capital, Hostplus, AEG Ogden and Spotless - were selected as the preferred proponent to transform Darling Harbour.

Background

Key features of the SICEEP are outlined in Section 1.0 of this EIS, including the current status of development across the site of the SICEEP Project (SICEEP Site) and development for which consent is currently being sought.

The Darling Square Site

A Stage 1 State Significant Development Application (SSD 5878) (Concept Proposal) was approved on 5 December 2013. The Concept Proposal establishes the vision and planning and development framework which will be the basis for the consent authority to assess future development proposals within Darling Square. It articulates what the applicant is seeking to achieve for future development and sets the broad parameters for the development of the site. The Concept Proposal includes the following key components and development parameters:

- Staged demolition of existing site improvements, including the existing Sydney Entertainment Centre (SEC), SEC car park, and part of the pedestrian footbridge connected to the SEC car park and associated tree removal;
- A network of streets, lanes, open space areas and through-site links generally as shown on the Public Domain Concept Proposal, to facilitate reintegration of the site into the wider urban context and connection with the broader SICEEP Site;
- Street layouts;
- Development plot sizes, development plot separation, building envelopes (maximum height in RLs), building separation, building depths, building alignments and benchmarks for natural ventilation and solar provision for the precinct;
- Land uses across the site, including residential and non-residential uses;
- A maximum total gross floor area (GFA) across the Darling Square Site;
- Above ground parking including public car parking;
- Residential car parking rates;
- Design Guidelines prepared by Denton Corker Marshall to guide future development and the public domain; and
- A remediation strategy.

Proposed Development

The proposal relates to a detailed ('Stage 2') DA for a residential building (student accommodation) within the Western Plot (Darling Drive) of Darling Square and associated public domain works. The Darling Square Site is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and open space. The Western Plot is one of six development plots identified under the Concept Proposal.

The Western Plot will accommodate two residential buildings (student accommodation), known as Buildings W1 and W2. Building W2 has been approved under SSD6010. This proposal seeks consent for the construction and use of Building W1. More specifically, SSDA12 seeks approval for the following components:

- Site preparation works including demolition of existing site improvements;
- Construction and use of one residential building (known as Building W1) within the Western (Darling Drive) Plot, to be used for student accommodation purposes;
- Public domain improvements, including:
  - provision of a new urban park (known as north park) located to the north of Building W1; and
  - provision of a central courtyard between Buildings W1 and W2;
- Provision of signage zones; and
- Extension, realignment and augmentation of physical infrastructure / utilities as required.

Strategic and Statutory Planning Considerations

The proposed development has a total Capital Investment Value (CIV) of over $10 million and is located within the Darling Harbour precinct, and is therefore classified as State Significant Development pursuant to Schedule 1 of the SEPP SRD.

A request to issue Secretary's Environmental Assessment Requirements (SEARs) for the preparation of this Environmental Impact Statement (EIS) was made on the 23 June 2015 and the SEARs were issued on 20 July 2015 (see **Appendix A**). Section 5.0 of the EIS considers all applicable legislation and the Stage 1 Concept Proposal in detail. The proposal is generally consistent with all relevant planning controls.

Darling Harbour Development Plan No 1 (DHDP) is the principal environmental planning instrument applying to the SICEEP Site. Under Schedule 6 Part 7 clause 23(1) of the EP&A Act, the DHDP is taken to be a regional environmental plan. By operation of Schedule 6, Part 21 and Clause 15 of the *Environmental Planning and Assessment Regulation 2000*, Regional Environmental Plans are deemed to be State Environmental Planning Policies (SEPPs). Its principal aim is to define the type of development which may be permitted within the Darling Harbour Development Area.

Uses permissible on the SICEEP Site are broad and include development for the purposes of tourist, educational, recreation, entertainment, cultural or commercial facilities, car parking stations, film television and radio stations, hotels, parks and gardens, residential buildings, serviced apartments, shops, refreshment rooms and utility installations. There are no maximum building heights or GFA restrictions imposed by DHDP, and no other detailed controls or provisions that guide or restrict the form of development on the site.

Environmental Impact

This EIS provides an assessment, including an environmental risk assessment, to identify the potential environmental impacts of the project in accordance with the SEARs and sets out the undertakings made by Urbanest to manage and minimise potential impacts arising from the development (refer to Section 6.0). Key environmental assessment considerations identified include, amongst others:

- ecologically sustainable development;
- design excellence, built form and public domain;
- environmental and residential amenity;
- transport and accessibility;
- noise and vibration;
- drainage, flooding, climate change and sea level rise;
- utilities;
- heritage;
- construction impacts;
- staging;
- contributions; and
- consultation.

All identified impacts are addressed in this EIS and are capable of being ameliorated through the implementation of appropriate mitigation measures outlined in Section 7.0.

Conclusion

The Compilation of Mitigation Measures has been prepared to inform the ongoing management of the development throughout the construction phase and operational phase of proposed Building W1 and the associated public domain. This Environmental Impact Statement fulfils the requirements of the *Environmental Planning and Assessment Act 1979* and addresses the Secretary's Environmental Assessment Requirements, and demonstrates that the proposal is consistent with the approved Stage 1 Concept Proposal and the impacts of the proposal can be satisfactorily managed. In light of the above, and the significant benefits of the proposed development, we therefore recommend that the proposal be approved.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the NSW Department of Planning and Environment (the Department) in support of a State Significant Development Application (SSDA) for the construction and use of a residential building (student accommodation) and associated public domain works within the Western Plot (Darling Drive) of Darling Square, at Darling Harbour.

SSDA12 follows the approval of the Concept Proposal SSDA (SSDA2) approved on 5 December 2013. Darling Square (formerly known as 'The Haymarket') forms part of the SICEEP project, which will deliver Australia's global city with new world class convention, exhibition and entertainment facilities and support the NSW Government's goal to "make NSW number one again".

SICEEP is being delivered via a 'whole of precinct' approach, guided by a Precinct Plan for the entire 20 hectare site. This Precinct Plan is being delivered through a number of discrete packages and development applications have been, and will continue to be, lodged accordingly.

The SICEEP Project Site is located within the Darling Harbour Development Area which is identified as a State Significant Site in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*. As the proposed development will have a capital investment value of more than $10 million it is declared to be State Significant Development (SSD) for the purposes of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

As this 'Stage 2' SSDA follows on from the approval of the Stage 1 Concept Proposal, the provisions of Part 4 Division 2A of the EP&A Act will accordingly apply.

The EIS has been prepared by JBA on behalf of Urbanest Darling Harbour No.2 Pty Ltd, and is based on the Architectural Drawings and Design Report provided by Allen Jack + Cottier (see **Appendix B**); the Public Domain Drawings prepared by Aspect Studios (see **Appendix C**); and other supporting technical information appended to the report (see Contents).

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

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the Secretary's Environmental Assessment Requirements (SEARs), which are included at **Appendix A**. This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

1.1 Overview of the Proposed Development

SSDA12 seeks approval for the construction and use of a residential building (student accommodation) and associated public domain works within Darling Square at Darling Harbour. SSDA12 generally relates to land on the western boundary of Darling Square comprising part of the Western Plot, which was identified as one of six development plots identified in the Stage 1 Concept Proposal approved on 5 December 2013.

More specifically, SSDA12 seeks approval for the following components:

- Site preparation works including demolition of existing site improvements;
- Construction and use of one residential building (known as Building W1) within the Western (Darling Drive) Plot, to be used for student accommodation purposes;
- Public domain improvements, including:
  - provision of a new urban park (known as north park) located to the north of Building W1; and
  - provision of a central courtyard between Buildings W1 and W2;
- Provision of signage zones; and
- Extension, realignment and augmentation of physical infrastructure / utilities as required.

1.2 Background to the Development

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of SICEEP.

Following an extensive and rigorous Expressions of Interest and Request for Proposals process, a consortium comprising AEG Ogden, Lend Lease, Capella Capital and Spotless was announced by the NSW Government in December 2012 as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Precinct Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
  - Up to 40,000m^2 exhibition space;
  - Over 8,000m^2 of meeting rooms space, across 40 rooms;
  - Overall convention space capacity for more than 12,000 people;
  - A ballroom capable of accommodating 2,000 people; and
  - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing a hotel complex at the northern end of the precinct.
- A vibrant and authentic new neighbourhood at the southern end of the precinct, now called 'Darling Square', including apartments, student accommodation, shops, cafes and restaurants;
- Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park; and

- Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pyrmont and the City.

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the (now) Department of Planning and Environment. The key components of these proposals are outlined below and **Figure 1** illustrates the Precinct Plan for the SICEEP site.

1.2.1 Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades. SSDA1 was approved on 22 August 2013, with three modifications subsequently approved on 22 February 2014, 18 July 2014 and 1 July 2015.

Figure 1 – SICEEP Precinct Plan

1.2.2 Concept Proposal (SSD 13_5878)

Concept Proposal Approval

The Concept Proposal SSD DA (SSDA 2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Darling Square Site. SSDA2 was approved on 5 December 2013. The Stage 1 Concept Proposal approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots (see **Figure 2**), development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
- A maximum total gross floor area (comprising non-residential and residential GFA);
- Above ground car parking including public car parking;
- Residential car parking rates;
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

Figure 2 – Concept Proposal Development Plots

Concept Proposal Status

In addition to the approval of SSDA1 and SSDA2, the following approvals have been granted for various stages of the Darling Square site:

- Darling Drive (part) development plot (SSDA3 – ref: SSD 6010) for the construction and use of a residential building (student accommodation) and the provision of associated public domain works approved on 7 May 2014;

- North-West development plot (SSDA4 – ref: SSD 6013) for the construction and use of a mixed use commercial development and public car park building and associated public domain works approved on 7 May 2014;
- South-West development plot (SSDA5 – ref: SSD 6011) for the construction and use of a mixed use residential development and associated public domain works approved on 21 May 2014; and
- North-East development plot (SSDA7 – ref. SSD 6626) for the construction and use of a mixed use residential development and associated public domain works approved on 16 April 2015.

Approval was also granted on 15 June 2014 for SSDA6 (ref: SSD 6116) which includes the construction and use of the International Convention Centre (ICC) Hotel and provision of public domain works.

1.3 Objectives of the Development

1.3.1 SICEEP Project Objectives

The following strategic objectives have been endorsed by the State to guide the development and implementation of the SICEEP Project:

- Deliver world-class core functions of convention, exhibition and entertainment facilities that exceed the expectations of domestic and international visitors;
- Reaffirm Darling Harbour as Australia's premier gathering place by creating an exciting, connected, active and vibrant precinct that brings delight to visitors and Sydneysiders alike;
- Provide Sydney with unified high quality convention, exhibition and entertainment facilities that befit Australia's global city;
- Maximise the direct and indirect economic benefits to NSW from the Project;
- Provide a value for money solution for the State, with completion on time and on budget;
- Demonstrate excellence in design and environmental sustainability; and
- Enhance connectivity around and through the Precinct, and optimise the quality of the public domain.

1.3.2 Darling Square Objectives

The objectives for the 'Darling Square' Concept Proposal include:

- To develop Darling Square into one of Sydney's most innovative residential and working districts;
- Provide a new inner urban mixed-use quarter within walking distances of the universities and the CBD and with strong linkages to public transport nodes;
- Provide for attainable city apartment living, suitable for young professionals and students;
- Increase and improve connections with Chinatown, Ultimo, the CBD and the south of the City;
- Provide opportunities for public activity and enterprise within Darling Square to provide a catalyst for future growth and expansion in the area;
- Provide a quality visitor experience and establish Darling Square as a distinctive destination within a revitalised quarter of the City;

- Explore opportunities to partner with UTS to deliver a new creative industries and technology hub supported by a range of facilities and community functions that promote a positive economic impact for the City;
- Repair the urban fabric of this part of the city restoring street grain and connectivity; and
- Increase and improve pedestrian and cycle connectivity across the site and into the SICEEP from the southern and western quarters of the city.

1.3.3 SSDA12 Objectives

Key development objectives which underpin this application include:

- Design a new residential building (student accommodation) which complements the approved Building W2 building, creating a family of buildings which contributes to the form and character of Darling Square;
- Create a language of architecture that seamlessly integrates with the surrounding public domain and establishes a building edge along the western boundary of Darling Square;
- Provide student accommodation in a prime location close to education institutions, transport, services and recreation facilities;
- Encourage more sustainable methods of transport through the provision of a shared pedestrian/cycle path improving pedestrian and cycle connectivity;
- Develop a high quality public domain which will fulfil the objectives established for the SICEEP and Darling Square; and
- Develop a high quality public domain which will fulfil the objectives established for the SICEEP and Darling Square.

1.4 Analysis of Alternatives

1.4.1 Strategic need for the proposal

The NSW Government recognises that the existing convention, exhibition and entertainment facilities at Darling Harbour are facing increasing competition from similar facilities within the Asia-Pacific region and as such new facilities are required that will provide appropriate facilities that:

- are suitable for contemporary conventions and are competitive with other facilities nationally and globally;
- are constructed to international best practice;
- are more flexible in their ability to respond to the changing needs of the convention, exhibition and event industry; and
- are designed for longevity.

The relocation and integration of the new entertainment centre with new world class convention and exhibition facilities within the central and northern portions of the SICEEP Site provides the opportunity to centralise all of the public infrastructure facilities creating efficiencies and the ability to use the multipurpose entertainment centre for large scale convention business.

It also enables the creation of a new and vibrant mixed use residential neighbourhood that will repair and extend the urban fabric of the CBD/Haymarket. Darling Square is a key component of the overall redevelopment of Darling Harbour. Darling Square will rejuvenate an underutilised area of the City, and will provide a framework for future development that both respects the existing urban fabric of Haymarket and responds to the future development approved for the PPP Site.

1.4.2 Alternative Options

Three options are available to the NSW Government in responding to the identified need for improved convention, exhibition and entertainment facilities.

Do Nothing

The 'do nothing' option, would result in the entertainment centre facilities and broader facilities at Darling Harbour remaining unchanged and requiring ongoing maintenance. Sydney's appeal as a suitable venue for international conferences, exhibitions and events would continue to diminish, to the detriment of the locality and the wider NSW and Australian economy.

If this option was selected, the significant benefits in creating a new mixed use neighbourhood on an underutilised site on the periphery of the CBD would not materialise.

Refurbish the existing facilities

Refurbishment of the existing facilities (including entertainment centre) is not physically capable of achieving the required venue parameters identified as necessary to make these venues competitive.

Provide new facilities in an alternative location

The large-scale spatial requirements of a modern and integrated convention, exhibition and entertainment facility and the built-up nature of the CBD precludes an alternative central-Sydney location to Darling Harbour, and as such an outer-Sydney venue would need to be identified.

There are very few consolidated sites in State Government ownership of sufficient size to accommodate the required facilities within the central-Sydney area. Comparable international facilities are located in either CBD locations or near airport hubs in order to allow visitors to easily commute between the airport and other business engagements. An outer-suburbs location is therefore considered unsustainable and inferior to a central-Sydney location such as Darling Harbour.

The marketing of conventions is based on facilities and location. Darling Harbour, due to its location adjacent to the CBD and on Sydney Harbour, provides one of only a very few international convention and exhibition facilities located within a parkland setting. This unique location has resulted in Sydney's facilities performing well to date internationally.

International business travellers spend an average of $6,000 per trip within Sydney, and outer-suburbs provide more limited opportunities to capture this economic input due to the more limited availability of hotels, tourism-related industries and activities, retail and dining options. Shifting Sydney's premier business tourism facilities away from the CBD would therefore fail to harness the complete economic benefits available to the NSW economy, which is inconsistent with the primary objectives of the project and the NSW State Plan.

This option is therefore not considered to be viable. In light of the above, the SICEEP redevelopment project (including the relocation of the entertainment centre and its integration with new convention and exhibition facilities) within Darling Harbour is the only viable option that will meet the objectives of the NSW Government, and meet the expectations of residents and visitors to Sydney.

Alternative to the Darling Square Concept Proposal

There are alternatives to the redevelopment of the Darling Square Site as a new mixed use residential neighbourhood. These potentially could include expanding the commercial core of the CBD and creating a new commercial precinct or alternatively expanding public open space and creating a new urban park.

Both of these redevelopment alternatives have merit, however, they would not deliver the same extent of benefits to the City or Sydney more broadly as those able to be achieved through the proposal the subject of SSDA12. For example, these alternatives would not:

- Provide new community uses and retail offerings to service all local community members;
- Allow for the creation of a new urban square situated between high quality mixed use developments, ensuring a vibrant and active ground plane throughout the Darling Square Site;
- Support the achievement of more people living closer to where they work/learn;
- Encourage more sustainable travel behaviour;
- Make the efficient use of a significant urban renewal site (open space alternative); and
- Support a more compact and connected city (open space alternative).

Furthermore, the Concept Proposal for Darling Square secures the provision of a significant portion of the site's public open space together with incorporating commercial and retail development that will support commerce and jobs.

Alternative to the proposed Residential Building (Student Accommodation) – SSDA12

The alternative use of the SSDA12 Site is another option available, with other viable land uses being permissible, including commercial uses. In light of the extensive range of uses to be provided across Darling Square, which includes residential, commercial and retail, it is considered that the proposed student accommodation development is appropriate for the SSDA12 Site (supporting a true diversity of uses and ensuring a real mixed use and vibrant new neighbourhood).

The location of the proposed student accommodation building in the Western Plot is in keeping with the approved student accommodation building (Building W2), located within the same development plot. There are key benefits available to co-locating these two student accommodation buildings within Darling Square, such as the ability to share services and amenities as well as the opportunity to increase potential interaction amongst students. Offering another use in this location would not result in the same benefits.

The proposed student accommodation development will contribute to the diverse mix of land uses proposed for Darling Square, and will provide significant benefits in allowing more students to live closer to services, facilities and educational institutions.

It is further noted that the proposal is consistent with the approved Stage 1 Concept Proposal applying to the land and also follows on from the approval of four detailed stages of the Concept Proposal.

1.5 Planning Approvals Status

A number of separate development applications for key elements of Darling Square have been submitted. SSDA12 involves the detailed development of the northern portion of the Western Plot for a residential building (student accommodation) and associated public domain works. Further detailed DAs will continue to be lodged seeking approval for specific aspects of Darling Square in accordance with the approved concept proposal.

The staging of initial development applications for the overall SICEEP project is illustrated in **Figure 3**, with further details in terms of timing and status provided in **Table 1**. Future DAs will be submitted for the SICEEP Site.

Table 1 – Status of initial SICEEP SSD DAs

DA No	Description of Application	Status
12_5752	SICEEP Core Facilities – Exhibition Centre, Convention Centre, The Theatre, Event Deck and Tumbalong Park	Approved: 22 August 2013
MOD 1	S96(1A) - various	Approved: 20 February 2014
MOD 2	S96(1A) – various	Approved: 18 July 2014
MOD 3	S96(1A) – various	Approved: 1 July 2015
13-5878	Darling Square Concept Proposal	Approved: 5 December 2013
MOD 1	*S96(2) – various*	*Under assessment*
6010	Western Plot (Student Accommodation – Building W2)	Approved: 7 May 2014
MOD 1	*S96(2) – various*	*Under assessment*
6013	North-West Plot (Public car park/ commercial office building)	Approved: 7 May 2014
MOD 1	S96(2) – various	Approved: 20 July 2015
MOD 2	*S96(1A) – various*	*Under assessment*
6011	South-West Plot (Mixed Use Residential Development)	Approved: 21 May 2014
MOD 1	S96(1A) – various	Approved: 27 July 2015
6116	ICC Hotel	Approved: 15 June 2014
MOD 1	S96(1A) – various	Approved: 8 July 2015
6626	North-East Plot (Mixed Use Residential Development)	Approved: 16 April 2015
6831	ICC Hotel fit-out, façade lighting system and subdivision	Approved: 16 October 2015
7133	Western Plot (Student Accommodation – Building W1)	Subject of this application

Figure 3 – Staging of initial planning applications for the SICEEP Site

1.6 Secretary's Environmental Assessment Requirements

In accordance with section 89G of the EP&A Act, the nominee of the Secretary of the Department issued requirements for the preparation of the EIS on 20 July 2015. A copy of the Secretary's Environmental Assessment Requirements (SEARs) is included at **Appendix A**.

The SEARs require that the EIS must include the documents listed in Schedule 1 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation) and must meet the requirements of Schedule 2 of the Regulation, 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 2 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 2 – Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirement	Location in Report	
General Requirements	Section	Appendix
The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000.	Throughout	-
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Section 6.0	-
Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include:		
- adequate baseline data;	Section 6.0	-
- consideration of potential cumulative impacts due to other development in the vicinity; and	Section 6.0	-
- measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	Section 6.0	-
- The EIS must be accompanied by a report from a qualified quantity surveyor providing: - a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived;	Section 1.0	Under Separate Cover
- an estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and	Section 5.27	-
- certification that the information provided is accurate at the date of preparation.	Page vii	-
Key Issues		
Statutory and Strategic Context		
The EIS shall address the statutory provisions applying to the site contained in all relevant environmental planning instruments (EPIs), including: ·		
- State Environmental Planning Policy (State & Regional Development) 2011;	Section 5.4	-
- State Environmental Planning Policy (Infrastructure) 2007;	Section 5.4	-
- State Environmental Planning Policy No. 55- Remediation of Land;	Sections 5.4 and 5.22	Appendix H

Secretary's Environmental Assessment Requirement	Location in Report	
- State Environmental Planning Policy (Affordable Rental Housing) 2009;	Sections 5.4.3 and 5.8	Appendix B
- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005; and	Section 5.4.1	
- Darling Harbour Development Plan No 1.	Section 5.4.2	
The EIS shall address the relevant planning provisions, goals and strategic planning objectives in the following:		
- NSW 2021;	Section 5.3	-
- A Plan for Growing Sydney;	Section 5.3	-
- Infrastructure NSW SICEEP Urban Design and Public Realm Guidelines;	Section 5.3	Appendix B
- Sydney Development Control Plan 2012;	Section 5.3	Appendix B
- Sydney Streets Design Code and Sydney Streets Technical Specification;	Section 5.3	Appendix B
- Development Near Rail Corridors and Busy Roads- Interim Guideline;	Section 5.3	Appendix N
- Sydney City Centre Access Strategy;	Section 5.3	Appendix S
- NSW Bicycle Guidelines;	Section 5.3	Appendix S
- City of Sydney Waste Minimisation in New Developments 2005;	Section 5.3	Appendix J
- Interim Construction Noise Guideline; and	Section 5.3	Appendix N
- Crime Prevention Through Environmental Design (CPTED) Principles.	Section 5.28	Appendix B
The Haymarket Stage 1 Concept Approval		
The EIS shall:		
- demonstrate that the proposal is consistent with the Stage 1 Concept Approval (SSD 5878) dated 5 December 2013; and	Section 5.5	Appendix P
- provide all relevant information and plans required for future Development Applications in accordance with the conditions of the Stage 1 Project Approval.	Throughout	Throughout
Ecologically Sustainable Development (ESD)		
The EIS shall:		
- detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development;	Section 5.30	Appendix M
- address the potential for sustainable technologies and/or renewable energy;	Sections 5.26 and 5.30	Appendix M
- demonstrate how the proposed development achieves the 4 Green Star Custom rating for student accommodation; and	Section 5.26	Appendix M
- provide an integrated Water Management Plan, including water demand, alternative water supply, proposed end uses of potable and non-potable water, water sensitive urban design and water conservation measures.	Section 5.16	Appendix W
Design Excellence, Built Form and Public Domain		
The EIS shall:		
- demonstrate how the proposal is committed to achieving design excellence in accordance with the above statutory and strategic context, existing approvals for the site and recommendations from the independent Design Review Panel appointed by Infrastructure NSW;	Section 5.6	Appendix B
- demonstrate how the orientation, height, bulk and scale of the proposed development is consistent with the Stage 1 Concept Approval and is well integrated within the surrounding locality;	Section 5.7	Appendix B
- address the visual impact of the building when viewed from the public domain and key vantage points surrounding the site;	Section 5.9	Appendix R

Secretary's Environmental Assessment Requirement	Location in Report	
- consideration of the overall site layout, defined public and private spaces, orientation, connectivity, street activation, facades, massing, setbacks, building articulation, materials, colours, landscaping, safer by design principles, rooftop and mechanical plant;	Section 5.7	Appendix B
- addresses how the proposed student accommodation building (W1) relates to the approved student accommodation building (W2}, and in particular in terms of orientation, design, materials and the nature of the space between the two buildings;	Sections 3.4 and 5.7	Appendix B
- demonstrate how the proposed development is integrated into all aspects of the surrounding public domain, including the area to the north below the Pier Street overpass and the area to the west, considering footpaths, road paving, cycleways, tree planting, footway dining, public art and lighting;	Sections 3.5 and 5.10	Appendix C
- identify the use of communal areas within and around the building; and	Sections 3.4, 3.5 and 5.8	Appendix B
- address the CPTED principles for the design of the public realm.	Section 5.28	Appendix B
Environmental and Residential Amenity		
The EIS shall: - demonstrate that the proposal maintains the amenity of surrounding residential development (both existing, approved or proposed) and potential future development in accordance with SEPP 65 and the Apartment Design Guide; and	Section 5.7	Appendix B
- identify overshadowing impacts to the Powerhouse Museum site, and in particular the forecourt and the childcare facility open space;	Section 5.7	Appendix B
- address how the proposal achieves a high level of environmental and residential amenity, including solar access, overshadowing, visual privacy, impacts on views and wind impacts.	Section 5.8	Appendix B
Transport and Accessibility (Operation)		
The EIS shall: - estimate the total daily and peak hour trips likely to be generated by the proposed development, including vehicle, public transport, pedestrian and cycle trips;	Section 5.11	Appendix S
- demonstrate the measures to be implemented to encourage users of the development to make sustainable travel choices, including walking, cycling, public transport and car sharing;	Section 5.11	Appendix S
- demonstrate appropriate provision, design and location of on-site bicycle parking, and how cycle provision will be integrated with the existing cycle network	Section 5.11	Appendix S
- provide details of service vehicle movements and site access arrangements;	Section 5.11	Appendix S
- address any impacts of the development on the capacity and operation of the Sydney Light Rail; and	Sections 5.11 and 5.25	Appendix S
- undertake a transport and road safety assessment for any proposed advertising signage and lighting displays visible on roads or impacting on the operation of the light rail.	Section 5.11	-
Noise and Vibration		
The EIS shall: - identify potential noise and vibration generating sources and receptors at all stages of the development and operation, including noise and vibration from communal student areas, during construction and noise and vibration from Darling Drive, the Pier Street overpass and the Sydney Light Rail; and	Section 5.15	Appendix N
- outline measures to minimise and mitigate the potential noise and vibration impacts on occupants of the development and surrounding occupiers.	Section 5.15	Appendix N

Secretary's Environmental Assessment Requirement	Location in Report	
Drainage, Flooding, Climate Change and Sea Level Rise		
The EIS shall: - identify the potential flood risk from groundwater, wastewater, stormwater and sea level rise on the site; and	Section 5.18	Appendix W
- include proposals to mitigate any potential impacts, such as opportunities for water sensitive urban design within the public domain and landscaping and any other water conservation measures.	Section 5.18	Appendix W
Utilities		
The EIS shall: - identify the capacity of all existing utilities and augmentation requirements of the development for the provision of utilities, including staging of infrastructure; and	Section 5.16	Appendices I and V
- provide details of how infrastructure assets of various utility stakeholders will be protected during the demolition and construction of the project.	Section 5.16	Appendix U
Heritage		
The EIS shall provide a Heritage Impact Statement (HIS) that identifies and addresses the impacts of the proposal: - on any archaeology protected under the Heritage Act 1977	Section 5.14	Appendix F
- on the heritage significance of the site and adjacent area, including any built and landscape heritage items, conservation areas, views or settings, and in particular the Sewage Pumping Station	Section 5.13	Appendix E
- on places, items or relics of significance to Aboriginal and non-Aboriginal people.	Section 5.14	Appendix F
- against any endorsed conservation management plans for heritage items in the vicinity of the site	Section 5.13	Appendix E
- include interpretation of the site's history and significance in accordance with the Interpretation Plan for the broader SICEEP.	Section 5.13	Appendix E
Construction Impacts		
The EIS shall: - provide accurate details of peak hour construction and servicing vehicle movements and access arrangements, and assess the likely impacts of this traffic on the local road network and potential conflicts with other road users;	Section 5.11	Appendix BB
- identify potential impacts of the construction on surrounding areas, such as noise and vibration, air quality and odour impacts, dust emissions, water quality, stormwater runoff, groundwater seepage, soil pollution and construction waste;	Section 5.29	Appendix BB
- insofar as excavation and/or remediation is proposed, provide details of the annual volume of materials to be extracted, processed or stored on site during construction and how the extracted material will be disposed of or reused.	Section 5.29	Appendix BB
Staging		
If the proposed development is to be staged, then the EIS shall provide details of the proposed staging, including timescales for delivery of the public realm improvements.	Section 3.8	Appendix B
Contributions and/or Voluntary Planning Agreement		
The EIS shall address the provision of public benefit, services, infrastructure and any relevant contribution requirements.	Section 5.31	-

1.7 Other Approvals

In addition to the approvals noted elsewhere in this document, additional approvals will be required in order to permit the proposed development to occur. These approvals may include, but are not limited to:

- *Sydney Harbour Foreshore Authority Regulation* under clause 4 (for commercial activities and uses in Darling Harbour); and
- *Roads Act 1993* (including Section 138 approvals); and
- *Sydney Water Act 1994* under Section 73 (compliance certificate).

Additional approvals will be sought at the appropriate time.

2.0 Site Analysis

2.1 Site Location and Context

The site subject to this application is part of the Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP). The SICEEP Site is located within the Darling Harbour Development Area within the City of Sydney Local Government Area (LGA). Darling Harbour is a 60 hectare waterfront precinct, located on the south-western edge of the Sydney Central Business District, and to the east of the Pyrmont Peninsula. The Precinct is unique in terms of its function, location, land ownership and physical characteristics, and accommodates a wide range of land uses. These predominantly relate to recreation, tourism, entertainment and business.

Historically, Darling Harbour (and more specifically Cockle Bay) has been subject to a significant amount of land reclamation and infilling in order to create an artificial valley and shoreline. The central valley is open and flat, and runs in a north-south direction from the Cockle Bay Shoreline towards Haymarket. The topography gently rises to the east and west from the valley floor towards ridgelines located proximate to Harris Street in the west and Hyde Park in the east.

The SICEEP Site occupies an area of approximately 20 hectares, and is located within the western portion of the Darling Harbour Precinct. It is generally bound by the Light Rail Line to the west, Harbourside Shopping Centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden of Friendship and Harbour Street to the east, and Hay Street to the south. The location of the SICEEP Site is shown in **Figure 4** and **7** below.

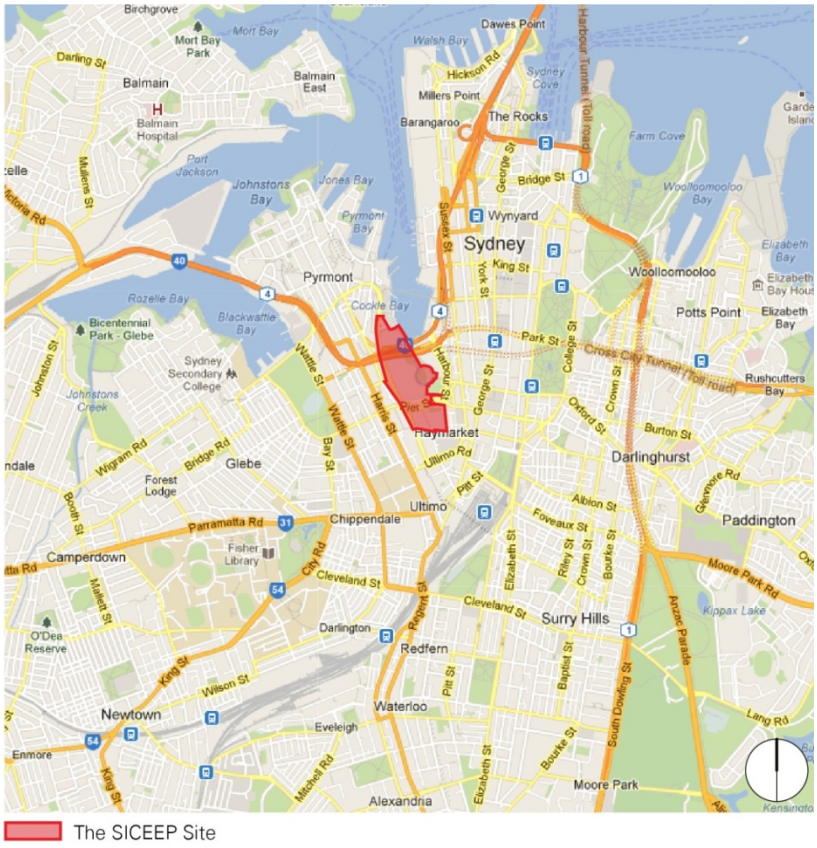

Figure 4 – SICEEP Context Plan

Figure 5 – SICEEP Location Plan

2.2 Site Description

2.2.1 Darling Square

The Darling Square Site is located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket. The Site is bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south. The Darling Square Site is irregular in shape and occupies an area of over 4 hectares. An aerial photograph illustrating the Darling Square boundary is provided at **Figure 6** below.

Figure 6 – Aerial Photograph of the Darling Square Site

SSDA12 Development Site (Subject Site)

The SSDA12 development site generally comprises a portion of the western boundary of the Darling Square Site. The SSDA12 Site forms part of land noted as the Western Plot under the Concept Proposal. The location of the Site in the context of adjoining future developments in Darling Square is illustrated at **Figure 7**, and an aerial view of the SSDA12 Site is illustrated at **Figure 8**.

Figure 7 – Location of the Western Plot within Darling Square (outlined in red)

Figure 8 – Aerial view of the subject site

Parcels of land to which this application relates are identified in **Table 3**. Darling Square is in the single ownership of the NSW Government (Sydney Harbour Foreshore Authority).

Table 3 – Legal Description and Ownership of the Site

Lot and DP	Owner
Lot 900 DP1132344	Sydney Harbour Foreshore Authority
Lot 800 DP1164281	Sydney Harbour Foreshore Authority
Lot 331 DP1192146	Sydney Harbour Foreshore Authority

2.3 Existing Development

The SSDA12 Site currently accommodates the north-western portion of the Darling Square Site. The site is largely cleared, with sparse grass cover and a perimeter fence. A photograph of the existing SSDA12 Site is provided at **Figure 9** below.

Figure 9 – SSDA12 Site (outlined in red)

2.3.1 Topography

Prior to European settlement the Cockle Bay shoreline extended approximately 800m further to the south of its current location into the Darling Square Site. Cockle Bay began to be modified in the early 19th Century by way of significant land reclamation and infilling, which was extended further north over subsequent decades up until the late 20th Century.

The land reclamation and infilling described above has resulted in an artificial valley that is open and flat, and runs in a north-south direction from Haymarket in the south to the Cockle Bay shoreline in the north. As a result, the SSDA12 Site is generally flat with little variation in the ground level RL. This is reflected in the Survey and Cadastral Plan prepared by Rygate Surveyors (refer to **Appendix D**).

The topography around the SSDA12 Site gently rises away from the valley floor towards ridgelines located in the vicinity of Harris Street to the west and George Street to the east.

2.3.2 Landscaping and Vegetation

There is no existing landscaping or vegetation located on the SSDA12 Site. Site preparation and clearance works, including tree removal, have been undertaken as part of the approved SSDA3 works.

2.3.3 Heritage and Archaeology

Heritage

A Statement of Heritage Impact (SOHI) relating to the SICEEP redevelopment has been prepared by TKD Architects and submitted with the Concept Proposal (refer to **Appendix E**). The SOHI identified those heritage items that are present on the SICEEP Site, and within the vicinity. The following heritage items (excluding archaeology) are identified as being located within the vicinity of the Western Plot:

- Darling Harbour Rail Corridor (Section 170 Register);
- Powerhouse Museum (Local significance);

- Ultimo Post Office (State significance);
- Former Hydraulic Pumping Station No.1 (the Pumphouse) (Section 170 Register); and
- Market City Façade (State significance).

The Harris Street conservation area is identified under the *Sydney Local Environmental Plan 2012* and is also located to the south-west of the SSDA12 Site.

A map illustrating the location of these heritage items, and other heritage items in the vicinity of the wider SICEEP Site is provided below at **Figure 10**.

1 Pyrmont Bridge
2 Ibis Sydney
3 Novotel Sydney
4 Harbourside Shopping Centre
5 Cockle Bay Wharf
6 LG Imax Theatre
7 Oaks Goldsborough Apartments
8 Darling Walk
9 The Chinese Garden of Friendship
10 Novotel Rockford Hotel
11 Ian Thorpe Aquatic Centre
12 Powerhouse Museum
13 Former Ultimo Tram Shed
14 Chinatown Precinct
15 Future Ultimo Pedestrian Network (UPN)
16 UTS Haymarket
17 Market City and The Peak Apartments

Figure 10 – Heritage items within and surrounding the SICEEP Site

Archaeology

A Non-Indigenous Archaeological Assessment and Impact Statement was prepared by Casey and Lowe and submitted with the Concept Proposal. The Statement identifies that known archaeological remains of Section 170 register items are located within the Haymarket Site, those being the Hay Street Stormwater Channel (Hay Lackey Drain) (State significance), and the Pier Street Precinct Archaeological Remains (State significance). These items are not in the vicinity of the proposed development or the SSDA12 Site and will not be impacted by this proposal.

An Aboriginal Archaeological Assessment Report has been prepared by Comber Consultants in association with the Metropolitan Local Aboriginal Land Council, and in accordance with the Office of Environment & Heritage (OEH) Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, and in accordance with the DGRs. The Report is included as **Appendix F**.

Comber Consultants have conducted a search of the Aboriginal Heritage Information Management System (AHIMS) database and have determined that there are no known Aboriginal sites or objects located within or immediately near the Darling Square Site, however they note that a midden containing Aboriginal artefacts was encountered during excavation works for the nearby development 'Darling Walk'.

Given that Aboriginal occupation was most intense near coastlines, and that artefacts have been found in nearby locations, Comber Consultants advise that subsurface archaeological deposits may be located within the south-western portion of the site, in the vicinity of the original shoreline (including the SSDA12 Site). It is not expected that deposits will be located in areas comprising reclaimed land. This conclusion is confirmed in the Casey and Lowe SSDA12 letter provided at **Appendix F**.

2.3.4 Access

Pedestrian Access

Pedestrians can access the SSDA12 Site via footpaths on Darling Drive. Access is currently restricted in part through the Darling Square Site due to the construction activities which are occurring as part of the SICEEP redevelopment.

Pedestrian connections to the west are inhibited due to the location of the Light Rail Corridor and the topography of the land; pedestrian access from the south is presently available via The Goods Line to Macarthur Street (via stairs and ramp) and a pedestrian footpath on either side of the Pier Street overpass accessed by either a stair or ramp.

Consistent way finding signage will be provided throughout Darling Square, comprising visually integrated signage, markers and banners.

A signalised mid-block crossing has been approved as part of SSDA3 at Darling Drive. This crossing aligns with the approved Dickson's Lane and significantly enhances east-west connections through Darling Square.

Cycling

The Site is accessible to cyclists via a number of official cycle routes including the Sydney Harbour Bridge to Anzac Bridge route, and the Anzac Bridge to Prince of Wales Hospital route. Cycle routes connecting directly with the Darling Square Site include Factory Street to the east, Hay Street to the south, Darling Drive to the west, and Darling Quarter to the north. Routes are typically shared with pedestrians or motor traffic except for Darling Drive where a dedicated cycleway is provided in part. All connect with the wider Sydney Cycleways Network.

Rail

The Site has good rail connectivity, being located approximately 450m north-west of Central Station and 600m to the south-west of Town Hall Station. Central and Town Hall Stations are key stations in the Sydney Trains network with excellent connectivity to the wider network. Almost all lines on the Sydney Trains network pass through Central Station, which also provides connections with wider NSW, Western Australia, South Australia, Queensland, and Victoria.

Light Rail

The Metro Light Rail traverses Darling Drive, and Hay Street along the western and southern extents of Darling Square. The Metro Light Rail runs from Central Station to Lilyfield via Darling Harbour, The Star Casino, Wentworth Park, Glebe and Rozelle. Paddy's Market Station is located immediately to the south of the SEC on Hay Street.

A future Light Rail route connecting Circular Quay with Sydney's south east has commenced construction. The route will travel along George Street, situated approximately 200 metres east of Darling Square.

Ferry

The Site is situated approximately 800m south of the Darling Harbour Ferry Terminal, 1km south of the Pyrmont Bay Ferry Wharf, and 1.2km south of the King Street Ferry Wharf. Ferries from these locations connect the Site with key locations, including Circular Quay, Milsons Point, and Parramatta. Ferries also connect Darling Square with a variety of tourist and visitor attractions located around Sydney Harbour.

Bus

An extensive network of bus services is located in the vicinity of the Darling Square Precinct. George Street for example is located approximately 200m to the east and is a major bus corridor with very frequent services, connecting with the wider Sydney CBD and a wide variety of suburban locations. Harris Street, 100m to the west of Darling Square is also a bus corridor. A major bus terminal is located at Railway Square, approximately 500 metres to the south.

Vehicular Access

Vehicular access to Darling Square is available from Darling Drive, Hay Street and Harbour Street. Darling Drive traverses the western edge of Darling Square in a north-south direction, with Harbour Street running along the eastern edge of the precinct. Hay Street runs along the precinct's southern boundary in an east-west direction. On-street parking for coaches and buses is available for permit holders only.

2.3.5 Soil and Geotechnical Conditions

A Preliminary Geotechnical Assessment Report has been undertaken by Coffey Geotechnics and included as **Appendix G**. The Report presents the findings of a desktop study, which determines the likely geotechnical and soil characteristics of Darling Square. The report draws upon previous geotechnical investigations carried out at Darling Square in making its assessment.

Site Geology

The Darling Square Site is predominantly on reclaimed land that was formerly part of Cockle Bay. The present day shoreline has been progressively formed by infilling, with manmade fill deposits underlain by Hawkesbury Sandstone bedrock of the Triassic Age.

Coffey Geotechnics advise that the significant geological conditions of Darling Square are complex, and include the following features:

- Variable fill;
- An in-filled palaeochannel incised within the sandstone bedrock and oriented roughly north/south;
- Localised sub-vertical shearing and joint swarms with likely NNE strikes in the sandstone bedrock; and
- High groundwater levels.

Subsurface Conditions

Various geotechnical investigations have previously been undertaken at the site between 1971 and 2013, with the most recent studies being undertaken in 2015. The Geotechnical Assessment Report has collated the findings of these investigations to identify distinct geotechnical subsurface profiles present across Darling Square. These include:

- Fill;
- Alluvium and estuarine deposits; and
- Sandstone Bedrock

Groundwater levels at the Western Plot (Darling Drive) are indicated to be at depths between 3m to 4m depth. Groundwater levels are not expected to be influenced in any discernible way by tidal flows from Cockle Bay. Samples collected from Darling Square indicate groundwater is pH neutral, and indicate a brackish to saline environment consistent with land reclamation and the proximity of Cockle Bay.

2.3.6 Site Contamination

A Site Investigation Factual Report was prepared by Coffey Environments and submitted as part of the Concept Proposal. Further to this, a Remediation Action Plan was prepared by Coffey Environments for the entire Darling Square precinct. Records indicate that the Darling Square Site has been subject to historic reclamation with filling of unknown origin along with historic uses comprising of various industrial processes (e.g. milling, brewing etc.), galvanising iron works and other metal works, various storage uses, a council depot, and a market place.

Detailed and extensive site contamination investigations have been undertaken across the Darling Square Site in order to determine the presence and extent of potential contaminants as a result of historical site activities and uses including heavy metals, fuels and oils, asbestos and organic contaminants. Site investigations reveal that the following contamination sources are present at levels generally within the acceptable health-based criteria:

- Localised TPH and PAH (oil) contamination encountered in unsaturated fill materials;
- Localised lead contaminated fill;
- Volatile hydrocarbon contamination;
- Asbestos containing materials encountered in shallow fill materials; and
- Potential and actual acid sulphate soils.

A Site Audit Report prepared by Environ confirms that none of the Remediation Areas defined in the site-wide Remediation Action Plan are present within the SSDA12 site (refer to **Appendix H**).

Groundwater Contamination

Groundwater within the site contains low concentrations of heavy metals, however these are considered to be representative of background levels within the locality rather than of any site specific issues. The reported concentrations are considered to be representative of background levels in the locality of Darling Square rather than being attributable to current and/or historical activity specific to Darling Square.

2.3.7 Water Cycle

Stormwater

Under existing conditions there is an overland flow path which travels north along Darling Drive and is then channelled east along Hay Street towards Pier Street. Overland flow paths in the Darling Square Site generally flow through the Darling Harbour Precinct and discharge into Cockle Bay.

Flooding

The SICEEP Site incorporates overland flow paths to transport water north to Cockle Bay in a range of storm events. Refer to Section 5.18 for further details regarding the management of flood impacts.

Water Quality

There is minimal infrastructure in place within the SICEEP Site that is intended to manage the quality of stormwater runoff from the precinct. The majority of existing runoff within the precinct discharges directly into Cockle Bay in conjunction with untreated flows from upstream external catchments.

2.3.8 Utilities and Infrastructure

Hyder Consulting have undertaken a desktop study which has been further informed by significant site investigations of existing utility infrastructure services within and in the vicinity of Darling Square. Hyder Consulting has also undertaken subsequent consultation with service providers as detailed in the Services Infrastructure Report (**Appendix I**). Existing essential infrastructure services for water, sewer, gas, electricity, communications and stormwater are provided to the Darling Square Site (including the SSDA12 Site).

2.4 Surrounding Development

The SSDA12 Site is predominantly surrounded by transport corridors (light rail and roads) along with commercial and tourist related development. Further afield development includes educational facilities, commercial buildings and residential buildings. The built form surrounding the Darling Square precinct is generally medium to high density and is constructed in a wide variety of architectural styles.

A map of the key developments surrounding Darling Square is provided at **Figure 11**. The existing and future development surrounding the SSDA12 Site is discussed further below.

Figure 11 – Map of surrounding development

To the North

Adjoining the SSDA12 Site to the north is the Pier Street underpass and the remainder of Darling Drive. Generally to the north of Darling Square is the remainder of the Darling Harbour precinct, including the future location of the core facilities (see **Figure 12**), which are currently under construction.

Figure 12 – An artist's impression of development approved in the PPP

To the East

Immediately adjoining the SSDA12 Site to the east is the construction site of the approved North West Plot development. The North West Plot development is a mixed use public car park and commercial/active uses building. Currently hoarding is provided around the construction activities and access is restricted. Further to the east is the eastern precinct of Darling Square, largely consisting of the SEC and its surrounding public domain area (see **Figure 16**), which will all be subject to redevelopment as part of the SICEEP project.

Figure 13 – The Sydney Entertainment Centre and surrounding public domain (viewed from the north)

To the south

Immediately to the south of the SSDA12 Site is the remainder of the Western Plot which includes the approved site of Building W2 (refer to **Figure 15**). Construction activities have commenced on Building W2 which will be a student accommodation development owned and managed by Urbanest. Further to the south is the Goods Line which is a recently opened linear park and pedestrian link on the former Ultimo-Darling Harbour rail corridor (refer to **Figure 14**). The Ultimo-Darling Harbour rail corridor is listed as a heritage item under the RailCorp Section 170 Register in accordance with the provisions of the *Heritage Act 1977* (Heritage Act).

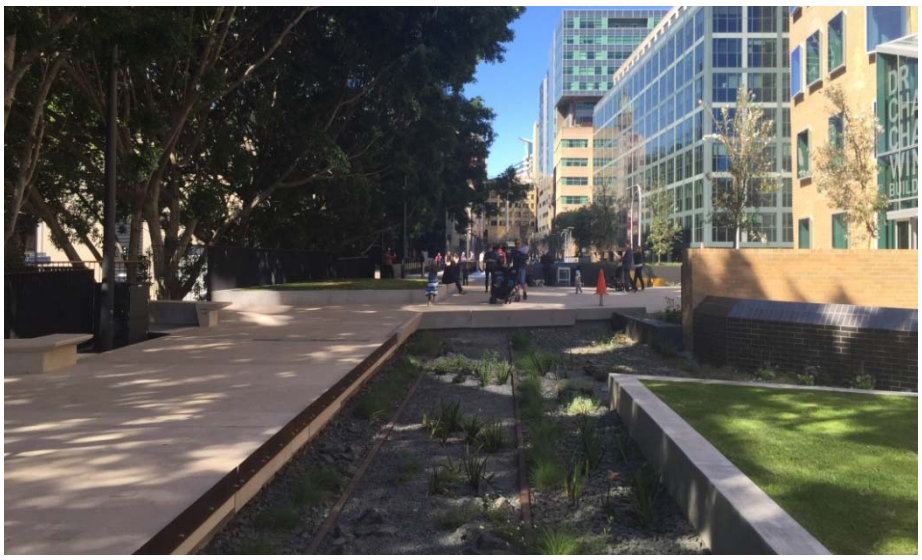

Figure 14 – The Goods Line to the south

Figure 15 – Approved Building W2 to the south

To the West

Immediately adjoining the SSDA12 Site on its western boundary is the Metro Light Rail Line which runs from Central Station to Lilyfield via Darling Harbour, The Star Casino, Wentworth Park, Glebe and Rozelle. Beyond this to the west is the Powerhouse Museum which is listed as a local heritage item (see **Figure 16**).

Figure 16 – Powerhouse Museum viewed from the east, with the SSDA12 Site in the foreground

3.0 Description of Proposed Development

This chapter of the report provides a detailed description of the proposed development, which comprises the following:

- Site preparation works including demolition of existing site improvements;
- Construction and use of one residential building (known as Building W1) within the Western (Darling Drive) Plot, to be used for student accommodation purposes;
- Public domain improvements, including:
  - provision of a new urban park (known as north park) located to the north of Building W1; and
  - provision of a central courtyard between Buildings W1 and W2;
- Provision of signage zones; and
- Extension, realignment and augmentation of physical infrastructure / utilities as required.

Architectural drawings of the proposed development have been prepared by AJ+C and are included in the Design Report (**Appendix B**). Public Domain Drawings prepared by Aspect Studios are also included at **Appendix C**. A photomontage of the proposal is provided at **Figure 17**.

Figure 17 – Building W1 as viewed from the north facing south-west

3.1 Urban Design Principles

The Urban Design Principles for Darling Square were established by the Concept Proposal, and aim to create a new vibrant quarter nestled amongst other great neighbourhoods, that will contribute to the onward growth and legacy of Sydney.

The following key design principles have underpinned the SSDA12 proposal:

- Provide a high quality living environment for students, characterised by inspiring spaces for residents to live, socialise and study;
- Form an integral part of Darling Square, both as a member of the 'family' of residential towers and as the interface point with the neighbouring suburb of Ultimo;
- Play an active role in contributing to the quality of the streetscape in the new urban environment of Darling Square;
- Respond to the surrounding built form context, in particular the existing development to the west and future surrounding development of Darling Square;
- Act as an anchor for the northern end of The Goods Line;
- Achieve a uniform street level treatment to all public frontages, in turn creating a clear 'street wall' which ties in with Building W2 to the south;
- Create a functional and enjoyable public domain that is capable of catering to the needs of residents in Buildings W1 and W2, as well as complementing the wider public domain improvements to be delivered in Darling Square;
- Promote view sharing with surrounding buildings; and
- Ensure equitable access is provided.

3.2 Numerical Overview

Table 4 below provides a summary of numerical information relating to SSDA12. It should be noted that Gross Floor Area (GFA) has been calculated in accordance with the definitions provided in the Standard Instrument – Principal Local Environmental Plan.

Table 4 – Key numerical information

Component	Proposal
Darling Square Site area	12,096m^2
SSDA 12 Site	988.5m^2
Uses	Residential (student accommodation)
GFA (residential)	13,209m^2
Maximum Height ▪ storeys ▪ RL	Maximum Height ▪ 22 storeys (including ground level) ▪ RL75.2
Rooms	520
Beds	668
Car Parking Spaces	Nil
Bicycle Spaces	90

3.3 Site Establishment

The SSDA12 Site has been largely cleared in accordance with the development consent for SSDA3. Site establishment and preparation works for Building W1 will largely comprise the erection of hoardings and the establishment of a site compound to support the ongoing construction activities on the SSDA12 Site.

3.4 Building W1 – Student Accommodation

Building W1 will comprise a 22 storey building (including plant) containing a total of 520 rooms and including a total of 668 beds. The proposed building is entirely within the building envelope approved the SSDA2 Concept Proposal.

The building will be owned and managed by Urbanest, an experienced student accommodation provider who will also own and manage Building W2. The two buildings will effectively work and operate as one student accommodation facility (with physical links and shared facilities). An outline of the key components of Building W1 is provided in the Design Report prepared by Allen Jack + Cottier at **Appendix A** and further below.

3.4.1 Built Form and Architecture

Building W1 will adopt a rectangular form, with the narrow width of the Site guiding the built form. The Site dimensions are suited to student accommodation and are similar in nature to other student accommodation projects in Sydney. The built form generally aligns with the approved Building W2 to the south.

The 22 storey building will be defined by a two storey inverted podium, with diagonal framework on three sides supporting the structure above. This colonnade will provide shelter for pedestrians and act as a threshold space for integration along each edge. The entry into the building will be on the southern façade via the proposed new central courtyard space to be provided between Buildings W1 and W2.

Prominence and articulation will be provided to the eastern façade fronting Darling Drive (east) through the use of a panelised façade system with subtle variations in size and angle to create a dynamic visual effect. The eastern façade is designed to integrate with the family of buildings being delivered in Darling Square. The façade has an overlaid feature grid pattern, with faceted infill panels.

The western façade has been designed with vertically proportioned windows to provide protection from the western sun, whilst openings in the panels along the façade create visual interest and reflect the form of the nearby Powerhouse Museum (refer to **Figure 18**).

Figure 18 – Render of Building W1 viewed from the north facing south-east

3.4.2 Product Type and Mix

A variety of different product types will be provided within Building W1 to cater to the differing demand in student accommodation services. It has been the intention for Building W1 to be designed for younger students, with more single and efficient room types to encourage greater use of communal areas, in turn increasing social interaction.

It is the strategy to fitout each room with consistent furniture and finishes. Access into each apartment will be regulated by a card operated key system. The individual product types and details of their fit-out are outlined below.

Single Studio

372 single studios will be provided within Building W1. These studios will contain a bed, wardrobe, storage, study desk and bathroom. **Figure 19** illustrates the arrangement of a single studio.

Figure 19 – Single studio arrangement

Twin Studio

148 twin studios will be provided within Building W1. Twin studios will contain two single beds, storage, a study desk for each occupant and a shared bathroom. **Figure 20** illustrates the arrangement of a twin studio.

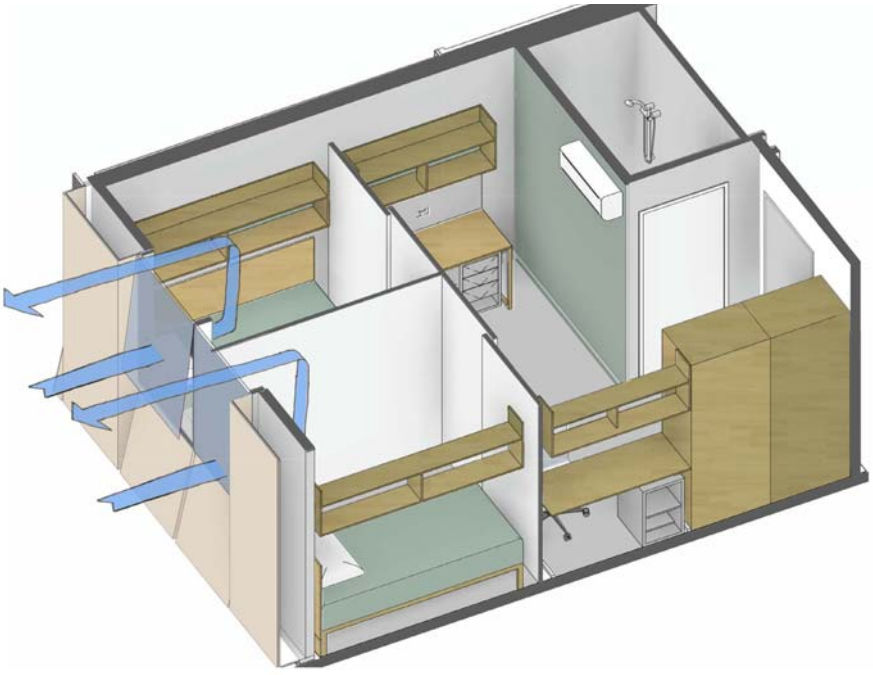

Figure 20 – Twin studio arrangement

3.4.3 Common Areas

A number of common areas are proposed throughout Building W1. These include the following:

- Lounges, study desks and break out spaces (Ground Level);
- Common dining facility and lounge (Level 1);
- Common areas including lounges, study spaces, TV areas, study pods, seating areas or general break out spaces (Levels 3 to 20); and
- Multipurpose common room on Level 21.

The majority of these communal facilities occur on the eastern façade fronting Darling Drive or are focused on the lower two levels of the building (refer to **Figure 21**). The various communal spaces will be provided with various fit outs to ensure the different needs of the residents are met. Laundry facilities will be provided on Level 2, whilst the bike store will be located on the Ground Level.

The common dining facility will be provided over the majority of Level 1. The dining area will comprise a lounge area, seating and tables and a servery. An outdoor seating balcony will also be provided along the majority of the eastern and northern façades.

Back of house facilities such as a food preparation area, dishwasher area and stores will be provided on the remainder of Level 1. This common dining facility will be available to residents of Buildings W1 as a standard feature (with no kitchens being provided within any of the rooms).

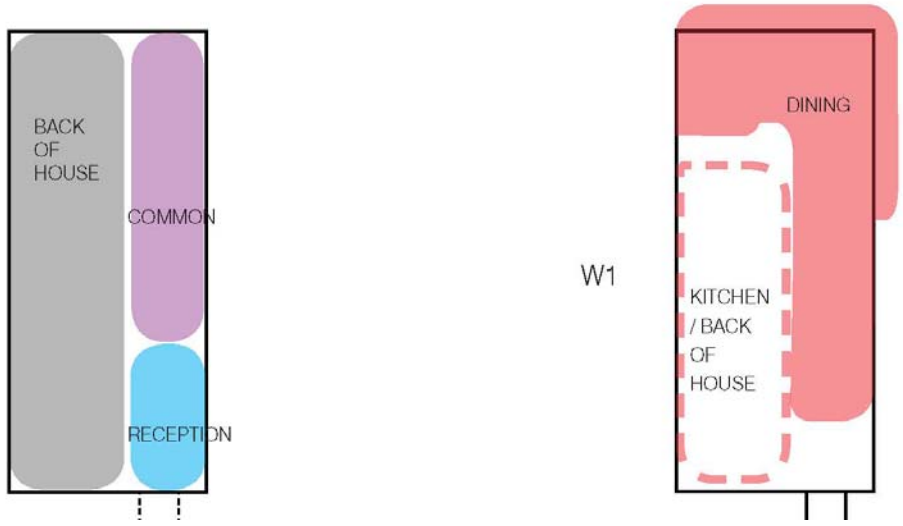

Figure 21 – Building W1 Ground and Level 1 common areas

3.4.4 External Materials and Finishes

Diverse materials and finishes will be provided to each façade to further articulate the built form and provide visual interest. The palette of materials will vary across each façade, with warmer more natural materials applied to the western, northern and southern façade and lighter materials applied to the eastern façade (refer to **Figure 22**). These have been selected in response to the existing and future built form such as the Powerhouse Museum and new development within Darling Square, including the approved Building W2 design to the south.

The materials to be provided on Building W1 include:

- Clear glazing;
- Translucent glazing (pale green) and opaque glazing (pale green);
- Light coloured timber panels;
- Light grey aluminium framing;
- Coloured precast concrete cladding panels;
- Colour backed glass and louvres; and
- Charcoal coloured columns.

Northern, Eastern and Southern Façades

Western Façade

Figure 22 – Building W1 colour palette

3.5 Landscaping and Public Domain

Public Domain Drawings have been prepared by Aspect Studios and are provided at **Appendix C**. The detailed Landscape/Public Domain Drawings have been prepared in accordance with the approved SSDA2 Concept Proposal and are consistent with the Infrastructure NSW SICEEP Urban Design and Public Realm Guidelines. The key principles and objectives informing the public domain include:

- Create enjoyable public domain spaces by providing various treatments and planting to encourage frequent use;
- Respond to the environmental conditions of each individual space, maximising opportunities and overcoming constraints;
- Create a consistent language at the ground plane for Buildings W1 and W2, in particular connecting with Macarthur Square in the southern portion of the Western Plot;
- Contribute positively to the urban revitalisation which is occurring within the precinct, not only supporting the public domain improvements occurring in Darling Square but also enriching The Goods Line to the south; and
- Facilitate a public domain which is inviting and attracts active uses, both within the day time and evening.

An illustration of the proposed public domain works is provided at **Figure 23**, with the two key components summarised below. It should be noted that all public domain improvements along Darling Drive have been approved under SSDA3.

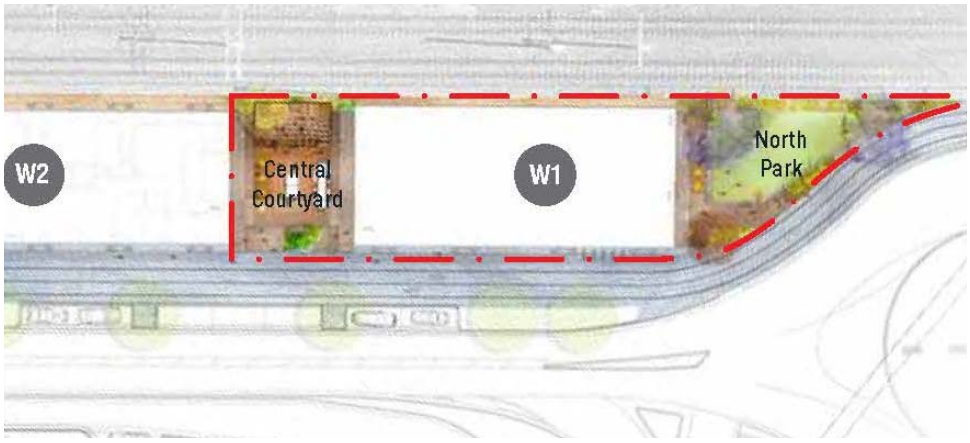

Figure 23 – Proposed public domain works (site outline in red)

North Park

The North Park, located on the northern-most portion of the Western Plot, has been designed as an open and undulating turf area with landscaping concentrated around the periphery of the space.

Dense screen planting is proposed along the boundary to the light rail corridor. Two planters are proposed on the Darling Drive boundary of the park to create a clear entry and provide visual separation from the approved shared pedestrian/cycle pathway. Feature tree planting will be provided in these planters, as well as throughout the North Park to provide shading.

The general layout of the North Park is illustrated at **Figure 24**.

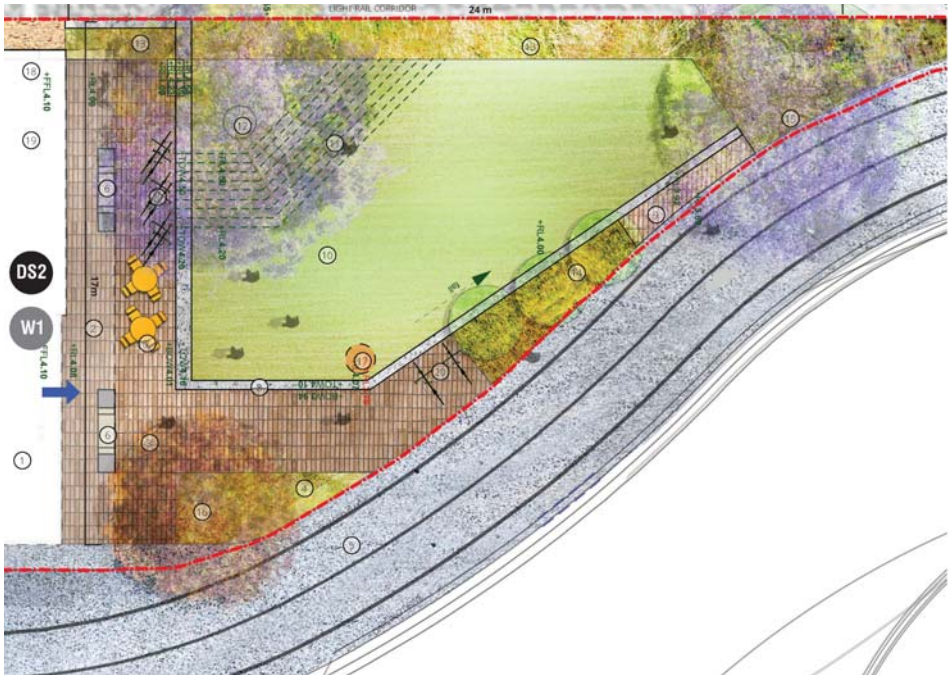

Figure 24 – Layout of the North Park

Central Courtyard

An important feature of the proposed public domain improvements is the central courtyard which will be located in between Buildings W1 and W2. The central courtyard will be largely open to Darling Drive, except for a raised planter which will provide visual separation to the street and defined the space. Planting proposed throughout the courtyard will be limited to reinforce the urban nature of the space, with screen planting primarily provided along the key boundaries.

A set of raised steps provided in the western portion of the courtyard will act as an amphitheatre space, focusing views towards the centre of the courtyard. A mixture of fixed linear tables and benches, as well as a fixed ping pong table, will be provided throughout the central courtyard to encourage use of the space.

Currently a section 96 modification is under assessment for Building W2 which seeks to include a bridge link between both buildings. This bridge link will also include a screen on the western elevation. It is the intention for the central courtyard to be used as an active space, where residents of both buildings can congregate and play activities, interact in an informal manner or watch special screening projected onto the bridge link. A projector is proposed at the rear of the amphitheatre structure to facilitate the active outdoor use of the space. A speaker system will not be provided for this outdoor space, with students able to connect to a wireless audio system to listen to the projected films/events on the screen.

The use of the projector and screen[1] is proposed under this SSDA. The general layout of the central courtyard is illustrated at **Figure 25**.

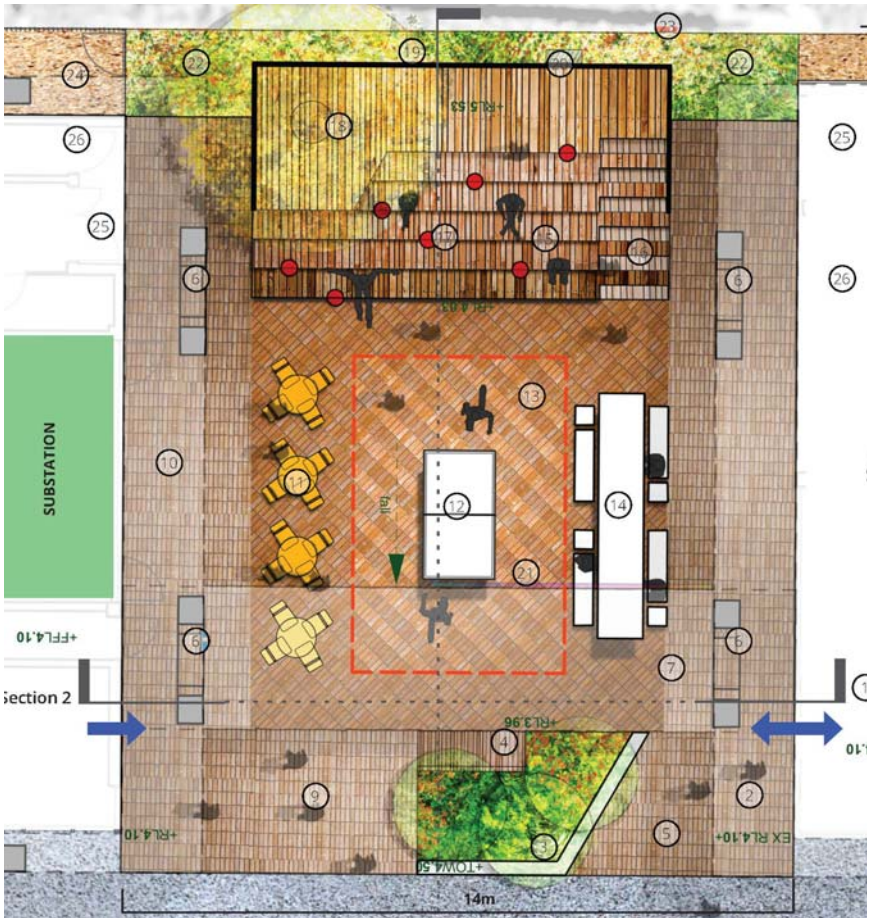

Figure 25 – Central courtyard layout

[1] *Sought only to be constructed under current section 96 modification to SSDA3 (Building W2)*

3.6 Signage

Signage zones (to facilitate building identification signage) are proposed on the parapet and lower levels. The following signage zones are proposed:

- Parapet level – eastern elevation (northern end), northern elevation (western corner) and western elevation (northern end); and
- Lower level (Ground Level and Level 3) – eastern elevation (northern end), northern elevation (eastern end) and southern elevation (eastern end - Level 3 only).

Details of the proposed signage zones are provided on the elevations at **Appendix B**.

The detailed wording, colour scheme, and logo to be included in these signage zones will be submitted to the Secretary for approval prior to the issue of the relevant Construction Certificate, consistent with the approach approved for Building W2 (SSDA3).

3.7 Infrastructure and Services

A Services Infrastructure Report has been prepared by Hyder and is provided at **Appendix I**. This Report details the existing infrastructure available at the SSDA12 Site, identifies likely points of future connection, associated upgrades and augmentation of services to facilitate the proposed development. The detailed design of each of the proposed infrastructure and servicing works will be the subject of further consultation with the relevant service providers, and will be completed prior to the commencement of works on the Site.

Water

Works have recently been completed to lay a DN200 PVC reticulation main to supply potable water and fire requirements to the Western Plot. The DN200 PVC reticulation main runs parallel to a relocated trunk main. Building W1 will connect to this new infrastructure.

Sewer

Sections of existing sewer infrastructure have been demolished and new reticulation pipework has been installed as part of preliminary works in Darling Square. A new DN225 sewer main has been laid to the east of Building W1, adjacent and parallel to Darling Drive. Building W1 will connect to this new infrastructure.

Gas

No gas mains have been identified in the immediate vicinity of the SSDA12 Site. The closest mains is a DN100mm 1050kPa secondary main is currently located in Little Pier Street. It is proposed to connect to this existing main.

Electricity

The supply of electricity to Darling Square has been initiated under the Concept Proposal. Ongoing discussions are being undertaken with Ausgrid in regards to the design and supply of electrical infrastructure, yet it is proposed that a new underground HV supply from the Camperdown Zone Substation will be provided to Darling Square. Two options for the provision of a substation(s) on the Western Plot will continue to be explored, with the primary option being the utilisation of a single substation which has been approved with Building W2 (SSDA3).

Telecommunications

Hyder have identified that there is a range of telecommunication infrastructure in the vicinity of the SSDA12 Site. New telecommunication infrastructure to service the Darling Square precinct is expected to be provided by NBNCo or another suitable provider.

3.8 Staging of Works

It is proposed to carry out the SSDA12 works in a staged manner, comprising a number of discrete packages. These packages will consist of different components generally as follows:

1. Site Establishment and ground works;
2. Construction of the structure up to Level 2;
3. Construction of the remainder of the building including façade and internal works; and
4. Completion of public domain works.

3.9 Waste Management (Operational)

A Waste Management Plan has been prepared by Waste Audit and is provided at **Appendix J**. This plan establishes the operational procedures which will ensure that waste is effectively managed throughout the life of the development.

A dual chute system will be provided within the development to allow the easy transportation of waste from each level to the waste storage room provided on the Ground Floor. This waste chute will ensure the separation of general waste and mixed recycling.

General waste bins and mixed recycling bins will also be provided in all common areas of the development. These bins will be periodically emptied by management staff of Building W1. Collection of waste will be carried out by a private contractor, to be engaged once the proposal is operational.

3.10 Operational Management

An Operational and Security Plan of Management (**Appendix K**) has been prepared by Urbanest. Urbanest is an experienced provider of student accommodation in Brisbane, Adelaide and Sydney, operating for over seven years and continually striving to provide the highest quality accommodation services in prime locations. In particular, Urbanest own and manage the following student accommodation developments which are currently operating:

- Urbanest Quay Street (83 Quay Street, Haymarket);
- Urbanest Cleveland Street (157 Cleveland Street, Chippendale);
- Urbanest Sydney Central (483 Wattle Street, Ultimo); and
- Urbanest Darlington (152 City Road, Darlington).

In addition to the above, Urbanest is also set to be the owner and operator of Building W2 within the Western Plot of Darling Square. The Urbanest model adopted in these examples involves student accommodation fully furnished, ensuring that new residents only need to arrive with personal belongings, as proposed in Building W1 and adopted in Building W2.

An Operational and Security Plan of Management has been prepared by Urbanest (**Appendix K**) detailing specific measures to ensure their objective of providing the highest level of service is achieved. The management measures and framework established in this Plan are based on successful operations currently managed by Urbanest in Sydney and has been informed by the requirements stipulated in the development consent of Building W2. Specific measures include:

- Appropriately staffing the facility to ensure safety and well-being. On site management will be responsible for access control, resident communications, service recovery including complaint handling, defect monitoring, rectification processes, incident investigation and arbitration of disputes;
- Provision of an on-site manager who will always be contactable, with a manager's apartment provided in Building W1;
- Implementation of 'House Rules' which incorporate health and safety procedures and information on emergency contacts (refer to **Appendix K**);
- Carrying out of regular safety and statutory inspections;
- Management support from the Urbanest Sydney head office in regards to reviewing student applications, financing arrangements and periodic room inspections to prevent more than the required number of occupants living within a room;
- Student inductions including a tour of the building, detail of building amenities, surrounding amenity and garbage facilities;
- Display of fire safety statement, current fire safety schedule and emergency evacuation routes for the premises in the reception area and inside each room;
- Provision of information boards within common areas to advertise community issues and events, student welfare services and social events;
- Implementation of a reactive and planned maintenance strategy to ensure the longevity of the asset;
- Daily cleaning of lobbies and communal areas and bi-annual window cleaning;
- Restricted hours for use of external spaces, including the rooftop terrace on Building W2 and the central courtyard between the two buildings;
- Implementation of a complaint handling strategy including resident (student) complaints and public complaints; and
- Management of lettings under individual residential tenancy agreements.

4.0 Consultation

Consultation is recognised as an important part to the successful delivery of the SICEEP Project, with the NSW Government speaking with industry and stakeholders from day one of the Project's inception. This has continued through to inform the master planning and design development of Darling Harbour Live's preferred scheme.

A Community and Stakeholder Consultation Report (**Appendix L**) has been prepared by Elton Consulting outlining the consultation undertaken to date, specifically the consultation undertaken in regards to SSDA12. This Report outlines the key issues raised during consultation, and how these have been addressed in the design or generally throughout the project.

The level of consultation undertaken up to the lodgement of this SSDA is considered to be appropriate and justified and exceeds minimum requirements of the Department of Planning's Major Project Community Consultation Guidelines (October 2007) – therefore meeting SEARs requirements.

4.1.1 Engagement Programs

Urbanest engaged Elton Consulting to assist in undertaking a stakeholder engagement program prior to the lodgement of the SSDA. This program was carried out from 17 August to 3 September 2015 and included the following key programs:

- Stakeholder and key agency briefings;
- Newsletter notification to approximately 1,350 nearby residents and businesses; and
- A Community Information and Feedback Session (held on Thursday 27 August 2015).

Briefings were held with both The Powerhouse Museum and the University of Technology Sydney, as well as with key agencies including Transport for New South Wales (TfNSW), City of Sydney Council (Council), Ausgrid, Sydney Water and the Department. The Community Information and Feedback Session was attended by a single member of the public.

4.1.2 SSDA12 Outcomes from Consultation

Stakeholder Feedback

Feedback on the proposal was generally positive from all stakeholders. A number of considerations were raised by stakeholders and these have been addressed individually in **Table 5**.

Table 5 – Stakeholder considerations and responses

Considerations raised by Stakeholders	Response
Investigation of options to provide more direct access from the north of the building to the pocket park	A secondary door has been provided on the northern façade to allow for discrete access to the north. There is a desire in the design of Building W1 to activate the space between Buildings W1 and W2, hence the provision of the main entry door on the southern elevation of the building. It is further considered that the southern entry will be the most logical path of travel for students given the attractors located to the south of the SSDA12 Site.
Suggestion that the bike storage could have a glazed wall to the pocket park to provide greater activation	A glazed wall has been provided to the bicycle store, ensuring activation along this frontage.

Considerations raised by Stakeholders	Response
That the view of the western façade from the Powerhouse Museum be further considered	This façade has been further considered and a rich design response has been provided. There is consistency in the appearance of Buildings W1 and W2, with the darker masonry tones of these façades reflecting the warehouse aesthetic of the powerhouse museum.
Connectivity through the site from Ultimo to the Haymarket area considered important	The SSDA12 proposal will assist in enhancing the ground plane through public domain improvements, ensuring that pedestrian connections are improved and walkability is promoted.
Positive responses that the building footprint is within the approved master plan	Noted.

Agency Feedback

Feedback was also provided from the respective agencies consulted prior to the lodgement of the SSDA. The considerations raised by each of the agencies consulted and an accompanying detailed response is provided in **Table 6**.

Table 6 – Agency considerations and responses

Considerations raised by Stakeholders	Response
Windows of the western and northern facades (ground and Level 1) should be reviewed in terms of reflectivity. Window tinting or screening may be required to reduce reflectivity.	Reflectivity is addressed in Section 0 below.
Consideration should be given to the reflectivity of external signage (tram signals are white and red lights)	Reflectivity is addressed in Section 0 below.
All balustrades on the side of the building facing the train line should be high enough to prevent items being thrown on the tracks	Specific mitigation measures have been proposed for preventing large items from being thrown onto the light rail tracks (refer to Section 5.25.1).
Consideration should be given to the management of foot traffic at the Hay St intersection	Pedestrian traffic signals are being upgraded/installed on Darling Drive as part of SSDA3. These measures were determined to be adequate to ensure pedestrian safety from the Western Plot to the remainder of the Darling Square precinct and beyond.
Potential for activating the northern pocket park should be investigated	The northern pocket park is proposed to be landscaped and there are opportunities to provide seating at the base of Building W1. Bicycle parking has been included along the northern façade of Building W1 to promote activity in the northern pocket park.
Query regarding the size of the bedrooms in relation to the Sydney DCP 2012 sizes.	The Sydney DCP 2012 does not apply to the proposed development. Further discussion on the internal size of rooms is provided in Section 5.8.1.

It is noted that the proposed development will be placed on public exhibition for 30 days in accordance with clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project.

5.0 Environmental Assessment

This chapter 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 of 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 7** below.

Table 7 – Planning Issues

Planning Issues	Assessment	
	EIS	Technical Study
Secretary's Environmental Assessment Requirements	Section 5.1	-
Environmental Planning and Assessment Act 1979	Section 5.2	-
Compliance with Planning Policies	Section 5.3	-
Compliance with Environmental Planning Instruments	Section 5.4	-
Consistency with the Concept Proposal	Section 5.5	Appendix B
Design Excellence	Section 5.6	Appendix B
Built Form, Urban Design and Architecture	Section 5.7	Appendix B
Amenity	Section 5.8	Appendix B
Visual and View Analysis	Section 5.9	Appendix R
Public Domain and Landscaping	Section 5.10	Appendix C
Transport and Accessibility	Section 5.11	Appendix S
Accessibility	Section 5.12	Appendix T
Non-Indigenous Heritage	Section 5.13	Appendix E
Archaeology	Section 5.14	Appendix F
Noise and Vibration	Section 5.15	Appendix N
Infrastructure and Utilities	Section 5.16	Appendices I, U and V
Operational Waste Management	Section 5.17	Appendix J
Water Cycle Management	Section 5.18	Appendix W
Air Quality	Section 5.19	-
Reflectivity	Section 5.20	Appendix X
Geotechnical Issues	Section 5.21	Appendix G
Contamination	Section 5.22	Appendix H
Wind Impact	Section 5.23	Appendix Y
BCA	Section 5.24	Appendix Z
Light Rail Interface	Section 5.25	Appendix AA
Environmental Sustainability	Section 5.26	Appendix M
Social and Economic Impact	Section 5.27	-
Crime and Public Safety	Section 5.28	Appendix B
Environmental and Construction Management	Section 5.29	Appendix BB
Ecologically Sustainable Development	Section 0	Appendix M

Planning Issues	Assessment	
Development Contributions	Section 5.31	-
Site Suitability	Section 5.32	-
Public Interest	Section 5.33	-

5.1 Secretary's Environmental Assessment Requirements

Table 1 in Section 1.6 provides a summary which sets out the individual matters listed in the SEARs and identifies where each of these requirements have been addressed in this report and the accompanying technical studies.

The proposal is not considered to significantly impact on any matters of National Environmental Significance as defined under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). As such, no separate approval under the EPBC Act is considered necessary.

5.2 Environmental Planning and Assessment Act 1979

State Significant Development

The EP&A Act establishes a specific assessment system to consider projects classed as State significant development (SSD). SSD is development deemed to be of significance to the State and for example includes projects located in precincts regarded as important by the NSW Government, such as Darling Harbour. As noted, the proposed development the subject of this DA is classed as SSD.

Section 83B of the EP&A Act relates to staged development applications. A staged DA is one that sets out concept proposals for the development of a site, and for which detailed proposals for separate parts of the site are to be the subject of subsequent development applications. A Concept Proposal was approved for Darling Square on 5 December 2013, with consent granted for general development components and parameters.

This DA represents one of the detailed 'Stage 2' DAs within Darling Square, seeking consent for the development of Building W1 within the Western Plot (Darling Drive).

Section 83D of the EP&A Act provides that while any consent granted on the determination of a staged development application for a site remains in force, the determination of any further development application in respect of that site cannot be inconsistent with that consent. The development the subject of this proposal has been prepared in accordance with the approved Concept Proposal and is not inconsistent with the approved Concept Proposal.

This EIS has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed development. **Table 8** provides an assessment of the proposed development against the objects of the EP&A Act. **Table 9** provides an assessment of the proposal against the matters for consideration listed in section 79C of the EP&A Act.

Table 8 – Objects of the EP&A Act 1979

Object	Comment
5(a)(i) To encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.	The development of Building W1 will contribute to the proper management, development and conservation of the natural and artificial resources of the SSDA12 Site. In particular, a range of measures outlined in the Sustainability Report prepared by Northrop and included as Appendix M will be implemented to ensure the conservation of natural resources throughout the construction and operational phases, and existing artificial resources and infrastructure will be retained where practicable. The development of Building W1 will contribute to the conservation of energy and water resources, a reduction in construction and operational waste generation and will promote the welfare of future building occupants by ensuring a high level of indoor environmental quality.
5(a)(ii) To encourage the promotion and co-ordination of the orderly economic use and development of land.	The proposed development involves the orderly redevelopment of the northern portion of the Western Plot for the provision of a student accommodation building and associated public domain to support the operations of the SICEEP Site. The proposal will promote economic growth and make greater use of an underutilised Site in a prime CBD location.
5(a)(iii) To encourage the protection, provision and co-ordination of communication and utility services.	The Services Infrastructure Report (Appendix I) determines that the proposed development would not impact on the provision or coordination of communication and / or utility services. Relevant utility providers have been consulted during the development of the proposal.
5(a)(iv) To encourage the provision of land for public purposes.	The SSDA12 development supports the provision of new public domain including the provision of a new public square between Building W1 and W2, as well as general public domain upgrades to the benefit of existing and future residents, workers, and the wider community, as part of Darling Square and the overall SICEEP project.
5(a)(v) To encourage the provision and co-ordination of community services and facilities.	The proposal supports the provision of community services and facilities through providing student accommodation uses in a central location.
5(a)(vi) To encourage the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats.	The proposal will be undertaken in a highly modified and disturbed urban environment, and will not impact on biodiversity values. The SSDA12 Site is not considered to have habitat suitable for any threatened flora and fauna.
5(a)(vii) To encourage ecologically sustainable development.	The proposed development accords with the principles of Ecologically Sustainable Development, as set out in Schedule 2 of the EP&A Regulation 2000. This is further considered in Section 0 of this EIS.
5(a)(viii) To encourage the provision and maintenance of affordable housing.	The development of Building W1 will deliver new student accommodation at Darling Square, directly providing a more affordable housing alternative for students.
5(b) To promote the sharing of the responsibility for environmental planning between different levels of government in the State.	Extensive consultation has been undertaken with various levels of government and government agencies during the preparation of this proposal, and all government agencies will be afforded the opportunity for further input into the development process during the public exhibition process.
5(c) To provide increased opportunity for public involvement and participation in environmental planning and assessment.	The community consultation carried out assisted the development of the proposal and is detailed in Section 4.0 of this EIS. Further consultation will be carried out prior to the commencement of construction and throughout the construction period.

Table 9 – Assessment of matters for consideration in section 79C

Matter for Consideration	Comment
In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application: (a) the provisions of: (i) any environmental planning instrument, and	The proposal is consistent with the relevant environmental planning instruments as set out in Section 5.4.
(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and	The proposal is consistent with all relevant proposed environmental planning instruments which have been the subject of public consultation as set out in Section 5.4 and Section 5.4.1.
(iii) any development control plan, and	The proposal is consistent with the approved Stage 1 Concept Proposal.
(iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and	No planning agreement or draft planning agreement is in place and therefore this matter for consideration is not relevant.
(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and	The proposed SSDA is consistent with the relevant regulations, in particular Schedule 2 of the EP&A Regulation.
(v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979), that apply to the land to which the development application relates,	No coastal zone management plan applies to the SSDA12 Site and therefore this matter for consideration is not relevant.
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	The proposal will not have any significant adverse environment, social or economic impacts which cannot be managed or mitigated. A full environmental assessment is provided throughout Section 5.0 and an environmental risk assessment is provided in Section 6.0. A detailed list of mitigation measures is provided in Section 7.0.
(c) the suitability of the site for the development,	The SSDA12 Site is suitable for the proposed development as outlined in Section 5.32.
(d) any submissions made in accordance with this Act or the regulations,	The proposal has not yet been publically exhibited, and therefore no submissions have been made. Consultation has been undertaken and issues raised have been dealt with in the design of the proposal.
(e) the public interest.	The proposal is in the public interest as it will provide significant benefits in regard to social, economic and environmental considerations. Further details of how the proposal is in the public interest are provided at Section 5.33.

5.3 Compliance with Planning Policies

The proposal's consistency with the relevant strategies, policies and guidelines as set out in the SEARs is addressed in **Table 10**.

Table 10 – Consistency with relevant strategies, policies and guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW 2021	SSDA12 is consistent with the Strategy in that it will: ▪ encourage patronage on public transport by increasing the number of people living in close proximity to the Metro Light Rail, rail, bus and ferry services; and ▪ enhance the 'liveability' of Haymarket and its surrounding neighbourhoods by providing: – housing for students of nearby educational institutions; – new public domain enhancements to improve the ground place; and – support for improved pedestrian connectivity with surrounding precincts.
A Plan for Growing Sydney	SSDA12 is consistent with the Strategy in that it will: ▪ Accelerate accommodation supply by delivering new student housing in the Sydney CBD; ▪ Delivers a large number of student housing beds in a location close to public transport, educational institutions and jobs; ▪ Will undertake urban renewal in a transport corridor; ▪ Contributes to the Darling Harbour Live Entertainment Precinct and The Cultural Ribbon; and ▪ Revitalises and improves the amenity of Haymarket, creating a vibrant centre where people want to spend time.
Infrastructure NSW SICEEP Urban Design and Public Realm Guidelines	Detailed consideration has been given to the Urban Design and Public Domain Guidelines in the design of the Western Plot. The Design Report included at Appendix B provides a summary of how the proposal responds to key aspects of the Urban Design and Public Domain Guidelines.
Development Near Rail Corridors and Busy Roads-Interim Guideline	The proposal has been assessed against the Development Near Rail Corridors and Busy Roads-Interim Guideline. This assessment is outlined in the Noise and Vibration Report (Appendix N).
Sydney City Centre Access Strategy	SSDA12 is consistent with the Strategy in that it provides new public domain treatments which will assist walking/cycling. The provision of new student housing in a central location will result in greater public transport patronage and modal split of travel away from private car usage.
Sydney Development Control Plan 2012	The provisions of the Sydney DCP 2012 do not strictly apply to the proposed development given it is a State Significant Development Application. Nonetheless, the proposal has had regard to the objectives and intent of the Sydney DCP 2012.
Sydney Streets Design Code and Sydney Streets Technical Specification	The proposal has been designed generally in accordance with the Sydney Streets Design Code and Sydney Streets Technical Specification. The proposed public domain treatments will be consistent with the approved treatments within Darling Square, ensuring consistency across the precinct.
NSW Bicycle Guidelines	The NSW Bicycle Guidelines are generally supported by the proposal as bicycle parking is provided on-site and the proposed public domain enhancements will support the shared pedestrian/bicycle pathway approved with Building W2 (SSDA3).
City of Sydney Waste Minimisation in New Developments 2005	Whilst not strictly relevant to the proposed SSDA, the City of Sydney Waste Minimisation in New Developments 2005 has been considered in the Waste Management Plan included at Appendix J.
Interim Construction Noise Guideline	The Interim Construction Noise Guideline has been considered in the Noise and Vibration Assessment included at Appendix N.
CPTED Principles	CPTED principles are addressed in Appendix B and Section 5.28 of this EIS.

5.4 Compliance with Environmental Planning Instruments

The proposal's consistency and compliance with the relevant statutory plans and policies is summarised in **Table 11** or discussed in more detail below.

Table 11 – Consistency with relevant environmental planning instruments

Instrument	Comments
SEPP (State & Regional Development)	Pursuant to the SEPP a project within the Darling Harbour Development Area will be SSD if it has a capital investment value (CIV) of $10 million or more. The proposed development has a CIV of over $10 million, and is therefore identified as SSD and considered to be development of State and/or Regional Significance. This EIS has accordingly been prepared in support of the DA.
SEPP (Infrastructure)	The proposed development triggers consultation with the relevant rail authority under Clause 85 of the SEPP as the proposal involves works in and immediately adjacent to the Metro Light Rail corridor. The proposal is classified as traffic generating development under Schedule 3 of the SEPP, with 520 rooms being provided. No parking is proposed as part of SSDA12 and as such there is negligible traffic being generated that is attributable to the development.
SEPP 1	The proposal seeks to vary a development standard under the Affordable Rental Housing SEPP (notwithstanding this SEPP does not technically apply).
SEPP 55 (Remediation of Land)	Clause 7 of SEPP 55 specifies that a consent authority must not consent to the carrying out of any development on land unless it has considered whether land is contaminated and if the land is contaminated, it is satisfied that the land is/can be suitable for the proposed development. A Site Audit Report has been prepared for the SSDA12 Site by Environ and is included at Appendix H. The Site Audit Report confirms that none of the areas which require remediation defined in the site-wide RAP are present within the SSDA12 Site and as such, no remediation is required. Furthermore, testing has occurred on site and no unexpected finds of volatile or leachable contamination were identified. Environ has confirmed the site is suitable for the proposed use.
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005	The proposal's consistency with the Sydney Harbour Catchment REP is outlined in Section 5.4.1 below.
Darling Harbour Development Plan No.1	The proposal's consistency with the Darling Harbour Development Plan No.1 is outlined in Section 5.4.2 below.
State Environmental Planning Policy (Affordable Rental Housing) 2009	The proposal's consistency with the Affordable Housing SEPP is outlined in Section 0 below.
State Environmental Planning Policy No. 64 – Advertising and Signage	The proposal's consistency with the SEPP 64 is outlined in Section 5.4.4 below.

5.4.1 Sydney Harbour Catchment REP

The SSDA12 Site is identified within the following areas under the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (SREP):

- the Sydney Harbour Catchment Area;
- the Foreshores & Waterways Area Boundary; and
- the City Strategic Foreshores Area.

Part 3, Division 2 within the SREP refers to matters which are to be taken into consideration by consent authorities before granting consent for development. **Table 12** illustrates the proposal's consistency with the relevant provisions and matters for consideration set out in clauses 20 to 27 of the SREP.

Table 12 – Consistency with relevant provisions of the SREP

Relevant matters for consideration	Comment
Biodiversity, ecology and environment protection	WSUD measures are proposed as part of SSDA12 to manage stormwater runoff and water quality. Vegetation proposed within the public domain will incorporate a range of native species contributing to biodiversity, and will enhance the ecological qualities of Darling Square.
Public access to, and use of, foreshores and waterways	The proposed development improves access to the Sydney Harbour Foreshore through supporting upgraded elements of the public domain as part of the overall SICEEP project.
Maintenance of a working harbour	The proposal does not relate to 'working waterfront' land, therefore no 'working harbour' uses will be lost as a result of the proposed development.
Interrelationship of waterway and foreshore uses	The proposal does not directly impact upon access to or uses within the waterway.
Foreshore and waterways scenic quality	The proposed development is located a sufficient distance away from the foreshore and its waterways to ensure it will have no impact upon its scenic qualities.
Maintenance, protection and enhancement of views	A View and Visual Impact Analysis was prepared for the SICEEP project and submitted with the Concept Proposal for Darling Square. This analysis examined the impact (including cumulative impacts) of the proposed development upon views to and from Sydney Harbour, public places, landmarks and heritage items, and considered those impacts to be acceptable. Updated photomontages including the detailed design of Building W1 are included and discussed in Section 5.9 below.
Boat storage facilities	Boat storage facilities are not proposed as part of the proposed development.
Clause 59 - development in the vicinity of heritage items.	Heritage is addressed at Section 5.13 of this EIS and at Appendix E.

5.4.2 Darling Harbour Development Plan No.1

The DHDP is the principal planning instrument applicable to the SICEEP Site, and more specifically the SSDA12 Site. It provides a broad framework for development, principally through identifying permissible uses.

The objectives of the DHDP are to encourage the development of a variety of tourist, educational, recreational, entertainment, cultural and commercial facilities, and to set out those uses which are deemed permissible.

The proposal is consistent with these objectives as part of the SICEEP Project. The SICEEP Project will deliver new world class convention, exhibition and entertainment facilities, and will re-position Sydney as the major events and business venue in the Asia-Pacific region.

This SSDA seeks consent for the construction of Building W1 and its use for residential purposes (student accommodation). Under the DHDP residential buildings are permissible, yet no definition of 'residential buildings' is provided under the DHDP.

The DHDP specifies that definitions of undefined terms can be gained from the City of Sydney Planning Scheme Ordinance (CSPSO). Under the CSPSO, residential buildings are defined as:

> *"a building used or intended for use as a residential flat building, a boarding-house, a lodging house or a hostel, but does not include a motel".*

For the purposes of the DHDP, the proposed student accommodation use is capable of being considered to be characterised as a hostel (being a permissible type of residential building for the purposes of the DHDP). The proposed student accommodation use is also capable of being characterised as and a boarding-house (which is another permissible type of residential building for the purposes of the DHDP). Accordingly, irrespective of which characterisation is to be preferred, it is clear that both are permissible within the SICEEP Site under the DHDP (using the ordinary meanings of both terms), and therefore permissible under the DHDP by virtue of such uses being listed within the definition of a 'residential building'.

To the extent that the management and operation of this student accommodation building is to be characterised, it is considered that this management use is ancillary or incidental to the use of providing residential accommodation to students. In any case, even if the commercial aspects of the proposed management use are considered on a standalone basis, such a commercial use is permissible at the SSDA12 Site under the DHDP.

Other works proposed as part of this SSDA, including the associated public domain works and the realignment of Darling Drive are permitted under Clause 6(d) and (e) of the DHDP. **Table 13** specifies the proposed elements of SSDA12 and their permissibility under the DHDP.

Table 13 – Permissibility of proposed development

Component	Darling Harbour Development Plan No 1	Permissible?
Residential Buildings	Clause 6 (d) of DHDP - Schedule 1 includes 'residential building' as a permissible use. *Note: Proposed student accommodation is addressed above.*	Yes
Public domain improvements	Clause 6 (a) of DHDP includes development for the purposes of recreational facilities as a permissible use. Clause 6 (c) of DHDP includes development for the purposes of beautifying the landscape as a permissible use. Clause 6 (d) of DHDP – Schedule 1 includes 'parks and gardens' as a permissible use. Clause 6 (e) of DHDP includes development for any purpose incidental or subsidiary to permitted development as a permissible use.	Yes
Remediation	Clause 6 (e) of DHDP includes development for any purpose incidental or subsidiary to permitted development as a permissible use.	Yes
Signage e.g. wayfinding, building identification	Clause 6 (a) of DHDP includes development for the purposes of tourist, educational, recreational, entertainment, cultural facilities or commercial facilities as a permissible use. Clause 6 (c) of DHDP includes development for the purposes of beautifying the landscape as a permissible use. Clause 6 (e) of DHDP includes development for any purpose incidental or subsidiary to permitted development as a permissible use.	Yes
Extension/ Augmentation of infrastructure	Clause 6 (d) of DHDP – Schedule 1 includes 'public utility undertakings' and 'utility installation' as a permissible use. Clause 6 (e) of DHDP includes development for any purpose incidental or subsidiary to permitted development as a permissible use.	Yes

5.4.3 State Environmental Planning Policy (Affordable Rental Housing) 2009

The SEARs has requested an assessment of the proposal is provided against the provision of *State Environmental Planning Policy (Affordable Rental Housing) 2009* (Affordable Housing SEPP). Although the Affordable Rental Housing SEPP does not strictly apply to the proposal, this assessment has been undertaken, as set out in **Table 14**.

The proposal is consistent with the majority of development standards of the Affordable Housing SEPP except for the provision of bicycle and motorcycle parking. As such, a written objection to this development standard has been made under *State Environmental Planning Policy No. 1 – Development Standard*s (SEPP 1) (refer to **Appendix O**).

Table 14 – Proposal's consistency with the Affordable Housing SEPP

Relevant Planning Controls		Proposal	Compliance
General Provisions			
Landscaped area	Landscape treatment of the front setback is compatible with the streetscape	Landscape treatment has been designed to be compatible with the proposed streetscape improvements.	Yes
Solar Access	Where the development provides for one or more communal living rooms , if at least one of those rooms receives a minimum of 3 hours direct sunlight between 9am and 3pm in mid-winter	Communal rooftop terrace on Building W2 (currently under assessment) receives >3 hours sunlight. The various communal living spaces within Building W1 will also receive good levels of solar access.	Yes
Private Open Space	If at least the following private open space areas are provided (other than the front setback area): (i) one area of at least 20 square metres with a minimum dimension of 3 metres is provided for the use of the lodgers,	Communal rooftop terrace on Building W2 (currently under assessment) = 64m^2, dimensions = 4.2 x 15.3m The ground level lobby in Building W1 is also a significant area of communal open space, with a size of 28m^2 and dimensions of 3.8 x 7.36m.	Yes
	(ii) if accommodation is provided on site for a boarding house manager—one area of at least 8 square metres with a minimum dimension of 2.5 metres is provided adjacent to that accommodation,	No private open space exclusively for manager (as approved under Building W2)	No
Car Parking	if: (i) in the case of development in an accessible area—at least 0.2 parking spaces are provided for each boarding room , and (ii) in the case of development not in an accessible area—at least 0.4 parking spaces are provided for each boarding room, and (iii) in the case of any development—not more than 1 parking space is provided for each person employed in connection with the development and who is resident on site,	The proposal does not provide any on-site car parking	Yes

Relevant Planning Controls		Proposal	Compliance
Minimum Accommodation size	if each boarding room has a gross floor area (excluding any area used for the purposes of private kitchen or bathroom facilities) of at least: (i) 12 square metres in the case of a boarding room intended to be used by a single lodger, or (ii) 16 square metres in any other case.	Typical single room (excl. bathroom) = 10.9m^2 Typical twin share room (excl. bathroom) = 19.1m^2	No (Refer to discussion in Section 5.8.1) Yes
'Development Standards'			
Communal living room	If a boarding house has 5 or more boarding rooms, at least one communal living room is provided.	Communal living rooms are provided throughout Building W1.	Yes
Maximum Accommodation size	no boarding room will have a gross floor area (excluding any area used for the purposes of private kitchen or bathroom facilities) of more than 25 square metres	No rooms (excluding bathroom areas) exceed 25m^2	Yes
Room Occupancy	no boarding room will be occupied by more than 2 adult lodgers	No boarding room will be occupied by more than 2 adult lodgers	Yes
Bathroom and kitchen facilities	Adequate bathroom and kitchen facilities will be available within the boarding house for use by each lodger	Each room is provided with an ensuite and a common kitchen servery for Buildings W1 and W2 is provided on Level 1 of Building W1.	Yes
Manager Accommodation	If a boarding house has capacity to accommodate 20 or more lodgers, a boarding room or on site dwelling will be provided for a boarding house manager	A manager's apartment has been approved in Building W2. Buildings W1 and W2 will be managed in an integrated manner.	Yes
Bicycle/motorcycle parking	at least one parking space will be provided for a bicycle, and one will be provided for a motorcycle, for every 5 boarding rooms.	90 bikes 0 motorbikes	No No (Refer to the SEPP No. 1 Objection provided at Appendix O)

5.4.4 State Environmental Planning Policy No. 64 – Advertising and Signage

State Environmental Planning Policy No 64- Advertising and Signage (SEPP 64) applies to all signage that under an environmental planning instrument can be displayed with or without development consent and is visible from any public place or public reserve. As discussed in Section 3.6 and illustrated at **Appendix B**, signage zones (to accommodate Building Identification) are proposed to be included on the residential building. It is noted that details of the exact content, materiality, and illumination etc. of signs within these zones will be the subject of approval by the Secretary prior to the issue of the relevant construction certificate, consistent with the approval of SSDA3 (Building W2).

Under clause 8 of SEPP 64, a consent authority must not grant consent for any signage application unless the consent authority is satisfied that the proposal is consistent with the objectives of the SEPP and with the assessment criteria which are contained in Schedule 1.

Under clause 9 of SEPP 64, Part 3 does not apply to 'building identification signs' (amongst others). Therefore, as Part 3 of SEPP 64 does not apply to the proposed signage, the requirements to refer the application to RTA, to advertise the development, as well as the size restrictions, etc are not applicable.

Table 15 below demonstrates the consistency of the proposed signage zones with the assessment criteria contained in Schedule 1 of SEPP 64.

Table 15 – Compliance with the Schedule 1 Assessment Criteria of SEPP 64

Assessment Criteria	Comments	Compliance
1 Character of the area		
Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?	The proposed signage is compatible with the future character of Darling Square, being a lively mixed use precinct.	Y
Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	The proposal is consistent with the design intent for signage across Darling Square. The signage is part of the creation of a new theme within the locality.	Y
2 Special areas		
Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?	The proposed signage is consistent with the provision of signage within the Sydney CBD, Darling Harbour and Cockle Bay and will not detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, open space areas or waterways.	Y
3 Views and vistas		
Does the proposal obscure or compromise important views?	The proposed signage is integrated with the Building W1 and will not result in any obstruction of views. The location and content of signage will not otherwise compromise important views within the precinct.	Y
Does the proposal dominate the skyline and reduce the quality of vistas?	The proposed signage will sit below the ridgeline of the proposed building and will not dominate the Pyrmont/Ultimo skyline.	Y
Does the proposal respect the viewing rights of other advertisers?	The proposed signage does not impact upon the viewing rights of other advertisers.	Y
4 Streetscape, setting or landscape		
Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?	The scale, proportion and form of the proposed signage is consistent with the setting of Darling Square which will form a mixed use precinct within the Sydney CBD.	Y
Does the proposal contribute to the visual interest of the streetscape, setting or landscape?	The proposed lower level signage contributes significantly to the streetscape, creating visual interest along the ground plane and demarcating the entry to the building on the southern façade.	Y
Does the proposal reduce clutter by rationalising and simplifying existing advertising?	The proposal relates to the development of a new residential building and new signage, therefore no existing advertising exists.	N/A
Does the proposal screen unsightliness?	The proposed signage is integrated with the architecture of the proposed building and will be applied to building facades. The proposal adds visual interest in addition to the high quality materials on each façade.	N/A
Does the proposal protrude above buildings, structures or tree canopies in the area or locality?	The proposed signage does not protrude above the upper building line of Building W1.	Y
Does the proposal require ongoing vegetation management?	The proposed signage will not require ongoing vegetation management.	Y
5 Site and building		
Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?	The proposed signage has been designed to be fully compatible with the proposed building and located to be compatible with the architecture of the building.	Y

Assessment Criteria	Comments	Compliance
Does the proposal respect important features of the site or building, or both?	The proposed signage has been located in the most architecturally appropriate locations to assist in place identification and wayfinding.	Y
Does the proposal show innovation and imagination in its relationship to the site or building, or both?	The proposed signage has been fully integrated with the building architecture.	Y
6 Associated devices and logos with advertisements and advertising structures		
Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?	All illumination will be fully integrated with the building structure. The Urbanest logo will be designed as an integral component of the signage.	Y
7 Illumination		
Would illumination result in unacceptable glare? Would illumination affect safety for pedestrians, vehicles or aircraft?	Illumination of signage will not result in unacceptable glare. The size and positioning of the proposed signage is discrete and will not affect safety for pedestrians, vehicles or aircraft.	Y
Would illumination detract from the amenity of any residence or other form of accommodation?	The location and orientation of illuminated signage is such that it will not impact on nearby residential receivers.	Y
Can the intensity of the illumination be adjusted, if necessary? Is the illumination subject to a curfew?	Darling Harbour, including Darling Square, is an established tourism precinct which will accommodate activity well into the evening and night time. As such it is not considered necessary or appropriate to impose a curfew on the illumination of signage. Illumination of signage, including and any dimming measures, will be incorporated in the detailed design of the signage.	Y
8 Safety		
Would the proposal reduce safety for any public road?	The proposed signage has been setback and elevated from Darling Drive. Located in order to avoid any impacts on the road.	Y
Would the proposal reduce safety for pedestrians/cyclists?	As noted above, the proposed signage has been setback from Darling Drive and located in order to avoid any impacts to pedestrians/cyclists.	Y
Would the proposal reduce safety for pedestrians, particularly children, by obscuring sightlines from public areas?	The proposed signage is integrated with Building W1 and will not obscure sight lines from public areas.	Y

5.5 Consistency with Darling Square Concept Proposal (SSD 13_5878)

5.5.1 Gross Floor Area

SSDA12 represents the sixth application progressed under the Darling Square Concept Proposal. **Table 16** below provides a reconciliation of GFA approved/proposed to date, demonstrating compliance with the approved SSDA2 Concept Proposal. A detailed assessment of the proposal against the conditions of consent within the Stage 1 Concept Proposal is provided at **Appendix P**.

Table 16 – GFA approved/proposed within Darling Square

Application	GFA Approved/Proposed (m^2)
	Residential
Western Plot (Student Accommodation – Building W2)	14,354
North-West Plot (Public car park/ commercial office building)	-
South-West Plot (Mixed Use Residential Development)	44,812
North-East Plot (Mixed Use Residential Development)	51,602
Western Plot (Student Accommodation – Building W1)	*13,209*
Total	123,977
Maximum approved under Concept Proposal	147,691
Total Remaining	23,714

5.5.2 Built Form and Land Use

The proposed development has been designed to be consistent with the approved Concept Proposal. The proposed development's consistency with key development parameters of the Concept Proposal is demonstrated in **Table 17**. SSDA12 is entirely within the maximum envelope illustrated in the Concept Proposal.

Table 17 – Consistency with the Concept Proposal

Component	Concept Proposal	Proposed Development	Consistent
Land Use	Residential (student accommodation)	Residential (student accommodation)	✓
Height	Maximum RL 75.2	Maximum RL75.2	✓
Building Depth	Maximum 20 metres (plus 500mm articulation zone)	Maximum 16.94m	✓
Building separation	Minimum 10 metres (to Building W2)	10 metres	✓

5.5.3 Design Guidelines

Denton Corker Marshall (DCM) prepared a set of Design Guidelines for Darling Square with the Concept Proposal. These guidelines have the key function of informing subsequent building design development within the staged delivery of the precinct (including SSDA12). The consistent application of these guidelines will ensure that future development in Darling Square is of a high quality with integrated urban design and a mutually successful outcome.

The proposal's consistency with the Design Guidelines is demonstrated in detail in the Design Report prepared by Allen Jack + Cottier (**Appendix B**).

5.5.4 Public Domain

The Concept Proposal establishes a general public domain concept across Darling Square. All components of the public domain within the SSDA12 site boundary have been provided generally in accordance with the Concept Proposal.

A detailed analysis of the proposal's compliance with the relevant public domain considerations in the Concept Proposal Design Guidelines has been prepared by Aspect Studios, and is included as an appendix to the Design Report provided at **Appendix B**.

5.6 Design Excellence

5.6.1 Context

The achievement of design excellence for the redevelopment of the SICEEP Site has been an important theme since the project's genesis and inception, and is clearly linked to the Project Vision set by the NSW Government (i.e. delivering world–class convention, exhibition and entertainment facilities and reaffirming Darling Harbour as Australia's premier gathering place).

More specifically, one of the NSW Government's objectives for the SICEEP Project in fulfilling the vision includes *'demonstrate excellence in design and environmental sustainability'*.

A mix of techniques are being utilised to create design excellence. The Government intent is to ensure a 'Precinct Outcome' whereby design forms an integral component of the consortium. A 'precinct plan' was required as the overarching document, guiding all aspects of the proposal. Through development of the precinct plan within the consortium team, the competing interests of urban design, facility functionality, operational logistics and commercial realities were balanced. Further, using a number of acclaimed architects will create architectural diversity.

5.6.2 Design Review Panel

As an initial step in ensuring design excellence is delivered, INSW established and appointed a Design Review Panel (DRP). The DRP is chaired by the Government Architect and includes the following membership:

- Peter Poulet (NSW Government Architect);
- Yvonne von Hartel AM – (Founding Principal of peckvonhartel); and
- Kim Crestani (formerly Principal Manager, TfNSW).

In addition to the formal appointment of members to the DRP, there are also observers involved.

The Terms of Reference (TOR) established by INSW for the DRP were:

1. Provision of advice on proposed architectural and urban design guidelines.
2. Review of proponent concepts during the tender development phase.
3. Provision of advice to Infrastructure NSW regarding design submissions.
4. Review of design development documentation for the preferred proponent.
5. Provision of specialist design advice as required by Infrastructure NSW.

As evident from the TOR, the DRP has and will continue to play a crucial role in championing design excellence for the SICEEP Project. The detailed design of the proposed architectural scheme for Building W1 was presented on 20 March 2015 and 26 August 2015. Notes from the meeting are attached at **Appendix Q**.

At this meeting, the DRP were generally supportive of the proposal and all considerations raised have been addressed in the final design.

5.6.3 Urban Design Guidelines

Woods Bagot was engaged by INSW to prepare Urban Design and Public Realm Guidelines (Urban Design Guidelines) for the SICEEP Project, which provided a framework for the realisation of the Project Vision.

These Guidelines formed an important starting point and basis for the design concepts and Master Plans of the shortlisted consortia Darling Harbour Live (formerly known as 'Destination Sydney') and VeNuSW. Key design excellence principles set out within the Urban Design and Public Realm Guidelines include:

- Creating new connections in the east-west and north-south direction and helping to knit the city fabric together;
- Using appropriate building height, alignment, form, grain and massing;
- Using appropriate materials suited to the local area palette;
- Responding to the adjacent items of heritage significance through the design of alignments, proportions, and solid to void ratios;
- Preserving significant view corridors;
- Minimising loss of solar access to the public domain;
- Preventing loss of privacy by overlooking of adjacent properties;
- Providing a new landmark for Darling Harbour, increasing the visual presence of facilities in the City and enriching the composition of the city skyline;
- Presenting a new face to the city, one that engages with people at street level and that enhances quality of the street life;
- Providing a constant presence of events both day and night which will create a critical mass and be responsive to the current and emerging city fabric; and
- Providing signature spaces that are open to the parklands and Darling Harbour and in the process showcasing the City and making it an integral part of the convention experience.

5.6.4 Selection of the Preferred Proponent

Design was a major component of the evaluation process undertaken by the NSW Government in selecting the preferred proponent. The overall RFP and selection process of the preferred proponent in this regard closely mirrored a City of Sydney Council 'invited' competitive design alternatives process. For example:

- Two shortlisted consortia were selected and invited to submit a proposal/design and compete for the role of preferred proponent;
- A project brief was issued to each consortia by INSW on which to formulate and base its proposal, including setting out evaluation criteria;
- Each consortium was given a set timeframe in which to prepare and submit their proposals;
- After submission, each consortium was given the opportunity to present their proposal to INSW; and
- An Evaluation Panel (jury) was appointed by INSW to assess, evaluate and recommend the nomination of a successful proponent.

Underpinning each of the shortlisted consortium's bids for the SICEEP Project were both renowned international and Australian design, architectural and landscape firms (all of which have demonstrated design excellence ability). Given the importance of design in selecting the preferred proponent, the involvement of the DRP and with two high calibre design teams competing against one another in multi architect/designer terms, the realisation of achieving design excellence in delivering the SICEEP Project by the Preferred Proponent has been assured.

5.6.5 Detailed Design Development of the Darling Harbour Live Precinct Plan

Design excellence in implementing the Darling Harbour Live Preferred Precinct Plan will be achieved through:

- Retaining an Australian renowned design team which is recognised for design innovation and excellence throughout the delivery of the project;
- Continuing regular and collaborative meetings with the DRP in the ongoing design and refinement of future DAs for which planning approval will be sought (refer to **Appendix Q** for details of meetings held with the DRP in relation to this SSD DA);
- Utilising a variety of architects in delivering the detailed design for future buildings and public/private realm within the Concept Proposal, for instance the use of Allen Jack + Cottier and Aspect Studios in this instance; and
- Utilising the Darling Harbour Live consortium's skills and proven track record to deliver world class convention, exhibition and entertainment facilities, a high quality, expanded and re-invigorated public domain, and a new neighbourhood with a vibrant and exciting mix of commercial, residential, and retail uses.

5.7 Built Form, Urban Design and Architecture

The approved Concept Proposal for Darling Square establishes the built form parameters for the proposed development, including building height, footprints and setback from existing and future development. The Concept Proposal provides for a built form that is responsive to the context and characteristics of Darling Square, including existing built form, the character of surrounding precincts, the location of Darling Square within a transitional zone on the CBD fringe, and in close proximity to public transport.

As set out in Section 5.5 the proposal is generally consistent with the Concept Proposal. The key elements of the built form and urban design of Building W1 are explored below.

5.7.1 Building Height and Scale

The Concept Proposal responds to the context of Darling Square's position at the CBD edge, and also with the Darling Harbour topography and the context of existing surrounding buildings. Building W1 will form the western edge of Darling Square along with the approved Building W2.

The height of Building W1 and its thin design assist in delineating the transition zone from Central Sydney to Ultimo. When viewed together, Buildings W1 and W2 create a street wall to Darling Drive and transition up the valley of Darling Harbour, reinforcing the outer boundary of Sydney's CBD.

5.7.2 Urban Design

The proposal's consistency with the Design Guidelines ensures that a high quality of urban design is achieved not only in regards to the form of Building W1, but also in the surrounding public domain. The proposal allows not only a highly functional, but also an aesthetically pleasing design which will form a strong edge to Darling Square.

In addition to exhibiting a high level of visual interest in the exterior of the building through a careful selection of materials, Building W1 also strongly connects with Building W2 at the ground plane through the provision of a colonnade (refer to **Figure 26**). The colonnade provides consistency across the Western Plot, and when accompanied with the proposed high quality landscaping scheme, will ensure an activated and animated ground plane experience is achieved.

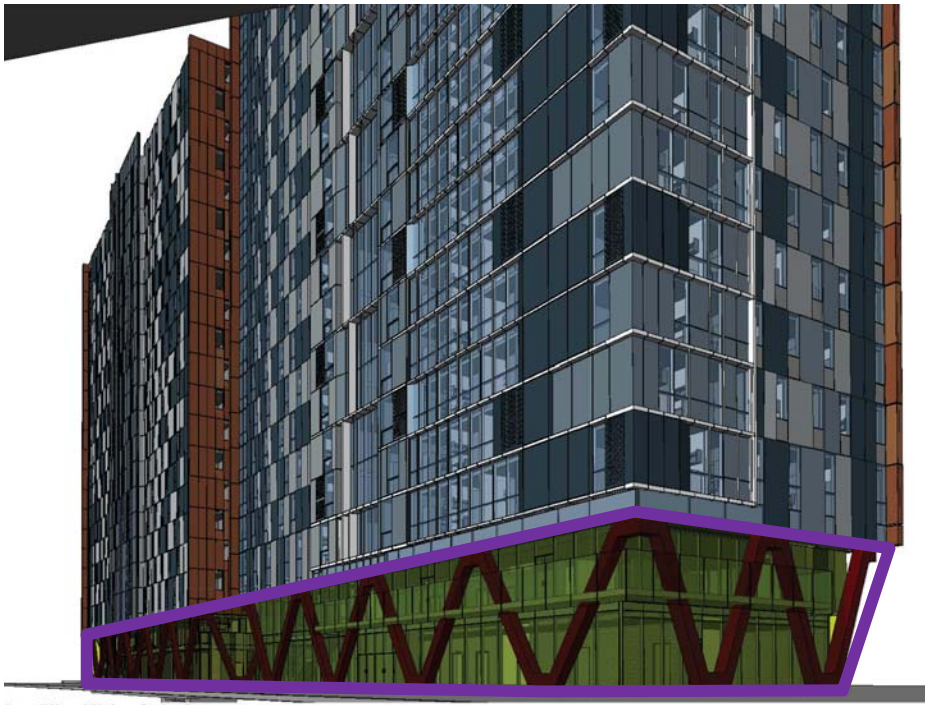

Figure 26 – Colonnade continuation of Buildings W1 and W2 (shown in purple outline)

5.7.3 Overshadowing

A Shadow Study of the proposed design has been undertaken by Virtual Ideas and included within the Design Report prepared by Allen Jack + Cottier (refer to **Appendix B**).

There are no overshadowing controls applicable to the proposed development, however the City of Sydney Development Control Plan 2012 is applicable elsewhere in the Sydney LGA and prescribes the following:

- A minimum of 70% of dwellings adjacent to the proposed development must achieve a minimum of two hours direct sunlight between 9am and 3pm on 22 March and 21 June on to at least 1m^2 of living room windows and a minimum 50% to private open space.
- No additional overshadowing should occur onto a neighbouring dwelling that currently receives less than two hours of direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm.

Assessment of the Proposal

The shadow diagrams indicate that when compared to the existing situation, the proposal will result in some additional overshadowing during the equinox and winter solstice, more specifically to:

- Darling Drive throughout the day during the equinox and winter solstice; and
- The Powerhouse Museum courtyard (including the children's play area) during the morning hours.

The shadow cast by the proposed buildings is slightly less than the shadow envisaged for the approved Concept Proposal envelope. This is due to Building W1 being contained within the approved building envelope for the Western Plot (Darling Drive).

Furthermore, the shadow cast by Building W1 does not fall within any significant places of public domain, therefore not resulting in any adverse impacts on the amenity of such a space. The shadow cast by the proposed building largely falls on the roofs of existing buildings or on buildings which will be contained with Darling Square. Where shadow is cast onto buildings in Darling Square, specifically those approved in the North-West and South-West Plots, the shadow is contained to the late afternoon hours and will not detrimentally affect any residential apartments receiving solar access as calculated with the relevant SSDAs.

Whilst the proposal will involve the shadowing of the existing playground within the Powerhouse Museum courtyard, it is noted that the playground is substantially covered by shadow via a shade cloth and existing trees. This playground has been identified as potentially being redeveloped in the future for a non-residential use.

In light of the above, the proposed development is not likely to create any significant overshadowing to adjoining private residences or public spaces, and generally complies with the controls of the Sydney DCP 2012. Accordingly, the overshadowing impacts associated with SSDA12 are acceptable.

5.8 Amenity

The design of Building W1 has taken into consideration planning policies and controls which would generally apply to development of this type and scale, including the SEPP (Affordable Rental Housing), Section 4.4.1 of the City of Sydney DCP 2012.

As set out in Clause 11 of the SEPP SRD, development control plans do not apply to SSD. As such, the Sydney DCP 2012 does not apply to the proposal. The SEPP (Affordable Rental Housing) also does not strictly apply to the proposal as affordable housing is not proposed, yet the controls within the SEPP (Affordable Rental Housing) act as a suitable guide due to the nature of the residential development being used to house students.

The key amenity considerations of the proposal are set out below.

5.8.1 Internal Room Amenity

As set out in Section 0, the proposal is not numerically consistent with the minimum room sizes set out in the SEPP (Affordable Rental Housing) for single studios. The proposal is consistent with the minimum size recommended for two bedroom rooms.

The single studios have a size of 10.9m^2, constituting a 1.1m^2 variance to the recommended size in the SEPP (Affordable Rental Housing). The proposed single room sizes are considered to be acceptable for the following key reasons:

- The rooms are designed in an efficient and logical manner, providing appropriate clearances and spacing to maximise internal amenity and functionality;
- The more efficient size of the rooms will encourage students to make use of the significant communal areas provided across Buildings W1 and W2;
- The provision of these single rooms will provide an alternative product type across Buildings W1 and W2, providing greater choice for students;
- The single rooms will represent a more affordable option for some students, whilst still allowing these students to have access to the amenities of both buildings; and
- The Western Plot is located in Darling Square within close proximity to a number of new and future services and facilities, as well as existing educational institutions.

A key aim for Building W1 is to provide a range of larger communal spaces throughout the building to facilitate interaction amongst residents and nurture younger or first year students who may not have extensive networks and relationships within Sydney. There are significant communal open spaces provided across Building W1, all of varying size and nature to ensure a wide spectrum of activities are facilitated and the needs of students are met.

Through providing efficient room layouts which are not oversized, students will be encouraged to utilise the communal areas provided in the building, as well as the rooftop terrace to be provided in Building W2. **Table 18** below provides an overview of the type and quantum of communal open spaces provided throughout Building W1, including the Building W2 rooftop terrace.

Table 18 – Type and quantum of communal facilities provided

Communal Open Space Type	Location	Approximate Size (m^2)
Building W1		
Lounges, study desks and break out spaces	Ground Level	175m^2
Common dining area and lounge	Level 1	344m^2
Common areas (including lounges, study spaces/pods, TV areas, seating areas, or general break out opportunities)	Levels 3 to 20	311m^2
Multipurpose common room	Level 21	51m^2
Total		*881m^2*
Building W2		
Outdoor terrace with BBQ facilities and seating	Roof level	64m^2
Total		*64m^2*
Public Domain		
Macarthur Square	Ground plane (south of Building W2)	455m^2
North Park	Ground plane (between Buildings W1 and W2)	310m^2
Central Courtyard	Ground plane (north of Building W1)	260m^2
Total		*1,025m^2*

As evidenced in **Table 18** above, a significant range and quantum of communal spaces will be provided with the approved/proposed student accommodation developments. Any amendment to the size of the single rooms would begin to erode the quantum of communal open space which is considered to be a poor outcome for the amenity of residents and the desire in particular for Building W1 to accommodate the needs of new and younger students.

Furthermore, the proposed single studio sizes are consistent with the approved Building W2. The approval of single studio sizes of 10.3m^2 in Building W2 was an acknowledgment that the location of the Western Plot within Darling Square is optimal, offering student's significant amenities in terms of proximity to services, facilities and educational institutions. Building W1 also possesses these positive locational attributes, as well as significant communal open spaces for students.

5.8.2 External Open Space

As outlined above, external open spaces are provided at the ground plane and also on the rooftop of Building W2 (subject to current modification). The rooftop terrace will offer private external open space to all residents, whilst the ground plane will comprise shared public domain which can be enjoyed by the general public.

The ground plane spaces will provide a mixture of seating areas and shading trees, as well as a more active space between the two buildings with the outdoor screen and various fixed furniture features encouraging external activities.

Furthermore, the location of the SSDA12 Site in Darling Square in the western fringe of Sydney's CBD also ensures that there are a variety of high quality areas of open space in close proximity to the Site, such as the future Square, Tumbalong Park and Cockle Bay.

5.8.3 Storage

In excess of one cubic metre of storage is provided to each bed. Each room is also provided with wardrobe space and a desk. Bicycle storage is provided on the Ground Level. This approach is consistent with approved Building W2 (SSDA3).

5.8.4 Solar Access

Due to the location of the SSDA12 Site and orientation of Building W1, the eastern, northern and western façades each receive good solar access (see **Figure 27**). A minimum of 10% of glazed area has been provided on the façade of each room, ensuring all rooms have access to daylight.

Solar control to prevent excessive heat gain on the western façade has been provided in the form of high performance glazing and deeply recessed windows. Sun shading is also provided on the northern and eastern elevations.

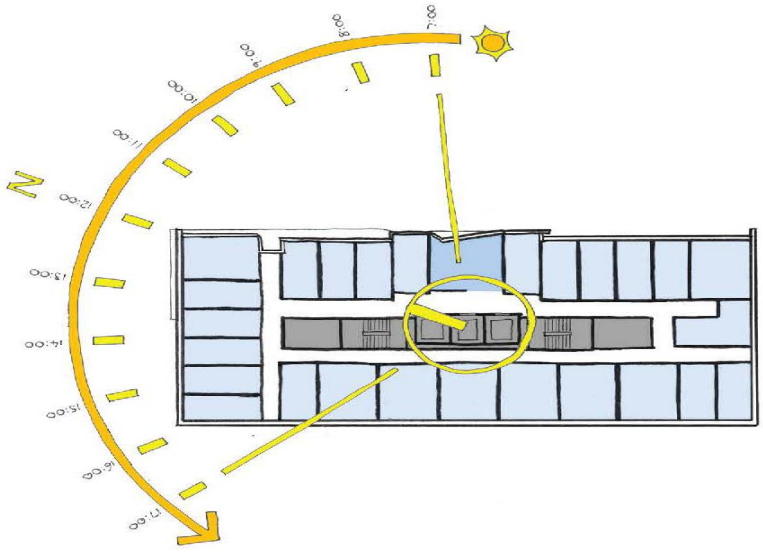

Figure 27 – Solar access diagram

5.8.5 Natural Ventilation

Individual Rooms

An opening area of 5% of the floor area in each room is provided to every bedroom, ensuring adequate natural ventilation. Furthermore, the majority of twin rooms have dual orientation, therefore maximising ventilation where a greater number of people are located (refer to **Figure 28**).

The provision of 1500mm high windows to each room also improves the opportunity for air to enter into individual rooms. Single sided ventilation is considered acceptable due to the smaller size of these individual rooms. The combination of external shading and cross ventilation will allow for the achievement of a comfortable internal climate.

Common Corridors

Natural ventilation will be achieved throughout the common corridors by providing openings at the end of three sides of the corridors (refer to **Figure 28**). These openings will not only result in improved ventilation, but also allow daylight into the lobby of the building.

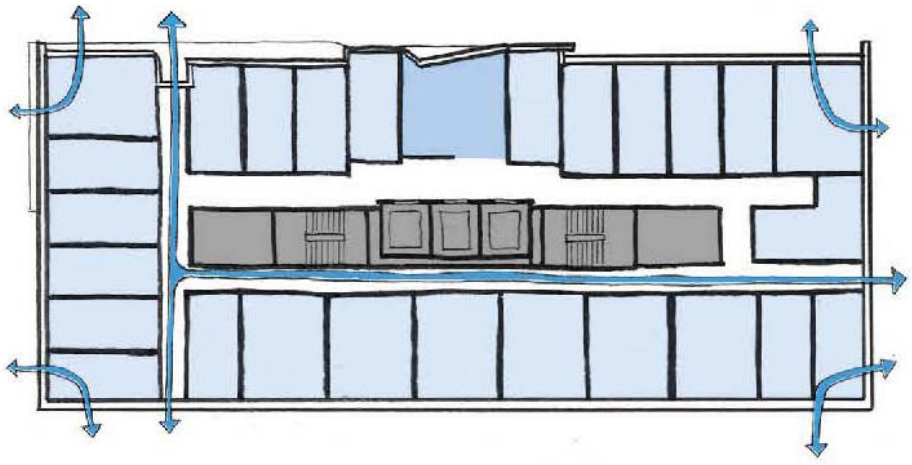

Figure 28 – Natural ventilation diagram

5.8.6 Building Separation

The separation of buildings within Darling Square and also to the existing built form has been established under the approved Concept Proposal. The establishment of these building envelopes in the Concept Proposal has taken into account a variety of objectives, including maintaining acoustic and visual privacy; controlling adverse overshadowing impacts; promoting daylight access, and providing for adequate open space and deep soil zones within Darling Square.

The separation of Building W1 to the future approved North West Plot public car park/commercial development across Darling Drive is generally 37 metres. Separation from the Powerhouse Museum to the west is generally 14 metres. Given the use of these adjoining buildings, and the substantial separation distances provided, the proposal will achieve a high level of acoustic and visual privacy and generally unimpeded daylight access.

Importantly, Buildings W1 and W2 have been designed to minimise any privacy concerns through features such as recessed windows and orientating rooms away from other rooms where possible. The separation distance of ten metres between these buildings (consistent with the approved Concept Proposal), accompanied by these design features, will ensure that an appropriate level of privacy is achieved.

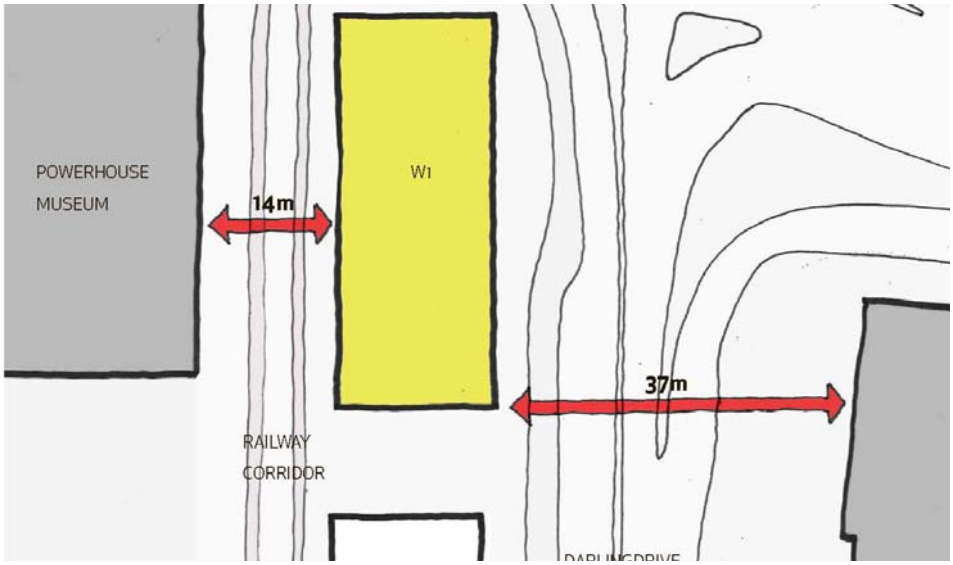

Figure 29 – Building W1 Separation

5.8.7 Views

Due to the location of the SSDA12 Site and the built form of the proposed development, lower level rooms will be provided with pleasant outlooks over the new public domain, whilst upper level rooms will be benefited with district views (refer to **Figure 30**). Common areas have been provided generally in the centre of the eastern façade, allowing all residents to have access to the views east and north-east towards Darling Harbour.

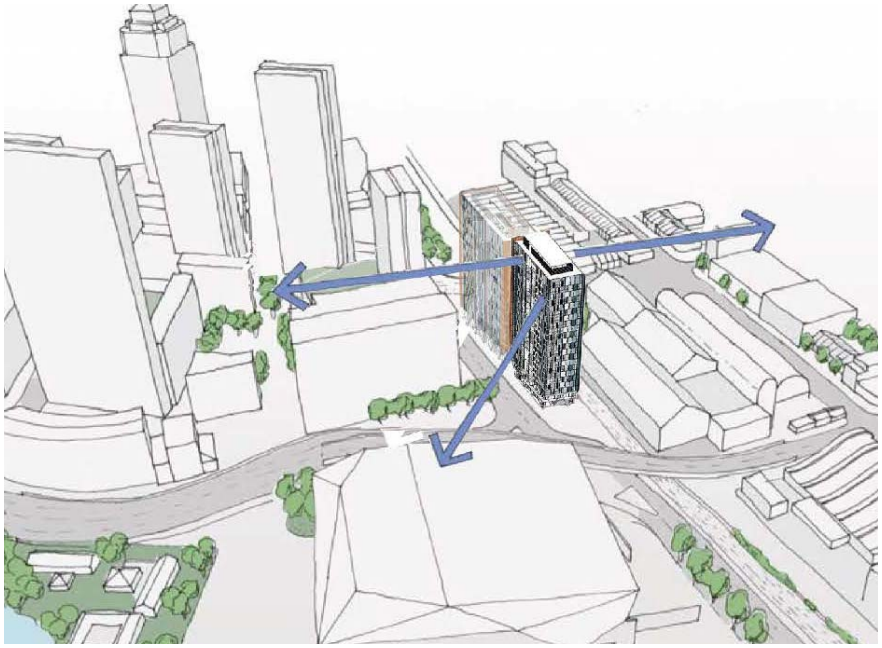

Figure 30 – Views available to Building W1

5.9 Visual and View Analysis

A Visual and View Impact Analysis has been prepared by JBA in support of SSDA12 and is included at **Appendix R**. This analysis builds on and provides further detail on the 'overarching' Visual and View Impact Analysis prepared and submitted in support of the now approved Concept Proposal (SSDA2).

To support the visual analysis, key public domain views, view corridors and public vantage points within and surrounding the SSDA12 Site have been identified.

Photomontages have been prepared for a total of 13 public domain views and vantage points in the following general locations (refer to **Figure 31**):

- King Street Wharf;
- Western Distributor;
- Freeway (Western Distributor);
- Darling Drive (including UTS Corner, south-west corner of the previous Sydney Entertainment Centre car park and roundabout);
- Factory Street;
- Pyrmont Bridge;
- Macarthur Street;
- William Henry Street;
- Pier Street;
- Pier Street overpass; and
- Corner of William Henry Street and Harris Street.

Of the seven key buildings in the vicinity of the SICEEP Site identified as being impacted or potentially impacted on by the overall SICEEP Project in terms of private views (refer to **Figure 32**), there are only two (2) which require further assessment and consideration in relation to the subject SSDA being the Peak Apartments and The Quay Apartments.

With the proposal being wholly contained within the building envelope approved under SSDA2, the conclusions reached within the overarching View and Visual Impact Analysis remain valid.

The consideration of potential visual and view impacts associated with the proposal should be read in conjunction with the SSDA2 Visual and View Impact Analysis submitted in support of SSDA2.

5.9.1 Visual Impacts

Consistent with the Visual and View Impact Analysis provided as part of the Darling Square concept proposal development (SSDA2) proposed Building W1 provides for:

- Existing important views from the public domain at street level to the most significant and highly utilised public domain spaces within and in close proximity to the Site to be retained;
- Existing public domain views to key heritage buildings and places are retained or unaffected by the proposal including to the Darling Harbour Water Feature, Chinese Garden of Friendship, and Pumping station No.1 in the southern part of the Site; whilst visual connectivity to the Powerhouse Museum is affected by the proposed new built form, the impact on the museum building is not considered to be significant given the basis of its heritage significance and that it is the view to the rear of the building that is being partially obstructed. The building will remain visible in part from various vantage points when moving along Pier Street;
- The proposed new building will frame existing public domain views and assist approved Building W2 in creating a street wall along Darling Drive, in turn, reinforcing a pedestrian scale. It will also contribute to a new southern CBD skyline and redefine the skyline on the western side of Darling Harbour;

- Continuous and unobstructed sightlines to the foreshore are maintained to the public, and views to, through and over the Site are retained such that the public / pedestrians will continue to enjoy the visual qualities of the harbour and its foreshores. The principle east west public domain view corridors providing both physical and visual access to the foreshore are retained;
- The continuation of existing streets into and through the SICEEP Site (e.g. Hay Street, Little Hay Street, Quay Street, Quarry Street etc.) establishing new sightlines, visual permeability and views and vistas throughout the precinct are unaffected by the proposal.

Where the proposed building does encroach within or reduce partial existing public domain views towards the Sydney CBD skyline, these impacts are considered to be minor.

Generally, the affected vantage points are not key places for pedestrians to stop and view the Sydney CBD or its skyline, and the wide range of different viewing points available within the Darling Harbour precinct and its approaches will continue to provide for variety and interest in the different views, vistas and sightlines available to pedestrians approaching and moving through the precinct from the north, south, east and west.

It is considered that proposed Building W1 will result in no loss or detraction from the significant aspects or aesthetics of existing public domain views in the locality.

5.9.2 View Impacts

- The siting and design of the building has sought to respond to view sharing principles and to provide for an appropriate outlook from adjoining private development to the greatest extent practicable in a highly urbanised inner city environment;
- The impacts associated with the proposed development are considered to continue to provide for a reasonable 'outlook' from apartments that may nonetheless have a change in 'view', consistent with current planning objectives, strategies, principles and development controls for the Sydney CBD which recognise that outlook, as distinct from views, is the appropriate measure of residential amenity within a global CBD context;
- There will be a reduction in some north-westerly views available from, in particular, the lower and middle levels of The Peak and the Quay. This results from the creation of an entirely new urban precinct in Darling Square where there are only currently low rise buildings in existence. The interruption of existing private views that are currently unimpeded by any development is inevitable in the context of an urban renewal project and is not unreasonable having regard to the highly urbanised global CBD environment of Sydney within which the land is situated. Notwithstanding, the proposed Building W1 development has accommodated view sharing between and above buildings, and has sought to retain a combination of water, horizon and CBD skyline.

In approving the Concept Proposal, the Department of Planning/Minister accepted the conclusions reached within the SSDA 2 Visual and View Impact Analysis, being that Darling Square (which included a parameter plan envelope for Building W1 in the Western Plot (Darling Drive)) achieves a reasonable balance between the protection of private views and the protection of public domain views.

With the subject SSDA12 being wholly contained within the approved building envelope for the Western Plot (Darling Drive), the visual and view impacts resulting from the proposed building are appropriate and consistent with the Stage 1 approval. The development proposed is acceptable in terms of visual and view impacts and reasonable in the circumstances.

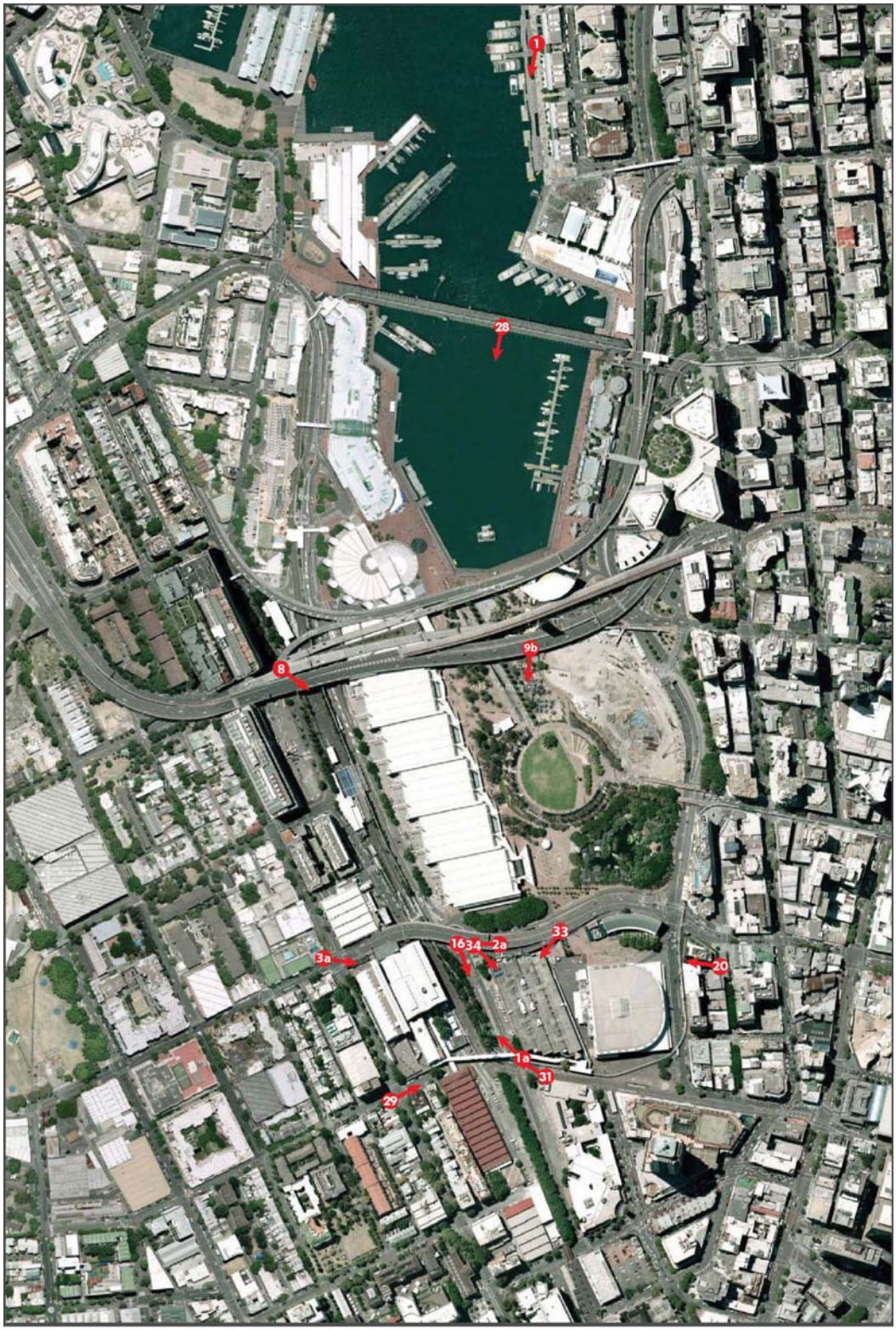

Figure 31 – Visual analysis – photomontage locations SSDA12

Figure 32 – Key Buildings (Private Views)

5.10 Public Domain and Landscaping

As outlined in Section 5.5 above, the proposal is substantially consistent with the Concept Proposal in regards to the public domain concept. SSDA12 comprises the delivery of the remainder of the public domain within the Western Plot. Whilst the majority of interface works with Darling Drive have been approved under SSDA3, SSDA12 includes critical works which will provide significant amenity to future residents of both Buildings W1 and W2.

Discussion of the merits of the proposed public domain improvements is provided below, with a more detailed description provided in the Public Domain Statement prepared by Aspect Studios and provided as an appendix to the Design Report at **Appendix B**.

5.10.1 Central Courtyard

The central courtyard will provide residents of Buildings W1 and W2 with an active outdoor space. A key amenity feature of this space will be the outdoor screen and projector, creating an intimate outdoor cinema in light of the design of the amphitheatre. The location of this screen has been selected in consultation with TfNSW to ensure there are no adverse impacts on the adjoining light rail operations. A permanent fence will be provided along the western boundary of the SSDA12 Site to ensure that access is not permitted from the central courtyard into the light rail corridor.

There is also not expected to be any noise impacts associated with the active use of this space due to the wireless audio system which will be utilised. The use of the projector and screen will be limited, with restricted hours of operations and a capacity on the number of people permitted within the area. These restrictions are set out in the Operational Plan of Management prepared by Urbanest (refer to **Appendix K**).

5.10.2 North Park

The North Park will offer pleasant amenity benefits to residents of Buildings W1 and W2, as well as the general workers, residents and visitors of Darling Square. The North Park will receive good solar access and is a moderately sized turf area, allowing for activities but encouraging more relaxed and subdued recreation pursuits (see **Figure 33**).

Figure 33 – Render of the North Park viewed from the north facing south-east

5.11 Transport and Accessibility

A Transport and Traffic Impact Assessment has been prepared by Hyder to determine the potential impacts of the proposed development on the existing transport network (see **Appendix S**). It is noted that no advertising signage or lighting displays visible on roads or impacting on the operation of the light rail are proposed, therefore a transport and road safety assessment is not required. The key components of the Traffic, Transport and Accessibility Assessment are outlined below.

5.11.1 Operational Phase

Car Parking

No car parking is proposed as part of SSDA 12. Visitors to the SSDA 12 Site will be able to make use of the 400 car parking spaces approved within the North-West Plot car park.

Bicycle Parking

Secure storage for 90 bicycle spaces is provided on the ground level for use by residents. 20 Bicycle racks for use by the general public and visitors to the Darling Square Site are provided in the public domain.

Pedestrian Network

The pedestrian connections proposed within Darling Square were detailed in the Concept Proposal. The shared pedestrian/bicycle pathway along Darling Drive within the Western Plot was approved as part of SSDA3. As such, no new pedestrian infrastructure is proposed as part of SSDA12, except for public domain enhancements which will facilitate greater connectivity across the Western Plot.

Cycle Network

Future cycle linkages through Darling Square have been earmarked under the Concept Proposal. A new shared pedestrian/bicycle pathway on the western side of Darling Drive connecting to existing cycle linkages has been approved under SSDA3. This pathway is under construction and will provide a direct connection to the greater Sydney cycle network.

Servicing

A drop-off zone is to be provided on the western kerbside of Darling Drive for taxis, deliveries, seasonal movements of residents and waste collection. This drop-off zone has been approved under SSDA3 as part of the Darling Drive realignment works. This zone will be capable of accommodating seven vehicles at any one time. Parking control will be managed through signage and timed parking restrictions.

5.11.2 Traffic Impact Assessment

Existing Traffic Conditions

The peak period in the local traffic network has been identified as the Friday and Saturday PM period. Results of modelling the existing intersections within the vicinity of the SSDA12 site reveal that overall the key intersections perform at an acceptable level of service on a typical Friday or Saturday PM peak.

Trip Generation

Ordinarily the RMS 'Guide to Traffic Generating Developments' would outline trip generation rates for types of development to inform a traffic impact assessment. This publication does not contain any rates specific to student accommodation developments and therefore Hyder have adopted the rates for high density residential uses, which include:

- 0.19 vehicle trips per room or 0.09 vehicle trips per bedroom in the AM peak; and
- 0.15 vehicle trips per room of 0.07 vehicle trips per bedroom in the PM peak

Based on the above, a conservative estimate has been identified as 0.10 vehicle trips per room. With a total of 668 rooms, it is estimated that approximately 67 vehicle trips would be generated.

Assessment

Based on the existing intersection performance and the likely traffic to be generated from the proposed development, all key intersections identified by Hyder will continue to perform at an acceptable level of service.

5.11.3 Construction Traffic Impact and Management

Hyder have provided discussion on conceptual construction traffic management procedures based on the envisaged stages of construction. Further details regarding construction traffic management will be provided prior to the issue of the relevant Construction Certificate.

Access to the SSDA12 Site for construction vehicles will be along Darling Drive and all movements will conform with RMS requirements. Hyder has also designated separate access for the other development sites within Darling Square to ensure cumulative traffic impacts are avoided or appropriately managed. The new drop-off zone on the western side of Darling Drive will be utilised for construction loading/unloading activities, therefore minimising potential disruptions to northbound traffic.

A cumulative analysis of construction traffic impacts associated with the SICEEP project has been undertaken by Hyder and it is expected that the construction of Building W1 will not be within the peak period. Furthermore, the diversity of construction access points is expected to largely mitigate any significant construction traffic impacts on Darling Drive, Pier Street and Harbour Street.

Hyder has noted that consultation with the relevant stakeholders will be ongoing throughout the construction phase of the development.

Mitigation Measures

The following mitigation measures have been recommended by Hyder:

- Appropriate directional signage and traffic control should be provided to ensure vehicles enter and leave the site with minimal disturbance to other road users and so they are advised of any changes in road conditions.
- Temporary road closures, single lane access and relocations during the construction period will be subject to coordination with the appropriate authorities.
- All traffic related issues and changes shall also be presented to Stakeholders as part of the consultation process. These will, wherever and whenever possible, be carried out in non-peak periods.
- The traffic and pedestrian management plan outlined in the Construction Management Plan is generally aimed at mitigating any potential impacts that may be attributed to the construction works.
- Risks to the public and the construction crew could be minimised through the implementation of the construction management plans specifically prepared for the SICEEP construction works of the PPP and Darling Square. This Plan will be regularly updated to address any new outcomes identified through constant monitoring as the works progress.

It is noted that a detailed traffic and pedestrian traffic management plan will be prepared and provided prior to the issue of the relevant Construction Certificate.

5.12 Accessibility

Morris-Goding Accessibility Consulting has undertaken an assessment of the proposal against the relevant provisions of the Building Code of Australia (BCA) 2015 and other relevant legislation in regards to accessibility. The Access Report (refer to **Appendix T**) details the findings of the assessment and concludes that the proposed development has accessible paths of travel that are continuous throughout, and in line with the report's recommendations demonstrates an appropriate degree of accessibility.

The drawings indicate that compliance with statutory requirements pertaining to site access, common area access, sanitary facilities and residential accommodation can readily be achieved.

Mitigation Measures

In order to ensure equal access is provided throughout the proposed development, the detailed design of the proposal will need to ensure compliance with the relevant accessibility provisions of the BCA 2015 and other applicable legislation.

5.13 Non-Indigenous Heritage

A Statement of Heritage Impact (SOHI) for the Concept Proposal was prepared by TKD Architects and submitted with the Concept Proposal. The SOHI assessed the potential impacts on the heritage significance of Darling Square and heritage items in the vicinity of the SSDA12 Site. The SOHI followed the general guidelines for Statements of Heritage Impact set out in the NSW Heritage Manual and was been prepared in accordance with '*The Conservation Plan*' by Dr J. S. Kerr, the ICOMOS '*Burra Charter*', and the SEARs.

TKD Architects has prepared a supplementary SOHI relevant to SSDA12 which is also included at **Appendix E**. The supplementary SOHI concludes that the proposed development is consistent with the approved Concept Proposal and that the assessment of the potential heritage impacts remains unchanged.

5.13.1 Mitigation Measures

No specific mitigation measures have been prescribed by TKD Architects in relation to SSDA12.

5.14 Archaeology

5.14.1 Indigenous Archaeology

An Aboriginal Archaeological Assessment Report was prepared by Comber Consultants in association with the Metropolitan Local Aboriginal Land Council, and in accordance with the Office of Environment & Heritage (OEH) Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, and the DGRs, and submitted with the Concept Proposal. The Report identified that subsurface testing would be required on a number of sites within Darling Square.

In accordance with the recommendations of the original Report, an additional Aboriginal Archaeological Excavation Report outlining the findings of subsurface testing has been prepared. These reports, as well as other relevant documentation, are provided at **Appendix F** with a covering letter prepared by Casey and Lowe.

The Aboriginal Archaeological Excavation Report determined that no evidence of Aboriginal occupation was uncovered during the program of subsurface testing. As such, it has been confirmed that there is no requirement for any further archaeological assessment, monitoring, testing or excavation.

5.14.2 Non-Indigenous Archaeology

A Non-Indigenous Archaeological Assessment and Impact Statement was prepared by Casey and Lowe and submitted with the Concept Proposal. The Statement conforms to the Heritage Branch, Office of Environment and Heritage guidelines for Archaeological Assessments, and has been prepared in accordance with the DGRs. The Statement identified non-indigenous archaeological items within and in the vicinity of the SICEEP Site, and found that there was no significant non-indigenous archaeological potential in the Western Plot therefore no further testing has been required. This is confirmed in the Archaeology Letter prepared by Casey and Lowe (refer to **Appendix F**).

5.15 Noise and Vibration

A Noise and Vibration Assessment has been undertaken by Acoustic Logic (refer to **Appendix N**). This Assessment has identified and investigated the following potential acoustic and vibration impacts:

- Light Rail noise and vibration;
- Construction noise and vibration; and
- Operational noise from the proposal.

The existing acoustic environment has been determined using a combination of long-term and short-term noise monitoring. Based on the background and ambient noise monitoring carried out at the nearest affected residential locations, Acoustic Logic have developed a set of project specific noise criteria (refer to **Appendix N**).

5.15.1 Light Rail Noise and Vibration

Acoustic Logic has prepared a detailed assessment of the potential noise and vibration impacts on the proposed development from the adjoining light rail operations (refer to **Appendix N**).

Light Rail Noise

Appropriate project-specific noise criteria have been developed by Acoustic Logic to inform the noise assessment of the light rail. Calculations were then performed taking into account the orientation of windows, barrier effects (where applicable), the total area of glazing, facade transmission loss and the likely room sound absorption characteristics. Based on a comparison of these calculations and the identified criteria, Acoustic Logic has recommended a range of glazing types to ensure compliance with the desired internal noise levels.

Light Rail Vibration

Acoustic Logic has confirmed that as the light railway operations is not located within a tunnel, no further acoustic assessment of structure borne noise is required. Vibration testing undertaken for the proposal has identified that no adverse impacts will occur from the light rail operations on Building W1 and no specific mitigation measures are required to achieve the relevant vibration criteria.

Mitigation Measures

Based on the results of the light rail noise and vibration assessment, no additional acoustic or vibration treatments are required to the proposed development to ensure compliance with the relevant standards except for the provision of glazing in accordance with the specifications outlined in the Noise and Vibration Assessment (**Appendix N**).

5.15.2 Construction Noise and Vibration

Acoustic Logic have examined the expected construction methodology and equipment to be utilised during the construction of Building W1. A detailed assessment of the construction noise and vibration is provided at **Appendix N**, whilst an overview is provided below.

Construction Noise

The relevant construction noise criteria have been established by Acoustic Logic in the Noise and Vibration Assessment (**Appendix N**). A conservative assessment of the predicated noise levels has then been undertaken, with Table 17 of the Noise and Vibration Assessment illustrating predicated exceedances.

Given the proximity and potential for noise impact on adjacent receivers, and in light of anticipated exceedances, general recommendations have been provided by Acoustic Logic.

Construction Vibration

Acoustic Logic predict that due to the distance between the site and the nearest receivers there is not expected to be any exceedance of the suitable limits for both structural and architectural damage at any surrounding receiver resulting from construction vibration.

Mitigation Measures

- Proposed bored piling is the least noise and vibration generating piling option available and hence will result in the lowest potential impacts to surrounding receivers. This method should be considered.
- All transient plant should be selected to be wheeled (rubber wheels) not tracked.
- All plant/equipment should be maintained as per noise control methods and procedures outlined in the Noise and Vibration Assessment (**Appendix N**).
- The concrete pump should be located at a maximum distance from the southern and western boundaries of the SSDA12 Site.
- Vehicle Noise:
  - If possible, locate site loading and unloading point at the north-east corner of site, to reduce impact to surrounding residential receivers. Hence all excavation and construction traffic (including concrete trucks) will remain at maximum distance from the surrounding residential receivers.
  - Truck movements should not commence prior to 7:30am.
  - All vehicles (excavators, bobcats, trucks, concrete trucks etc.) must turn off their engines during idling, to reduce impacts on surrounding receivers (unless truck ignition needs to remain on during concrete pumping).
- For the duration of the excavation stage and for concrete pumping operations during the construction stage, appropriate notification to the surrounding identified sensitive receivers should be complete. This should include a detail description of the proposed works, equipment/machinery proposed for the phase of works, duration of this phase of works and respite periods during the day.
- A range of additional general recommendations for dealing with offensive noise levels has been provided in the Noise and Vibration Assessment (**Appendix N**).

5.15.3 Operational Noise

The operational noise sources associated with the development are considered to be restricted to noise generated by mechanical plant. There is not expected to be significant noise generated from the lower level public domain spaces, particularly from the projector and screen in the central courtyard given that a wireless audio system will be provided in lieu of speakers.

Road Traffic Noise

Road Traffic Noise arising from traffic generated by the proposal was assessed on a site wide basis (across Darling Square) and was determined to be compliant with the SEARs. Furthermore, no car parking is proposed to be included as part of SSDA12. As such, no further assessment has been considered necessary.

Mitigation Measures

It is recommended that further assessment should be carried out during the detailed design phase once plant material and locations are selected to ensure that appropriate acoustic treatments are provided if necessary.

5.16 Infrastructure and Utilities

5.16.1 Infrastructure

Pells Sullivan Meynink Consulting Engineers (PSM) has undertaken an assessment of the proposed development on existing significant infrastructure in the vicinity of the SSDA12 Site (refer to **Appendix U**). This assessment has been informed by previous assessment carried out in conjunction with Building W2 (SSDA3). The findings of this assessment are discussed below.

City West Cable Tunnel (CWCT) and Trunk Sewer Tunnel

The CWCT is located approximately 20m below the surface, and is overlain by approximately 13m of bedrock. The pile design for Building W1 is likely to result in pile toe levels located at about RL-3.9m and RL-4.2m. This is above the depth of RL -7m which was approved for Building W2. As such, the proposal will allow for over 10m of rock cover above the crown of the cable tunnel.

In initial advice submitted with the Concept Proposal PSM determined that vertical convergence must not exceed approximately 1.5mm. Compressive spalling type failure requires at least several millimetres of convergence, and so the above criteria is considered acceptable. This separation distance was to be applied to both the City West Cable Tunnel (CWCT) and Trunk Sewer Tunnel.

Following a more detailed analysis of the proposed foundation layout and pile loads, PSM has determined that the potential CWCT deformation for Building W1 is within the established criteria, and therefore will not adversely impact on the existing infrastructure.

The closest piles to the Trunk Sewer Tunnel for Building W1 will be outside an established 1.5m clearance zone. The position of these piles generally satisfies the preliminary guidance provided by Sydney Water. Further analysis by PSM has identified that the piles are likely to have a negligible impact on the Trunk Sewer Tunnel.

Mitigation Measures

In order to minimise potential impact on the Trunk Sewer Tunnel, the nearest piles should have toe levels at or below the invert level. It is further recommended that once the building design is more progressed and additional consultation has been undertaken with the relevant service providers, further analysis and modelling should be undertaken to confirm that the conclusions of PSM remain appropriate.

5.16.2 Utilities

Hyder has examined the location of existing utilities infrastructure in the vicinity of the SSDA12 Site and provided an assessment of the potential impact of the proposal on this existing infrastructure (see **Appendix I**). Hyder has also recommended what extension or augmentation of utilities needs to occur to adequately service the proposed development.

The proposed development is not expected to have any adverse impacts on the existing utilities infrastructure subject to the below mitigation measures being put in place. It is also confirmed that the proposal will be adequately serviced subject to the detailed refinement of utilities extension/augmentation with the relevant utility providers. Refer to Section 3.7 for further details of utility extension / augmentation. Northrop has also prepared a Building Services Report which sets out the reticulation of services throughout Building W1 (refer to **Appendix V**).

Mitigation Measures

In light of the location of existing utilities infrastructure over the site and the nature of the proposed development, Northrop has concluded that the proposed development can be adequately serviced.

5.17 Operational Waste Management

Waste Audit has prepared an Operational Waste Management Plan (WMP) to ensure waste generated by the proposal is appropriately managed (see **Appendix J**). Based on Council's waste generation guidelines, the WMP identifies the potential types and volumes of waste that are expected to be generated in the operational phase of the proposed development, and suggests systems to be implemented to appropriately manage this waste.

Waste Audit have provided a number of recommendations to ensure that the waste storage room is a highly efficient and effective use of space. The waste storage room will be designed to minimise odours, deter vermin and protect surrounding areas. Colour coding and signage will also be used to delineate different areas and aid in the management of waste.

To ensure waste is minimised and appropriately managed, easy transportation systems and practices will be put in place throughout the life of the development. A dual chute system for general and mixed recycling waste will allow waste to be transported from each level directly to the waste storage room. Organic waste will be separately transported from the common kitchen facility.

Management of the student accommodation will constantly emphasise the proper use of this system and recycling practices. Education of the waste systems and practices in the building will be provided to all new residents. Bins in communal areas will be periodically cleared and transferred to the waste storage room.

All waste will be collected by a commercial contractor to be engaged once the proposal is operational.

Mitigation Measures

In order to appropriately manage and mitigate any adverse impacts arising from waste, the different components of the Waste Management Plan should be implemented into the operation of the proposed development.

5.18 Water Cycle Management

A Flooding, Stormwater and WSUD Report has been prepared by Hyder Consulting for the SSDA12 Site and is provided at **Appendix W**. This report builds upon the previous flooding, stormwater and WSUD investigations on the site undertaken to inform the Concept Proposal (SSDA2). The key sections of this report are addressed below.

5.18.1 Flooding and Stormwater

The Western Plot is not within an existing 1% AEP overland flow path area. To facilitate the proposed student accommodation building, part of the existing stormwater system is proposed to be demolished. The Darling Drive realignment approved with Building W2 (SSDA3) will require additional stormwater inlet pits to collect and convey surface runoff to the existing stormwater system which is to remain. These proposed modifications, amplification and connections are illustrated on the Civil Drawings provided at **Appendix I**.

Hyder do not expect the SSDA12 Site to be affected by flood water and the building floor level is capable of being set relative to the adjacent ground level (nominally RL4.1).

Mitigation Measures

It is recommended that the proposed stormwater modifications, amplification and connection works are carried out to ensure stormwater is adequately managed.

5.18.2 Water Quality

The proposed development incorporates water sensitive urban design (WSUD) measures to reduce potable water consumption, minimise wastewater generation and treat urban stormwater. The following elements have been included as WSUD measures:

- Provide a rainwater tank with first-flush device;
- Pit inserts; and
- Bioretention / Rain Gardens.

Specific details on these measures are discussed in the Flooding, Stormwater and WSUD Report (**Appendix W**). The final type of these measures selected for the life of the proposal will be determined in the detailed design of the development.

Sediment and erosion controls will also be included during the construction phase of the proposed development. These controls will include:

- Hay bales;
- Silt fences;
- Inlet filters;
- Diversion channels; and
- Stabilised site access and truck wash-down areas; and
- Temporary stabilisation of areas outside the Western Plot.

Based on MUSIC modelling undertaken by Hyder, with the inclusion of suitable treatment devices, the proposal will not have any adverse impacts in regards to stormwater runoff. Furthermore, the proposal will achieve the established targets, resulting in an improvement over the current state of stormwater runoff from the SSDA12 Site.

Mitigation Measures

To appropriately manage and mitigate stormwater runoff on the SSDA12 Site and achieve the established water quality targets, Hyder have recommended the following measures:

- Provide a rainwater tank with first-flush device;
- Pit inserts; and
- Bioretention / Rain Gardens.

5.19 Air Quality

An Air Quality Assessment has been prepared by AECOM Australia for the Darling Square Concept Proposal to assess the impact of emissions from the Cross City Tunnel ventilation stack located to the south of the IMAX theatre between the Western Distributor westbound viaducts (submitted with the Concept Proposal). The Air Quality Assessment considered existing monitoring data of air quality in the vicinity of the SSDA12 Site, including monitoring undertaken in Tumbalong Park as part of post-commissioning testing following the opening of the Cross City Tunnel in 2005/06.

Ambient air quality is most affected within a 100 metre radius of tunnel ventilation stacks, with the impact of increased pollutant concentrations between 100 metres and 1 kilometre of these stacks being generally negligible. This affects only a small portion of the SICEEP site, being existing areas of public domain which are proposed to be upgraded as part of the overall SICEEP project. Darling Square is located 400-600 metres to the south of the ventilation stack.

Existing Air Quality Conditions

Monitoring of air quality in the vicinity of the SICEEP site (within Tumbalong Park) was undertaken for a period of 12 months between September 2005 and August 2006. The monitoring results from the Cross City Tunnel post-commissioning tests are taken to be an accurate reflection of air quality impacts of the tunnel ventilation stack within the broader SICEEP precinct. During this time period, the relevant criteria for Nitrogen Oxides and Carbon Monoxide were not exceeded. Particulate Matter criteria were exceeded on a total of five (5) occasions, however these exceedances were found to be related to external events unrelated to the ventilation of the Cross City Tunnel (e.g. Sydney Basin-wide events including bushfires and localised effects of fireworks).

Mitigation Measures

No mitigation measures are required as future occupants of the proposal at the SICEEP precinct will not be subject to air pollution in exceedance of the NSW EPA '*Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*' as a result of the SSDA12 Site's proximity to the Cross City Tunnel ventilation stack.

5.20 Reflectivity

Cermak Peterka Petersen (CPP) prepared a Reflectivity Report for Building W2 (SSDA3), investigating the potential for solar glare from the façade of the building and providing recommendations to mitigate any potential glare (see **Appendix Q**). CPP has prepared an addendum letter to the SSDA3 report, noting the similarities in the designs of Building W1 and W2.

CPP identified in their initial report that Darling Drive, the adjacent Light Rail line, and Pier Street to the north would most be at risk of glare impact. The greatest potential glare impacts would also be for motorists travelling towards the Western Plot.

In light of these potential impacts, CPP examined the proposed design of each façade and identified the Threshold Increment (TI), comparing this to the criteria established for roadway lighting which is generally accepted as 20% of light reflectivity. In all instances it was determined that reflections of light from the façade would be below the criterion levels, therefore not resulting in any adverse impacts to motorists or pedestrians. CPP has suggested that the design of Building W1 will have little impact on the findings of the previous reflectivity assessment, therefore the conclusions and recommendations of the original report will also be relevant.

Mitigation Measures

CPP have identified that there are not expected to be any adverse impacts subject to the following mitigation measures:

- All exterior façade elements should limit light reflectivity to 20% or less;
- Continued assessment of façade and roof elements should be undertaken in the detailed design of the development to ensure no potential nuisance reflections are generated; and
- Surface treatments on the angled façade panels on the east façade should be investigated further in the detailed design of development to minimise glare.

5.21 Geotechnical Issues

The soil and geotechnical conditions of the site are summarised in Section 2.3 of this EIS, and detailed in the Coffey Geotechnics Preliminary Geotechnical Assessment included as **Appendix G**.

The Geotechnical Assessment determines that the proposal is feasible from a geotechnical perspective and at a low risk to surrounding structures, subject to the appropriate additional site investigation, design assessments, and construction monitoring.

Mitigation Measures

No specific mitigation measures are required as the proposal is considered geotechnically feasible. Coffey Geotechnics does suggest that ongoing monitoring occurs and that a suitable piled footing design is adopted to transfer the building loads to the underlying bedrock. Coffey Geotechnics suggest that a further two or three cored boreholes may be required at the site to inform the future pile design.

5.22 Contamination

A Site Audit Report has been prepared by Environ confirming the SSDA12 Site is suitable for the proposed use (refer to **Appendix H**). The Site Audit Report includes a Site Audit Statement produced in accordance with the *NSW Contaminated Land Management Act 1997*.

Environ has confirmed that none of the Remediation Areas defined in the site-wide Remediation Action Plan are present within the SSDA12 Site. As such, no remediation or validation was required. Bulk earth works and further soil and groundwater investigations were undertaken to validate the SSDA12 Site for the proposed student accommodation. During these works, no unexpected finds of volatile or leachable contamination were identified.

Groundwater

Analysis of groundwater samples collected from across the site indicates a pH neutral, brackish to saline environment which is consistent with historical reclamation of the land and with the proximity of the site to Cockle Bay.

In summary, Coffey concludes that groundwater from the site discharging to Cockle Bay is unlikely to detract from the relevant objectives set out within (DEC 2005), and no groundwater contamination, which is considered significant enough to warrant detailed investigation or remediation, has been encountered.

Acid Sulphate Soils

Laboratory field analysis has indicated a high likelihood for the presence of acid sulphate soils within natural soils beneath the water table within the site. An Acid Soils Assessment and Preliminary Management Plan (ASSMP) was prepared by Coffey and included within the Concept Proposal (SSDA2). Whilst excavation and earthworks within the site have been minimised, it is likely that acid sulphate soils will be encountered during the construction period (e.g. during piling). Under the overarching strategy acid sulphate soils will be generally be treated on-site, with an appropriate off-site disposal strategy outlined for instances where on-site treatment is not practical or appropriate.

Mitigation Measures

It is recommended that if any odorous or discoloured soils are excavated during development (such as during piling), that they be replaced at depth or disposed offsite. An unexpected find protocol should be adopted during development. A suitable unexpected finds protocol is provided in the site-wide RAP for Darling Square.

Alluvial deposits in the Darling Square Site may contain potential or actual acid sulphate soils (PASS or AASS). Any PASS or AASS would need to be managed if disturbed during development.

5.23 Wind Impact

A Wind Effects Report was prepared by Cermak Peterka Petersen (CPP) for Building W2 (SSDA3) and is provided at **Appendix Y**. CPP has prepared an addendum letter to the SSDA3 report, noting the similarities in the designs of Building W1 and W2 and confirming that the original assessment undertaken for Building W2 is relevant to Building W1 (refer to **Appendix Y**).

The Wind Effects Report prepared for SSDA3 determined the potential impact of the proposal on existing wind conditions, and also on the expected conditions of the cumulative development of the SICEEP site. Wind tunnel testing undertaken for SSDA3 included the Concept Proposal envelope for Building W1. CPP has noted that the detailed Building W1 proposal is within the approved Concept Proposal envelope, and therefore the results gained in the original wind tunnel testing for Building W2 remain relevant.

It was determined by CPP through the original wind tunnel testing that all locations around Building W1 would pass the Lawson comfort and distress criterion.

Mitigation Measures

As no exceedance of the Lawson comfort and distress criterion were identified, CPP has not recommended any specific mitigation measures.

5.24 BCA

A review of the proposal against the applicable requirements of the Building Code of Australia (BCA) 2015 has been undertaken by McKenzie Group (refer to **Appendix Z**). The report concludes that the proposed development is capable of achieving compliance with the BCA. Where compliance with the deemed-to-satisfy provisions is not readily achievable, performance based assessment and alternative solutions will be used to demonstrate compliance with the BCA. These alternative solutions will be development prior to the issue of the relevant Construction Certificate.

Mitigation Measures

The detailed design of the development must ensure that the proposal complies with the applicable requirements of the BCA 2015 or appropriate alternative solutions should be developed and verified by a qualified BCA Consultant or Fire Safety Engineer.

5.25 Light Rail Interface

A Light Rail Assessment has been prepared by Hyder and is provided at **Appendix AA**. This assessment has examined the proposal in light of its proximity to the existing light rail corridor which is currently operated by Transdev. Specifically, Hyder have examined the potential impact of proposed Building W1 on the light rail operation and the implications of this operation on the building.

Hyder has noted that there are no Australian impact protection standards designed specifically for light rail. As such, this assessment has been informed by a number of Australian Standards relevant to heavy rail and an overall first principles risk based approach to the design. This first principles approach is supported by precedent examples of similar developments adjacent to light rail, including Building W2 (SSDA3). The relevant assessment issues are outlined below.

5.25.1 Window Openings

Following an analysis of similar examples of both light rail and heavy rail situations and consultation with TfNSW, Hyder have recommended that the windows are installed to not open beyond the depth of the window reveal. This measure will eliminate the risk of any large items being dropped onto the light rail tracks.

5.25.2 Impact Protection

With no specific Australian Standards for light rail impact protection, Hyder have consulted Australian Standard AS 5100.1-2004, Bridge Design, which includes provisions for impact protection of structures adjacent to heavy rail corridors.

Hyder considers there is an opportunity to reduce these separation distances due to the track being for light rail opposed to heavy rail. It is also noted that due to the existing conditions of the track in the vicinity of the SSDA12 Site, rail vehicle speeds are limited to 20kph. Hyder has noted there is potential for derailed rail vehicles to stop within close proximity to the track due to these slow speeds.

It is recommended that a risk assessment workshop be undertaken with the relevant stakeholders to discuss further opportunities for mitigation and management regarding impact protection. An option recommended by Hyder is the installation of derailment containment measures parallel to the track such as a guide rail along the existing track.

5.25.3 Electromagnetic Fields

Consultation with Transdev has identified that there will not be any impacts in regards to Electromagnetic Fields (EMF) from the proposed development to the operating system of the light rail. It is noted, however, that there is the potential for EMF impacts of the light rail on Building W1.

As such, further design consideration and testing will need to be conducted prior to the issue of the relevant construction certificate to ensure these impacts are managed or mitigated. Hyder have noted that if Building W1 is affected by EMF, filters may be required to be installed to the building's electrical circuit.

5.25.4 Building Construction

To ensure adverse impacts do not occur on the light rail operations during the construction of the proposal, a hoarding line will be established immediately adjacent to the common boundary for the length of Building W1. Terms have been agreed for the erection and operation of a tower crane on the Building W2 site, which will also be utilised for the construction of Building W1.

Mitigation Measures

In light of the above, Hyder have recommended the following mitigation measures to ensure that the existing light rail does not impact the future building, and to ensure the proposal does not adversely affect the operation of the light rail:

- A risk assessment workshop should be undertaken to identify and mitigate the risks regarding the impact protection of the buildings from the light rail vehicles in the event of derailment;
- Consultation should continue to occur with the relevant rail authority in regard to construction requirements including:
  - Static and climbing screen (consistent with Building W2).
  - Operation of tower cranes adjacent the live light rail corridor in accordance with established procedures (consistent with Building W2);
  - Window cleaning procedures and maintenance requirements based on the window opening design principle set out in this report (consistent with Building W2);
  - Routine and unscheduled building facade maintenance procedures (consistent with Building W2);
- The works within the light rail corridor should comply with the approach set out in the Light Rail Assessment (**Appendix AA**) and the procedures set out in the Transdev "Light Rail Contractors Document" March 2011 Doc. Number 10737 Rev 0 and Transdev "Light Rail Envelope Brief" March 2011 Doc.

5.26 Environmental Sustainability

A variety of sustainability initiatives are proposed across Darling Square and are detailed in the Haymarket Site Wide Sustainability Plan prepared by Lend Lease and submitted with the Concept Proposal. These sustainability measures have been devised to ensure Darling Square is capable of being developed and operated in a sustainable manner. Overall the proposal seeks to reduce greenhouse gas emissions by 25% when compared to the Green Building Council's benchmark and, as required by BASIX, will be designed and delivered with the potential to achieve a 40% reduction in potable water consumption. The various measures designed to achieve sustainable development are outlined below.

5.26.1 Darling Square Precinct

The following initiatives will be implemented across the Darling Square Precinct:

- Enhanced connections and public transport links will be provided that will result in improved walkability and way finding, making public transport more readily identifiable, and a more obvious choice for residents and visitors alike.
- A car-share scheme is proposed that will reduce the cost of car ownership and will minimise embodied energy by reducing the number of cars on the road.
- Passive signage and dynamic information systems and technology will serve to educate residents and visitors about sustainable design, and encourage wider interest in sustainability initiatives.

5.26.2 SSDA12 Site

Specifically in regards to this application, Northrop has prepared a Sustainability Report examining the achievement of sustainability objectives and initiatives in the proposed development (see **Appendix M**). Urbanest has worked with the Green Building Council of Australia to develop a Green Star Rating tool specifically for student housing projects, a first for Australia. Building W1 is targeting the achievement of a self-assessed 4 star 'Australian Best Practice' Green Star Urbanest Custom As-Built certified rating.

The key sustainability initiatives proposed for Building W1 include:

- Space efficient building floor plates;
- High quality common areas and facilities targeted at students, including a catering facility, TV/games rooms, study and group and work rooms on the lower levels;
- Energy efficient heating, ventilation and air conditioning including operable windows to every bedroom and natural ventilation to corridors;
- Water efficient building services including rainwater collection and fire system reuse;
- Secure bicycle storage;
- Provision of effective waste minimsation practices to reduce all operational waste to four (4) recycling waste streams;
- Inclusion of integrated student learning portals;
- Recycling of at least 80% of construction and demolition waste;
- Dematerialisation through the use of prefabricated bathroom and kitchens; and,
- The provision of real time data on building HVAC system performance and mass transport options.

Documentation indicating that the development has been designed in accordance with the principles of a 4 star Green star rating will be prepared by a suitably qualified consultant. This approach is consistent with the approved approach adopted on Building W2 (SSDA3). Northrop has noted that the Green Star 'Scorecard' is a moving document and will be continually modified throughout the design development of Building W1.

5.27 Social and Economic Impacts

5.27.1 Economy and Employment

The NSW Government's number one priority is to restore economic growth and establish NSW as the first place in Australia to do business. The SICEEP Project forms a central part of achieving this ambition of making and maintaining NSW as number one and reinforcing Sydney's status as Australia's global city. The proposed student accommodation development will play a key role in achieving this outcome.

In total, Darling Square will create approximately 2,100 new jobs during construction, with ongoing employment opportunities for over 2,000 people.

A number of construction jobs and operational jobs will be associated with the Building W1 development.

The residential student population to be established within Building W1 will also generate direct expenditure on retail within the vicinity of the SSDA 12 Site.

While some of this expenditure would be captured by the new retail to be provided across the SICEEP Site (in particular Darling Square), the SICEEP Site is not expected to provide a full range of comparison goods or dining/entertainment. This means that the new population would increase the expenditure available for retail tenancies elsewhere in the locality.

5.27.2 Community Services and Facilities

The proposed student accommodation development is a smaller component of a major urban renewal project that will deliver significant benefits for the locality. Building W1 will deliver community benefits in regard to providing new student housing within close proximity to services, facilities and educational institutions.

The public domain to be delivered as part of SSDA12 will also offer significant community benefits. The new high quality public domain will be available for all community members and will enhance connections as well as assist in repairing the fabric of the disused SSDA12 Site.

5.28 Crime and Public Safety

Allen Jack + Cottier has prepared a response to the Crime Prevention Through Environmental Design (CPTED) principles (refer to **Appendix B**). This response assesses the key public and private spaces within the SSDA12 Site against the five CPTED principles, namely:

- Principle 1 – Territorial Definition;
- Principle 2 – Access Control;
- Principle 3 – Natural Surveillance;
- Principle 4 – Activity Support; and
- Principle 5 – Target Hardening.

Allen Jack + Cottier conclude that the proposed SSDA12 development accords with the CPTED principles listed above. The development will result in a significant increase in activity generation within and around the SSDA12 Site, which will in-turn increases safety and passive surveillance. The ways in which these principles have been and will be applied to the proposal are summarised below. The application of CPTED should ultimately extend to the Plot's entire external and internal architecture, which will be addressed during the detailed design stage.

Territorial Definition

The building entry is off the central courtyard located between Buildings W1 and W2. A low planter bed with seating is located at the entry of the central courtyard, demarcating the divide between public and semi-private space. The building entry is slightly raised, with a broad ramp and stair leading upwards from the street level. This slight level difference further reinforces the separation of ownership and the transition from public to private space.

Signage provided at the main entry to Building W1 will ensure that ownership is reinforced and the risk of loitering is reduced as the space is provided with purpose.

Mitigation Measures

- Provide appropriate signage at the main access point of Building W1 to signify ownership of the space and reinforce the entry location.

Access Control

A fence will be provided along the western boundary of the site, providing a physical boundary between the Western Plot and the light rail corridor. This fence will ensure the safety of residents and visitors from entering the light rail tracks. Secure access will be provided to Building W1, with a reception desk located on the ground level near the main entry of the building. A security pass will be required to gain access to the building and the upper residential student accommodation levels.

Mitigation Measures

- Provide electronic key card access (or the like) to regulate the entry/exit of the building.

Surveillance

The design of the ground plane and Building W1 ensures that surveillance is promoted. The provision of communal uses on the lower two levels of Building W1 will encourage passive surveillance over the surrounding public domain. The base of the building is largely glazed and a balcony will be provided to a portion of the northern and eastern façades at level 2. This balcony will be associated with the dining facility. Communal facilities will also be provided on each level in the centre of the eastern façade.

The provision of these design features and intelligent internal planning of communal uses ensures that a greater number of people will have direct sightlines across the new areas of public domain, including Darling Drive.

Activity Support

The lower level of Building W1 has been provided with a range of communal spaces to ensure there is activity at the base of the building. The provision of bicycle parking at the northern boundary of the building, as well as a glazed wall to the internal bicycle parking will ensure that there is considerable activity along this boundary.

Activity is also supported in the public domain through the careful selection of planting and the provision of various treatments such as grassed areas in the North Park and hard paved areas with the amphitheatre seating in the central courtyard. Other features in the public domain include formal and informal seating which will encourage use of these spaces and ensure that the ground plane is activated.

Lighting within the public domain and on Building W1, particularly in the colonnade, will ensure that a feeling of safety and security is achieved at night. The provision of adequate lighting in the appropriate location will encourage use of the outdoor spaces.

Mitigation Measures

- Consult a qualified lighting engineer to ensure the correct lighting is provided to meet minimum Australia and New Zealand Lighting Standards, to enable sufficient surveillance of the entire site and be vandal proof or resistant to limit breakage and minimise maintenance.
- Install and maintain suitable lighting.

Target Hardening

The majority of the ground plane around Building W1 is provided with good surveillance from within the building or the surround public domain. The western edge of the building is provided with more limited surveillance due to the location of necessary services and the presence of the light rail corridor. As such, a fence has been provided to this area to ensure that access is limited and anti-social behaviour is not encouraged.

The use of high quality materials in both the building construction and public domain will ensure that the site appears cared for and any opportunity of destructive behaviour is minimised. The maintenance and upkeep of the building will be important in ensuring that a feeling of safety is achieved and anti-social behaviour is discouraged.

Mitigation Measures

- Use high quality materials for construction to lessen the likelihood of damage and help to reduce maintenance costs.
- Ensure mechanisms are in place for on-going maintenance of landscaping and the building, which includes:
  - rapid removal policy for vandalism repair and the removal of graffiti; and
  - maintenance of landscaped spaces.

5.29 Environmental and Construction Management

A Construction Management Plan (CMP) for Building W1 has been prepared by Buildcorp and is provided at **Appendix BB**. The CMP details the site construction and environmental management principles for the proposed development and the procedures which will be adopted to manage the impact of construction activities in terms of public and employee safety, rail protection and pedestrian/traffic movements.

The CMP has generally been divided into the separate stages of construction and set out as a methodology informed by the procedures currently in place for the construction of Building W2.

Included as attachments to the CMP are specific management plans which set out the procedures and measures to be adopted during the construction period. These plans include a waste management plan, traffic control plan, site establishment plan and stormwater and sediment erosion control plan.

Mitigation Measures

In order to mitigate against any adverse impacts during the construction phase of the proposal, the management measures provided in the CMP (**Appendix BB**) should be implemented. Furthermore, a detailed final CMP should be submitted prior to the issue of the relevant Construction Certificate.

5.30 Ecologically Sustainable Development

The principles of ecologically sustainable development are set out in section 6(2) of the *Protection of the Environment Administration Act 1991* (NSW). The principles of ESD include intergenerational equity, the precautionary principle, conservation of biological diversity and ecological integrity and improved valuation, pricing and incentive mechanisms. The principles of ESD have informed the design, construction and proposed operation of the Building W1 development.

It is appropriate for decisions made under the EP&A Act to have regard to the objects of the Act, as set out in Section 5 of the Act, including ESD.

The EP&A Act adopts the definition of ESD found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) the precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:
- *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
- *(ii) an assessment of the risk-weighted consequences of various options,*

(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:
- *(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
- *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
- *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

Importantly, the development of Building W1 is consistent with the principles of ESD as it meets the needs of the present without compromising the ability of future generations to meet their own needs. ESD design measures have been integrated into the design of Building W1 as detailed in the Sustainability Report prepared by Northrop (**Appendix M**) and summarised at Section 0 of this report. Each principle of ESD as relevant to the proposed development is addressed below.

5.30.1 Precautionary principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment. Measures included within the proposed development to mitigate against possible future risks include:

- Incorporation of high efficiency design features to reduce energy dependence;
- Locating student accommodation in close proximity to public transport and educational institutions to reduce reliance on private vehicle use;
- Include stormwater treatment measures to eliminate present or future impacts on water quality; and
- Incorporate rainwater capture and storage for non-potable water use and irrigation use in the public domain.

When taking into account the above ESD measures, this EIS has not identified any serious threat of irreversible damage to the environment and therefore, the precautionary principle is not relevant to the proposal.

5.30.2 Intergenerational equity

Inter-generational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal, including the entire SICEEP redevelopment, has been designed to benefit both the existing and future generations by:

- maintaining heritage listed items for future generations to appreciate and enjoy;
- implementing safeguards and management measures to protect environmental values;
- facilitating job creation and the provision of new student accommodation close to public transport; and
- Supporting/delivering improvement to the public domain and amenity in Darling Square.

The proposal has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications such as waste disposal would be avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

5.30.3 Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration.

The proposal would not have any significant effect on the biological diversity and ecological integrity of the study area. Design and management measures to reduce excavation within the SSDA12 Site and reduce the export of gross pollutants into the waterway all contribute directly to the conservation of biological diversity and ecological integrity within Sydney Harbour.

5.30.4 Improved valuation, pricing and incentive mechanisms

The Darling Harbour Live team was selected by Infrastructure NSW to deliver the SICEEP project based on the economic, environmental and social merits of the proposed masterplan. This plan has now been refined and has undergone additional detailed design to ensure that the proposed development ultimately achieves the best development outcome for the across all evaluation criteria.

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation will be implemented to ensure resources are used responsibly in the first instance in order to divert resources from landfill.

5.31 Development Contributions

The proposed redevelopment of the SICEEP Site will deliver long lasting and significant public benefits to Sydney and NSW in lieu of monetary contributions (refer to Section 7.0 below for further details), and therefore the burdening of the development with additional contributions undermines the objectives of supporting the development of the Darling Harbour area – an area of state significance.

The SICEEP Site is specifically excluded from all City of Sydney Section 94 Contributions Plans as well as any contributions under Section 61 of the *City of Sydney Act 1988*. The exclusion of the SICEEP Site (and broader Darling Harbour Development Area) reflects that it has its own special planning regime that applies, and that the State Government has since the 1980's (originally as part of the State's Bicentennial Program) set out to promote and encourage a variety of tourist, educational, recreational, cultural and commercial facilities across Darling Harbour. There is therefore no formal mechanism to levy development across the SICEEP Site.

Accordingly, there are no grounds for the imposition of development contributions in relation to the proposal, and the proposal will result in significant public benefits, including the delivery of much needed student accommodation in close proximity to existing services, facilities, public transport and educational institutions. The approach of not burdening the development with contributions has been consistently applied in the SSDA's approved to date for components of the SICEEP project.

5.32 Site Suitability

Having regard to the characteristics of the site and its location, the proposed development is considered suitable for the SSDA12 Site as it:

- Will contribute to repairing the urban fabric in a poorly connected area of the CBD;
- will contribute to the creation of a vibrant neighbourhood through the provision of a complementary land use in the form of student housing;

- is capable of being developed in a manner that will minimise impacts to the natural, artificial, historical, and environmental qualities of the SSDA12 Site; and
- will result in only minor environmental impacts that can be appropriately managed and mitigated.

Conversely, the SSDA12 Site is considered suitable for the proposed development in that:

- the location of the SSDA12 Site at the edge of the Sydney CBD and in the vicinity of existing transport, tourism and educational institutions is considered to be an optimal location for student housing;
- the SSDA12 Site is disconnected from the urban grain of surrounding precincts and is currently underutilised, dramatically in need of urban renewal;
- it is capable of being appropriately serviced to accommodate future development;
- it is well served by public transport; and
- is in close proximity to high quality public open space (existing and proposed) to foster a good lifestyle for new students entering Sydney.

5.33 Public Interest

The proposed Building W1 development is considered to be in the public interest as it will:

- contribute to developing Darling Square into one of Sydney's most innovative residential and working districts;
- provide opportunities for public activity and enterprise within Darling Square to provide a catalyst for future growth and expansion in the area;
- improve housing supply, choice and affordability in the City of Sydney LGA by accommodating approximately 668 student beds;
- provide for attainable city apartment living for students;
- facilitate a greater number of people living close to their place of study;
- minimise urban sprawl and the costs to society associated with this inefficient form of growth;
- encourage sustainable travel behaviour by providing student accommodation close to public transport;
- create new functional, vibrant and connected public open spaces at the ground plane;
- support Sydney's development as a compact and well-connected city;
- increase and improve north to south connections through Darling Square; and
- create new jobs during the construction phase of the proposal.

6.0 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for SSDA12 has been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- the adequacy of baseline data;
- the potential cumulative impacts arising from other developments in the vicinity of the Site; and
- measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

The adequacy of the baseline data is demonstrated through the range of detailed technical reports and supporting documentation appended to this EIS. Overall, Section 5.0 of the EIS and the appended technical reports and supporting documents provide a comprehensive and detailed assessment of the potential cumulative impacts arising from other developments in the vicinity of the SSDA12 Site. This assessment has determined that there are no adverse environment, social or economic impacts which cannot be managed or mitigated.

Figure 34 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the project;

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- the complexity of mitigation measures;
- the known level of performance of the safeguards proposed; and
- the opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 34 – Risk Assessment Matrix

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Risk Assessment		
				Significance of Impact	Manageability of Impact	Residual Impact
Key: C – Construction, O: Operation						
Visual and Views	O	▪ Visual impact from surrounding residents and public places	▪ The proposal achieves a reasonable balance between the protection of private views and the protection of public domain views.	2	2	4 Low / medium
Transport and Accessibility	C+O	▪ Increased traffic on local roads ▪ Increased parking on local roads	▪ Based on the existing intersection performance and the likely traffic to be generated from the proposed development, all key intersections will perform at an acceptable level of service during the peak periods. As such, no mitigation measures are required to manage the surrounding road network.	2	2	4 Low / medium
Non-Indigenous Heritage	C	▪ Impact on heritage items/Conservation areas ▪ Impact on heritage items in the vicinity.	▪ The proposed development will not result in any unreasonable or significant impact on the significance or value of adjoining Items of Heritage Significance or the Heritage Conservation Area (HCA) as the proposed development is consistent with the approved Concept Proposal.	3	2	5 Low / medium
Archaeology	C	▪ Impacts to archaeological items of significance.	▪ No evidence of Aboriginal occupation was uncovered during subsurface testing. ▪ There is no requirement for any further archaeological assessment, monitoring, testing or excavation. ▪ No significant non-indigenous archaeological potential is within the Western Plot therefore no further testing has been required	1	1	2 Low
Noise and Vibration	C+O	▪ Increase in noise levels during construction activities ▪ Adverse noise impacts on proposed uses, such as light rail noise ▪ Adverse noise impacts from proposed uses on surrounding receivers	▪ Generally no specific mitigation measures are required for noise and vibration associated with the adjoining light rail except for the provision of glazing in accordance with the specifications recommended in the Noise and Vibration Assessment (Appendix N). ▪ Implement the recommendations of the Noise and Vibration Assessment in regards to construction noise (Appendix N). ▪ Undertake further assessment during the detailed design of the development.	3	2	5 Low / medium

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Risk Assessment		
				Significance of Impact	Manageability of Impact	Residual Impact
Infrastructure and Utilities	C+O	▪ Adequate connection to infrastructure and utilities; ▪ Impacting on existing infrastructure below the SSDA12 Site	▪ The detailed design of the development is to identify the final design and provision of infrastructure and utilities. This is to be conducted in consultation with the relevant authorities and providers. ▪ The nearest piles to the Trunk Sewer Tunnel should have toe levels at or below the invert level. ▪ Once the building design is more progressed and additional consultation has been undertaken with the relevant service providers, further analysis and modelling should be undertaken to confirm that the conclusions of PSM remain appropriate.	3	2	5 Low / medium
Operational Waste Management	O	▪ Generation of waste	▪ Bins, storage locations and collection to be in accordance with the submitted Waste Management Plan.	1	1	2 Low
Water Cycle Management	O	▪ Potential flooding and stormwater impacts	▪ Implement the mitigation measures proposed in the Flooding, Stormwater & WSUD Report (Appendix W).	2	2	4 Low / medium
Air Quality	O	▪ Decrease in air quality	▪ No mitigation measures are required as future occupants of the proposal at the SICEEP precinct will not be subject to air pollution in exceedance of the NSW EPA 'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW' as a result of the SSDA12 Site's proximity to the Cross City Tunnel ventilation stack.	1	1	2 Low/medium
Reflectivity	O	▪ Adverse solar reflectivity glare to motorists and pedestrians	▪ All façades should be limited to 20% reflectivity.	2	2	4 Low / medium
Geotechnical Issues	O	▪ Instability of future development	▪ Ongoing monitoring occurs and that a suitable piled footing design is adopted to transfer the building loads to the underlying bedrock.	2	2	4 Low / medium

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Risk Assessment		
				Significance of Impact	Manageability of Impact	Residual Impact
Contamination	C+O	▪ Exposure of contamination or hazardous materials during construction and operation	▪ The Site Audit Statement has confirmed the site is suitable for the proposed use (refer to Appendix H).	3	1	4 Low
Wind Impact	O	▪ Adverse wind environment	▪ As no exceedance of the Lawson comfort and distress criterion were identified, CPP has not recommended any specific mitigation measures.	3	2	5 Low / medium
Crime and Public Safety	O	▪ Anti-social intimidating behaviour	▪ The following mitigation measures should be implemented to reduce the risk and opportunities for crime/anti-social behaviour: - Provide appropriate signage at the main access point of Building W1 to signify ownership of the space and reinforce the entry location. - Provide electronic key card access (or the like) to regulate the entry/exit of the building. - Consult a qualified lighting engineer to ensure the correct lighting is provided to meet minimum Australia and New Zealand Lighting Standards, to enable sufficient surveillance of the entire site and be vandal proof or resistant to limit breakage and minimise maintenance. - Install and maintain suitable lighting. - Use high quality materials for construction to lessen the likelihood of damage and help to reduce maintenance costs. - Ensure mechanisms are in place for on-going maintenance of landscaping and the building, which includes: - rapid removal policy for vandalism repair and the removal of graffiti; and - maintenance of landscaped spaces.	2	1	3 Low
Environmental and Construction Management	C	▪ Noise, dust, air quality and traffic impacts	▪ Works are to be carried out in accordance with the Construction Management Plan.	3	2	5 Low / medium

7.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 19** below. These measures have been derived from the previous assessment in Section 5.0 and those detailed in appended consultants' reports.

Table 19 – Mitigation Measures to be implemented

Mitigation Measures
Traffic Generation The following mitigation measures have been recommended by Hyder: ▪ Appropriate directional signage and traffic control should be provided to ensure vehicles enter and leave the site with minimal disturbance to other road users and so they are advised of any changes in road conditions. ▪ Temporary road closures, single lane access and relocations during the construction period will be subject to coordination with the appropriate authorities. ▪ All traffic related issues and changes shall also be presented to Stakeholders as part of the consultation process. These will, wherever and whenever possible, be carried out in non-peak periods. ▪ The traffic and pedestrian management plan outlined in the Construction Management Plan is generally aimed at mitigating any potential impacts that may be attributed to the construction works. ▪ Risks to the public and the construction crew could be minimised through the implementation of the construction management plans specifically prepared for the SICEEP construction works of the PPP and Darling Square. This Plan will be regularly updated to address any new outcomes identified through constant monitoring as the works progress. It is noted that a detailed traffic and pedestrian traffic management plan will be prepared and provided prior to the issue of the relevant Construction Certificate.
Accessibility In order to ensure equal access is provided throughout the proposed development, the detailed design of the proposal will need to ensure compliance with the relevant accessibility provisions of the BCA 2015 and other applicable legislation.
Noise and Vibration <u>Light Rail</u> Based on the results of the light rail noise and vibration assessment, no additional acoustic or vibration treatments are required to the proposed development to ensure compliance with the relevant standards except for the provision of glazing in accordance with the specifications outlined in the Noise and Vibration Assessment (**Appendix N**). <u>Construction</u> ▪ Proposed bored piling is the least noise and vibration generating piling option available and hence will result in the lowest potential impacts to surrounding receivers. This method should be considered. ▪ All transient plant should be selected to be wheeled (rubber wheels) not tracked. ▪ All plant/equipment should be maintained as per noise control methods and procedures outlined in the Noise and Vibration Assessment (**Appendix N**).

Mitigation Measures

- The concrete pump should be located at a maximum distance from the southern and western boundaries of the SSDA12 Site.
- Vehicle Noise:
  - If possible, locate site loading and unloading point at the north-east corner of site, to reduce impact to surrounding residential receivers. Hence all excavation and construction traffic (including concrete trucks) will remain at maximum distance from the surrounding residential receivers.
  - Truck movements should not commence prior to 7:30am.
  - All vehicles (excavators, bobcats, trucks, concrete trucks etc.) must turn off their engines during idling, to reduce impacts on surrounding receivers (unless truck ignition needs to remain on during concrete pumping).
- For the duration of the excavation stage and for concrete pumping operations during the construction stage, appropriate notification to the surrounding identified sensitive receivers should be complete. This should include a detail description of the proposed works, equipment/machinery proposed for the phase of works, duration of this phase of works and respite periods during the day.
- A range of additional general recommendations for dealing with offensive noise levels has been provided in the Noise and Vibration Assessment (**Appendix N**).

Operational

- It is recommended that further assessment should be carried out during the detailed design phase once plant material and locations are selected to ensure that appropriate acoustic treatments are provided if necessary.

Infrastructure and Utilities

Infrastructure

In order to minimise potential impact on the Trunk Sewer Tunnel, the nearest piles should have toe levels at or below the invert level. It is further recommended that once the building design is more progressed and additional consultation has been undertaken with the relevant service providers, further analysis and modelling should be undertaken to confirm that the conclusions of PSM remain appropriate.

Utilities

In light of the location of existing utilities infrastructure over the site and the nature of the proposed development, Northrop has concluded that the proposed development can be adequately serviced.

Operational Waste Management

In order to appropriately manage and mitigate any adverse impacts arising from waste, the different components of the Waste Management Plan should be implemented into the operation of the proposed development.

Water Cycle Management

Flooding and Stormwater

It is recommended that the proposed stormwater modifications, amplification and connection works are carried out to ensure stormwater is adequately managed.

Water Quality

To appropriately manage and mitigate stormwater runoff on the SSDA12 Site and achieve the established water quality targets, Hyder have recommended the following measures:

- Provide a rainwater tank with first-flush device;

Mitigation Measures

- Pit inserts; and
- Bioretention / Rain Gardens.

Reflectivity

CPP have identified that there are not expected to be any adverse impacts subject to the following mitigation measures:

- All exterior façade elements should limit light reflectivity to 20% or less;
- Continued assessment of façade and roof elements should be undertaken in the detailed design of the development to ensure no potential nuisance reflections are generated; and
- Surface treatments on the angled façade panels on the east façade should be investigated further in the detailed design of development to minimise glare.

Contamination

It is recommended that if any odorous or discoloured soils are excavated during development (such as during piling), that they be replaced at depth or disposed offsite. An unexpected find protocol should be adopted during development.

A suitable unexpected finds protocol is provided in the site-wide RAP for Darling Square.

Alluvial deposits in the Darling Square Site may contain potential or actual acid sulphate soils (PASS or AASS). Any PASS or AASS would need to be managed if disturbed during development.

BCA

The detailed design of the development must ensure that the proposal complies with the applicable requirements of the BCA 2015 or appropriate alternative solutions should be developed and verified by a qualified BCA Consultant or Fire Safety Engineer.

Light Rail Interface

In light of the above, Hyder have recommended the following mitigation measures to ensure that the existing light rail does not impact the future building, and to ensure the proposal does not adversely affect the operation of the light rail:

- A risk assessment workshop should be undertaken to identify and mitigate the risks regarding the impact protection of the buildings from the light rail vehicles in the event of derailment;
- Consultation should continue to occur with the relevant rail authority in regard to construction requirements including:
  - Static and climbing screen (consistent with Building W2).
  - Operation of tower cranes adjacent the live light rail corridor in accordance with established procedures (consistent with Building W2);
  - Window cleaning procedures and maintenance requirements based on the window opening design principle set out in this report (consistent with Building W2);
  - Routine and unscheduled building facade maintenance procedures (consistent with Building W2);

Mitigation Measures
▪ The works within the light rail corridor should comply with the approach set out in the Light Rail Assessment (**Appendix AA**) and the procedures set out in the Transdev "Light Rail Contractors Document" March 2011 Doc. Number 10737 Rev 0 and Transdev "Light Rail Envelope Brief" March 2011 Doc.
Crime and Public Safety ▪ Provide appropriate signage at the main access point of Building W1 to signify ownership of the space and reinforce the entry location. ▪ Provide electronic key card access (or the like) to regulate the entry/exit of the building. ▪ Consult a qualified lighting engineer to ensure the correct lighting is provided to meet minimum Australia and New Zealand Lighting Standards, to enable sufficient surveillance of the entire site and be vandal proof or resistant to limit breakage and minimise maintenance. ▪ Install and maintain suitable lighting. ▪ Use high quality materials for construction to lessen the likelihood of damage and help to reduce maintenance costs.
Environmental and Construction Management In order to mitigate against any adverse impacts during the construction phase of the proposal, the management measures provided in the CMP (**Appendix BB**) should be implemented. Furthermore, a detailed final CMP should be submitted prior to the issue of the relevant Construction Certificate.

8.0 Conclusion and Justification of the Proposal

This Environmental Impact Statement (EIS) has been prepared to consider the environmental, social and economic impacts of the proposed student accommodation development on the Western Plot of Darling Square within the overall SICEEP Project. The EIS has addressed the issues outlined in the SEARs (**Appendix A**) and accords with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* with regards to consideration of relevant environmental planning instruments, built form and design excellence, social and environmental impacts including heritage, traffic, noise, construction impacts and stormwater management.

Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- The proposal is permissible with consent and meets all requirements of the relevant planning controls for the site;
- The proposal is consistent with the principles of ecological sustainable development as defined by Schedule 2(7)(4) of the *Environmental Planning and Assessment Regulation 2000* (refer to Section 0 and Section 0);
- The proposed development is consistent with the land use, built form controls and design guidelines for Darling Square established by Denton Corker Marshall under the approved Concept Proposal;
- The proposal is consistent with the approved Darling Square Concept Proposal, meeting the requirements under Section 83D(2) of the *Environmental Planning and Assessment Act 1979*;
- SSDA12 is adequately serviced with potable water and stormwater infrastructure and electrical and communication services; and
- The provision of a vibrant mixed use precinct will further support and strengthen the liveability of Sydney.

Given the planning merits described above, and the significant public benefits associated with the proposed development, it is recommended that this application be approved.