

State Significant Development Application – SSDA9 Environmental Impact Statement



Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP)

Darling Square - South East Plot Mixed Use Residential Building

Submitted to NSW Department of Planning and Environment
On Behalf of Lend Lease (Haymarket) Pty Ltd

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Brendan Hoskins

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14/03/2016

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Alexis Cella

14/03/2016

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Under Separate Cover

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- 3D and Physical Model
FJMT and Porters

Statement of Validity

Development Application Details

Applicant name	Lend Lease (Haymarket) Pty Ltd, ABN: 50147913291
Applicant address	30 Hickson Road Millers Point NSW 2000
Land to be developed	Sydney International Convention, Exhibition and Entertainment Precinct, Haymarket
Proposed development	Development of the Darling Square South East Plot for a mixed use development with associated infrastructure and public domain works.

Prepared by

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Qualifications	BPlan (Hons) / BRTP (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 South East Plot

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



Chris McGillick

Name



Alexis Cella

Date

14/03/2016

Executive Summary

Purpose of this report

This Environmental Impact Statement (EIS) is prepared in relation to a State Significant Development Application for the construction and use of a mixed use residential development within the South-East Plot of Darling Square (SSDA9) – 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 and Environment 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 Lend Lease (Haymarket) Pty Ltd (Lend Lease) who form part of Darling Harbour Live (previously referred to as Destination Sydney) - a consortium comprising Lend Lease, Capella Capital, AEG Ogden and Spotless, selected as the preferred proponent to transform Darling Harbour.

The Darling Square Site

A Stage 1 State Significant Development Application (SSD 13_5878) (Concept Proposal) was lodged with the (former) NSW Department of Planning and Infrastructure on 15 March 2013 seeking Stage 1 Development Consent for a Concept Proposal for the mixed use redevelopment of Darling Square (then referred to as The Haymarket). 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.

Approved on 5 December 2013, 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;
- Six separate development plots (including the South East Plot);
- 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 Haymarket (now known as 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 mixed use residential development within the South East Plot 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 South East Plot is one of six development plots identified under the Concept Proposal.

Under the Concept Proposal, the South East Plot is planned to accommodate a mixed use podium and three residential buildings (SE1, SE2, and SE3) above and within the podium structure. This application does not seek approval for works within the public domain, as works related to this application are entirely within the site boundary. More specifically, this SSDA (SSDA 9) seeks approval for the following components of the development:

- Staged construction and use of a predominantly 5 storey mixed use podium, including:
 - retail floor space and residential lobbies on Ground Level;
 - above ground parking;
 - residential apartments; and
 - communal facilities.
- Staged construction and use of three residential buildings above podium;
- Public domain improvements including:
 - footpath along Harbour Street within the site;
 - conceptual design for Harbour Street (located outside the site) to include paving, planting of four street trees, installation of lighting; and
 - paving within the colonnade walkway; and
 - provision of vehicular access to the SSDA9 Site from Harbour Street.
- Landscaping works to the podium roof level;
- Extension and augmentation of physical infrastructure and utilities as required;
- Any associated remediation as may be required; and
- Associated tree removal and planting.

Details relating to the proposed retail tenancies, including the signage and fit-out will be determined at a later stage and are not included as part of this application.

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 July 2014 and the SEARs were issued on 19 August 2014 (see **Appendix A**). Section 5.0 of the EIS considers all applicable legislation and the Stage 1 Concept Proposal in detail. The proposal complies 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* (the Regulations), 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 Lend Lease to manage and minimise potential impacts arising from the development (refer to Section 6.0). Key environmental assessment considerations identified include, amongst others:

- built form and urban design;
- overshadowing to adjacent development;
- traffic generation, car parking requirements, and road and pedestrian safety;
- impacts to items of heritage significance;
- impacts to archaeology;
- construction noise and vibration;
- the generation of waste; and
- remediation of existing contamination (as may be required).

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

Conclusion

The Compilation of Mitigation Measures has been prepared to inform the ongoing management of the South-East Plot throughout the construction phase and operational phase of the proposed building and public domain. This EIS fulfils the requirements of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) and the Regulations and addresses the SEARs, and demonstrates that the proposal is consistent with the approved Stage 1 Concept Proposal (as proposed to be modified) and the impacts of the proposal can be satisfactorily managed. In light of the above, and that the significant benefits of the proposed development, we recommend that the proposed development 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 mixed use residential development and associated public domain works within a new mixed use residential neighbourhood (referred to as 'Darling Square'), at Darling Harbour.

SSDA 9 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 continue to support the NSW Government's goal to make and maintain NSW as number one.

SICEEP is being delivered via a 'whole of precinct' approach, guided by a Master Plan for the entire 20 hectare site. This Master Plan is being delivered through a number of discrete packages and applications for development 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 Development 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 Lend Lease (Haymarket) Pty Ltd, and is based on the Architectural Drawings and Design Report provided by FJMT (see **Appendix B**) 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

SSDA9 seeks approval for a mixed use residential development and associated public domain works within Darling Square at Darling Harbour. SSDA9 generally relates to land within the south eastern portion of Darling Square comprising the South East Plot, which was identified as one of six development plots identified in the Stage 1 Concept Proposal approved on 5 December 2013.

Under the Concept Proposal, the South East Plot is planned to accommodate a mixed use podium and three residential buildings (SE1, SE2, and SE3) above and within the podium structure. This application does not seek approval for works within the public domain, as works related to this application are entirely within the site boundary. More specifically, this SSDA DA seeks approval for the following components of the development:

- Staged construction and use of a predominantly 5 storey mixed use podium, including:
 - retail floor space and residential lobbies on Ground Level;
 - above ground parking;
 - residential apartments; and
 - communal facilities.
- Staged construction and use of three residential buildings above podium;
- Public domain improvements including:
 - footpath along Harbour Street within the site;
 - conceptual design for Harbour Street (located outside the site) to include paving, planting of four street trees, installation of lighting; and
 - paving within the colonnade walkway; and
 - provision of vehicular access to the SSDA9 Site from Harbour Street.
- Landscaping works to the podium roof level;
- Extension and augmentation of physical infrastructure and utilities as required;
- Any associated remediation as may be required; and
- Associated tree removal and planting.

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, Lend Lease and Darling Harbour Live (comprising AEG Ogden, Lend Lease, Capella Capital and Spotless) were announced by the NSW Government in December 2012 as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Master Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
 - Up to 40,000m² exhibition space;
 - Over 8,000m² 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 The Good Line (previously known as the Ultimo Pedestrian Network) drawing people between north-south between Central, Chinatown and Cockle Bay Wharf and east-west between Ultimo/Pymont 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 illustrated at **Figure 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.



Figure 1 – SICEEP Precinct Plan

1.2.1 Concept Proposal (SSD 13_5878)

The Concept Proposal SSDA (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 (refer to **Figure 2**):

- 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, 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 (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.

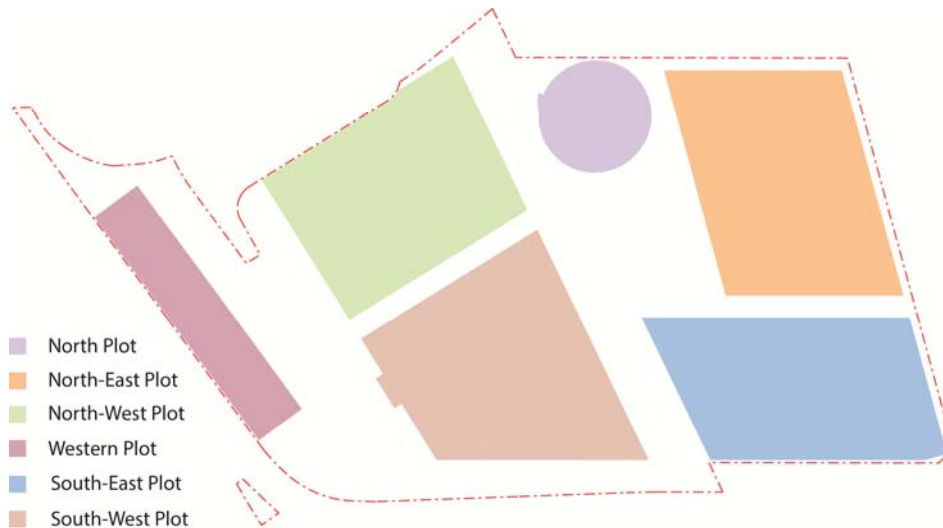


Figure 2 – Concept Proposal Development Plots

Concept Proposal MOD 1

The Concept Proposal was modified on 26 November 2015 to increase the amount of non-residential GFA. This minor increase in GFA was allocated to the approved North-West Plot building to meet tenant requirements. No amendment was made to the approved parameter plans and building envelopes.

Concept Proposal MOD 2

A modification application made under section 96 of the EP&A Act is being lodged concurrently with this SSDA to amend the Stage 1 Concept Proposal. This modification seeks to amend the parameter plan of the North Plot and seeks a minor increase to the maximum non-residential and residential Gross Floor Area (GFA) amongst other miscellaneous changes.

These modifications are driven principally by responding to the realities of moving from concept to the design and delivery of individual stages (which is a fluid process that involves a number of facets and considerations).

Gross Floor Area Parameters

An increase of 5.56% to the approved maximum GFA (as modified) is proposed under the Concept Proposal modification application, resulting in amended figures of 56,563m² non-residential and 154,372m² residential GFA (maximum total GFA of 210,935m²). Aside from the North Plot Parameter Plan (which is proposed to be amended to be circular in shape and 5m higher), the Parameter Plans are not proposed to be altered.

SSDA Consistency

Due to the requirement for consistency between the Concept Proposal and future development applications, the proposed modification to the Concept Proposal is required to be determined prior to the determination of the subject SSDA. In light of this requirement, this EIS has been prepared with the assumption that the Concept Proposal has been so modified. As such, throughout this EIS an assessment has been made against the modified Concept Proposal.

In addition to the approval of the Concept Proposal (also known as 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) known as Building W2 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 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. Approval was also granted for SSDA8 on 16 October 2015 which comprised the ICC Hotel fitout, external lighting and subdivision.

At the time of writing this report, approval of Darling Drive (part) development plot (SSDA 12 – ref: SSD 7133) for the construction and use of a residential building (student accommodation) known as Building W1 and the provision of associated public domain works is imminent.

This report has been prepared to support a detailed Stage 2 SSD DA for mixed use development and associated public domain works within Darling Square (SSDA 9), consistent with the Concept Proposal (SSDA 2).

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 '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;
- 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 SSDA9 Objectives

Key development objectives which underpin this application include:

- Deliver 391 apartments to improve housing supply, choice and variety in Sydney;
- Achieve a minimum 4 Star Green Star rating, in turn embracing the principles of ecologically sustainable development;
- Develop a high quality public domain which will fulfil the objectives established for the SICEEP and Darling Square;
- Contribute to the achievement of an innovative mixed use precinct within Darling Square; and
- Positively contribute to the character of the surrounding area, including Chinatown.

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:

- 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 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. The construction of the approved core facilities is well progressed, therefore the 'do nothing' option is largely no longer viable.

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 generally 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, would not deliver the same extent of benefits to the City or Sydney more broadly as that able to achieved through the proposal the subject of SSDA9. For example, these alternatives would not:

- Increase housing supply and choice;
- Assist in meeting residential dwelling targets for the region and Sydney as a whole;
- Allow people to live closer to where they work/learn;
- Encourage more sustainable travel behaviour;
- Make the efficient use of a significant urban renewal site (open space alternative);
- Support a more compact and connected city (open space alternative); and
- Support the education precinct through providing opportunities for staff and students to live nearby.

Further, 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 Mixed Use Development (SSDA 9)

The alternative use of the SSDA9 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, retail, and student accommodation, it is considered that the proposed mixed use development is an appropriate use for the SSDA9 Site. The proposed mixed use development will contribute to the diverse mix of land uses proposed for Darling Square, and is suitable for residential development given the close proximity of employment, education, and recreation services.

Further, the proposed mixed use nature of the SSDA 9 development, complete with retail uses on the ground floor, will assist in activating the ground plane and helping to realise the overall vision for Darling Square. It is further noted that the proposal is consistent with the approved Stage 1 Concept Proposal (as modified) applying to the land and also follows on from the approval of three detailed stages of the Concept Proposal.

1.5 Planning Approvals Status

In response to separate contractual agreements with the NSW Government and staging requirements, Lend Lease (Haymarket) Pty Ltd has submitted, and will continue to submit, a number of separate development applications for key elements of Darling Square.

SSDA9 involves the detailed development of the South-East Plot for a mixed use residential development. 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 outlined in **Table 1**.

Table 1 – Status of initial SICEEP SSD Das

	DA No	Description of Application	Status
SSDA1	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
SSDA2	13-5878	Darling Square Concept Proposal	Approved: 5 December 2013
	MOD 1	S96(2) – various	Approved: 26 November 2015
	MOD 2	S96(2) – various	Under Assessment
SSDA3	6010	Western Plot (Student Accommodation – Building W2)	Approved: 7 May 2014
	MOD 1	S96(2) – various	Under Assessment
SSDA4	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	Approved: 26 November 2015
SSDA5	6011	South-West Plot (Mixed Use Residential Development)	Approved: 21 May 2014
	MOD 1	S96(1A) – various	Approved: 27 July 2015
SSDA6	6116	ICC Hotel	Approved: 15 June 2014
	MOD 1	S96(1A) – various	Approved: 8 July 2015
SSDA7	6626	North-East Plot (Mixed Use Residential Development)	Approved: 16 April 2015
SSDA8	6831	ICC Hotel fit-out, façade lighting system and subdivision	Approved: 16 October 2015
SSDA9	6633	South-East Plot (Mixed Use Residential Development)	Subject of this application
SSDA10	7021	North Plot (Mixed use development) and The Square	Under Assessment
SSDA12	7133	Western Plot (Student Accommodation – Building W1)	Under Assessment

1.6 Secretary's Environmental Assessment Requirements

In accordance with section 89G of the EP&A Act, the delegate of the Secretary of the Department issued requirements for the preparation of the EIS on 19 August 2014. A copy of the Secretary's Environmental Assessment Requirements (SEARs) is included at **Appendix A**.

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		
The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000.	Throughout	-
The EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Section 6.0	-
Statutory and Strategic Context		
Address the relevant statutory provisions applying to the site contained in all relevant EPIs, including:		
- the Environmental Planning & Assessment Act 1979;	Section 5.2	-
- State Environmental Planning Policy (State & Regional Development) 2011;	Section 5.4	-
- State Environmental Planning Policy No. 55 - Remediation of Land;	Section 5.4	-
- State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development & accompanying Residential Flat Design Code;	Section 5.4 and 5.4.1	Appendix B
- State Environmental Planning Policy (Infrastructure) 2007;	Section 5.4	-
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;	Section 5.4	-
- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005;and	Section 5.4.2	-
- Darling Harbour Development Plan No 1.	Section 5.4.3	-
Address the relevant planning provisions, goals and strategic planning objectives in the following:	Section 5.3	-
- Draft Metropolitan Strategy for Sydney to 2031;		-
- Metropolitan Plan for Sydney 2036;	Section 5.3	-
- NSW Long Term Transport Master Plan;	Section 5.3	-
- Sydney City Draft Sub-Regional Strategy;	Section 5.3	-
- Sustainable Sydney 2030;	Section 5.3	-
- Infrastructure NSW SICEEP Urban Design and Public Realm Guidelines;	Section 5.3	-
- City of Sydney Chinatown Public Domain Plan;	Section 5.3	-
- Development Near Rail Corridors and Busy Roads-Interim Guideline;	Section 5.3	-
- Planning Guidelines for Walking and Cycling;	Section 5.3	-

Secretary's Environmental Assessment Requirement		Location in Report	
- Integrating Land Use and Transport Policy Package;	Section 5.3	-	
- Sydney City Centre Access Strategy;	Section 5.3	-	
- Sydney's Cycling Future;	Section 5.3	-	
- Sydney's Walking Future;	Section 5.3	-	
- Healthy Urban Development Checklist;	Section 5.3	-	
- Waste Classification Guidelines (DECC 2008);	Section 5.3	-	
- Heritage Council Guidelines Assessing the Significance of Archaeological Sites and Relics; and	Section 5.3	-	
- Crime Prevention Through Environmental Design (CPTED) Principles.	Section 5.3 and Section 5.27	Appendix M	
Concept Proposal			
The EIS shall demonstrate that the proposal is consistent with the Concept Plan approval SSD 5878 dated 5 December 2013 for The Haymarket precinct.		Section 5.5	Appendix Z
Built Form and Design Excellence			
The EIS shall:		Section 5.7	
- address the height, bulk and scale of the proposed development within the context of the locality;			Appendix B
- address visual impact when viewed from the public domain and key vantage points surrounding the site;	Section 5.9		Appendix P
- address design quality, with specific consideration of the overall site layout, siting and design, orientation, vistas and connectivity, street activation, open spaces and edges, façades, massing, setbacks and building articulation;			Appendix B
- include documentary evidence that the independent Design Review Panel appointed by Infrastructure NSW to oversee the design of the SICEEP project has reviewed the detailed design and their recommendations have been addressed;	Section 5.6.2		Appendix BB
- address the Urban Design and Public Realm Guidelines, prepared by Infrastructure NSW for the SICEEP;	Section 5.5		Appendix B
- address wrapping/screening of above ground car parking when visible from the public domain;	Section 3.4		Appendix B
- address any building overhang or encroachment over the public domain and justify the inclusion of any such arrangement; and	Section 3.5 and 5.10		Appendix B
- identify how the podium roof provides greening and the function / use of this space;	Section 3.5		Appendix B
Public Domain and Urban Design			
The EIS shall:			
- address all aspects of the public domain such as open spaces within the precinct and footpath, road paving, cycleways, tree planting, footway dining, public art and lighting;	Section 3.5 and 5.10		Appendix B
- address Water Sensitive Urban Design opportunities within the public domain and landscaping;	Section 3.7 and 5.18		Appendix B and Appendix I
- address the CPTED for the design of the public domain;	Section 5.27		Appendix B and Appendix M
- identify the status of the proposed markets within the undercroft overland flow path along Hay Street;	Section 5.10		Appendix B
- confirm means of activating an enlivening the Hay Street frontage, especially when the proposed markets are not operating; and	Section 5.10		Appendix B
- address the Urban Design and Public Realm Guidelines, prepared by Infrastructure NSW for the SICEEP.	Section 5.10		Appendix B

Secretary's Environmental Assessment Requirement	Location in Report	
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 5.25, 5.26 and 5.29	Appendix J
- address the potential for sustainable technologies and/or renewable energy; and	Section 5.25	Appendix J
- provide an integrated Water Management Plan including alternative water supply, proposed end uses of potable and non-potable water, water sensitive urban design and water conservation measures.	Section 5.18	Appendix I
Amenity		
The EIS shall:	Section 5.8	
- address solar access, acoustic impacts, visual privacy, view loss, wind impacts, reflectivity and overshadowing impacts to the surrounding area. A high level of environmental amenity must be demonstrated.		Appendix B and Appendix N
- demonstrate consistency with SEPP 65 and the Residential Flat Design Code recommendations to achieve a high level of environmental and residential amenity. Any alternate solutions to provide amenity shall be fully documented and justified.	Section 5.8	Appendix B
Noise and Vibration		
The EIS shall identify the main noise and vibration generating sources and activities at all stages of construction (including demolition), and any noise sources during operation. Outline measures to minimise and mitigate the potential noise impacts to the surrounding area.	Section 5.15	Appendix L
<i>Relevant Policies and Guidelines:</i>	-	Appendix L
- NSW Industrial Noise Policy (EPA, 2000)		
- Interim Construction Noise Guideline (DECC, 2009)		
- Assessing Vibration : A Technical Guideline (DEC, 2006)		
- Environmental Criteria for Road Traffic noise (EPA, 1999)		
Transport and Accessibility (Construction and Operation)		
The EIS shall:	Section 5.11	
- address the impact of traffic and pedestrian volumes on the surrounding road network including intersections using appropriate traffic modelling analysis based on the worst case cumulative traffic impacts including a sensitivity analysis;		Appendix P
- provide details of any upgrading or road improvement works required to accommodate the proposed development;	Section 5.11	Appendix P
- address any impacts on the Light Rail corridor;	Section 5.11	Appendix P
- justify the level of car parking provided on the site;	Section 5.11	Appendix P
- provide details of measures to encourage sustainable transport measures, including end of trip cyclist facilities, pedestrian and cycle connections and travel plans;	Section 5.11	Appendix P
- address the impacts from construction traffic to the surrounding area and public transport services in the vicinity including the cumulative impact of construction activities from other sites in the locality;	Section 5.11	Appendix P and X
- provide details of the parking provision and arrangements during the demolition/construction period;	Section 5.11	Appendix P and X
- provide details of the pedestrian and cyclist connections to the surrounding area, including public transport linkages; and	-	Appendix P
- address road safety at key intersections and locations subject to heavy vehicle movements and high pedestrian activity.	Section 5.11	Appendix P

Secretary's Environmental Assessment Requirement	Location in Report	
Relevant Policies and Guidelines: - Guide to Traffic Generating Developments (RMS); - Planning Guidelines for Walking and Cycling; - NSW 2021; - Sydney's Light Rail Future, - Development Near Rail Corridors and Busy Roads – Interim Guideline (2008); - Sydney City Centre Access Strategy; - Sydney's Cycling Future; - Sydney's Walking Future; - Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development; and - City of Sydney Chinatown Public Domain Plan.	-	Appendix P
Drainage, Flooding, Climate Change and Sea Level Rise		
The EIS shall:		
- provide a drainage concept for the site incorporating water sensitive urban design; and	Section 5.18	Appendix I
- address the likely groundwater, flooding and sea level rise risks on the site and measures to ameliorate any impacts.	Section 5.18	Appendix I
Heritage		
The EIS shall:	Section 5.13 and 5.14	
- provide an archaeological assessment which includes consideration of Aboriginal and non-Aboriginal and maritime heritage and shall include appropriate mitigation strategies;		Appendix E
- provide an Heritage Impact Statement which address the impacts of the proposal on: - heritage significance of the site and adjacent area including any built and landscape heritage items; - places, items or relics of significance to Aboriginal people; and	Section 5.14	Appendix D
- include an outline of a heritage interpretation plan which address opportunities/avenues for appropriate and innovative public understanding and appreciation of heritage as part of the completed development.	Section 5.14	Appendix D
Utilities		
The EIS shall:	Section 5.16	
- in consultation with relevant agencies, identify the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure; and		Appendix H
- provide details of how infrastructure assets of various utility stakeholders will be protected during the demolition and construction phase of the project.	Section 5.16	Appendix H
Staging		
- The EIS shall provide details regarding the staging of the proposed development including timing of public domain works, including the 'Haymarket Square' and opportunities for interim land uses on sites awaiting redevelopment, including the North Plot.	Section 3.10	-
Contributions		
- The EIS shall address the provision of public benefit, services, infrastructure and any relevant contributions requirements.	Section 5.30	-
Water Quality		
The EIS shall:	Section 5.18	
- address water quality impacts during construction including details of the source, volume, frequency and on-going monitoring methods; and		Appendix I

Secretary's Environmental Assessment Requirement	Location in Report	
provide mitigation and management measures to minimise soil and stormwater impacts to the surrounding area.	Section 5.18	Appendix I
Relevant Guidelines: <i>Managing Urban Stormwater: soils and construction, vol 1 (Landcom 2004)</i> <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)</i>	-	Appendix I
Construction Impacts		
The EIS shall: address potential impacts to the surrounding area from noise and vibration, air quality and odour impacts, water quality and construction waste management during demolition and construction;	Section 5.28	Appendix L and X
address traffic management during construction including cumulative impact from surrounding development sites and details of vehicle routes, numbers of trucks, hours of operation, access arrangements, traffic control measures, crane locations and swing path of cranes;	Section 5.28	Appendix X
address community notification and complaints handling, impacts of construction on adjoining development and the public domain; and	Section 5.28	Appendix X
insofar as excavation is proposed, provide details of the annual volume of material to be extracted, processed or stored on site during construction and how the extracted material will be disposed of or reused.	Section 5.28	Appendix X
Consultation		
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with City of Sydney Council, Roads and Maritime Services and Transport for NSW.	Section 4.0	Appendix K
The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	Section 4.0	Appendix K

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);
- 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 education, 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 Darling Drive 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 3** and **4** below.

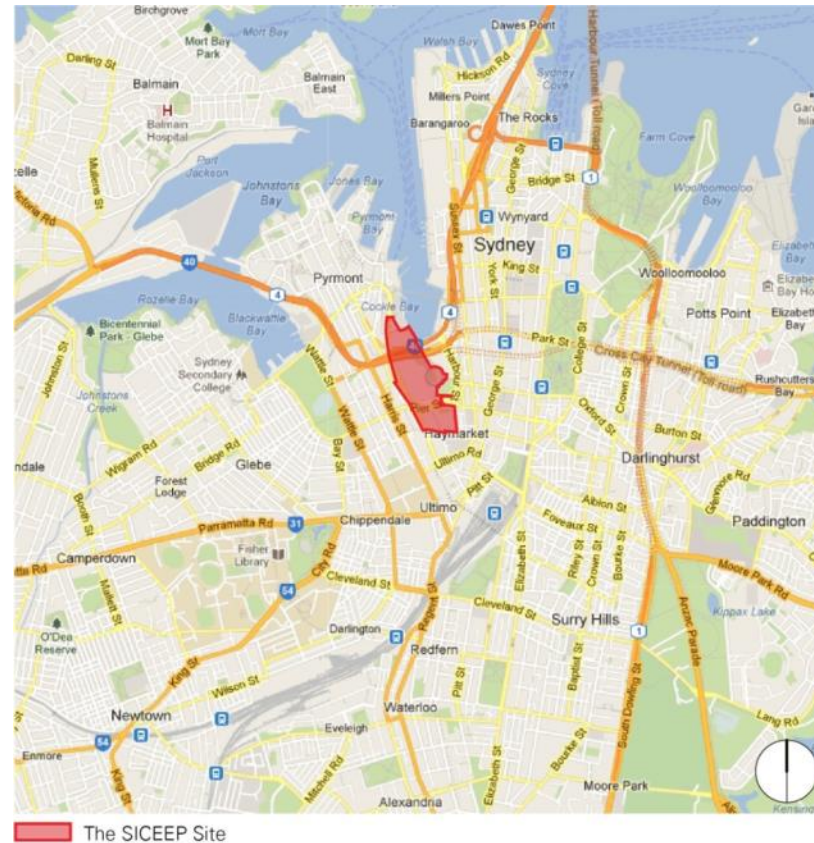


Figure 3 – SICEEP Context Plan



SICEEP Site

Figure 4 – SICEEP Location Plan

2.2 Site Description

2.2.1 Darling Square

The Darling Square Site is located in the southern portion 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 just under 4 hectares. An aerial photograph illustrating the Darling Square boundary and location of the South East Plot within Darling Square is provided at **Figure 5**.

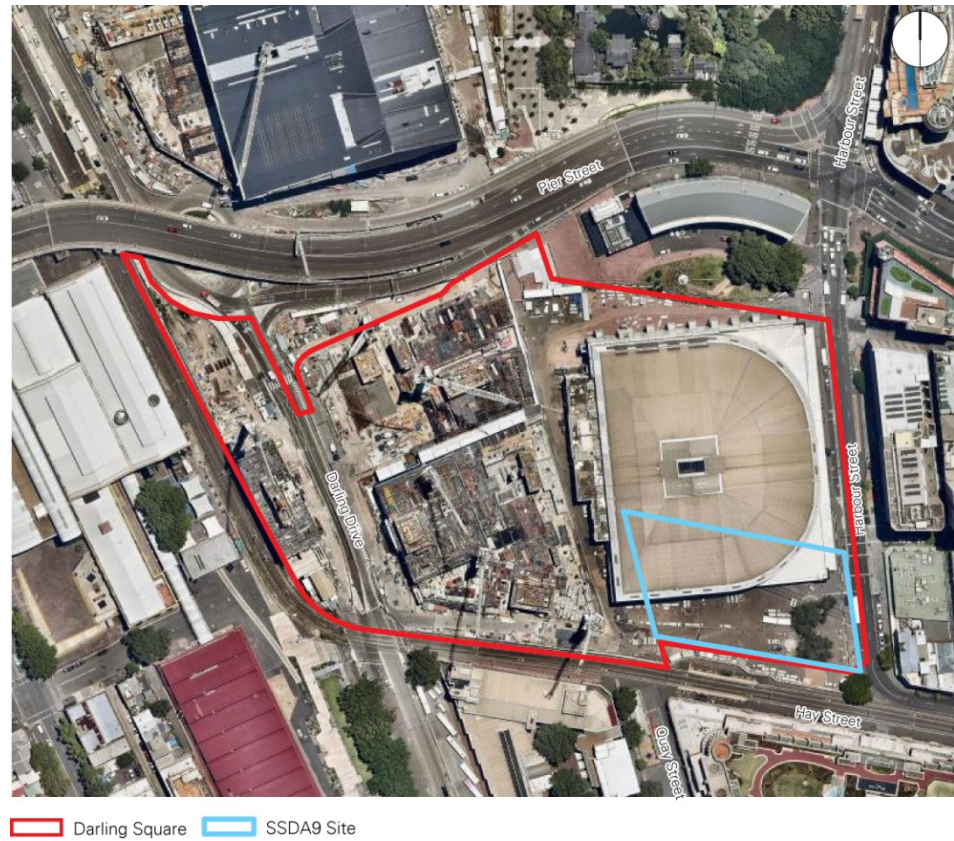


Figure 5 – Aerial view of Darling Square and the subject site

SSDA9 Development Site (Subject Site)

The SSDA9 Development site generally comprises the south eastern portion of Darling Square. The SSDA9 Site is predominantly land noted as the South East Plot under the Concept Proposal. An aerial view of the SSDA9 Site is illustrated at **Figure 5**, and the location of the Site in the context of adjoining future developments in Darling Square is illustrated at **Figure 6**.

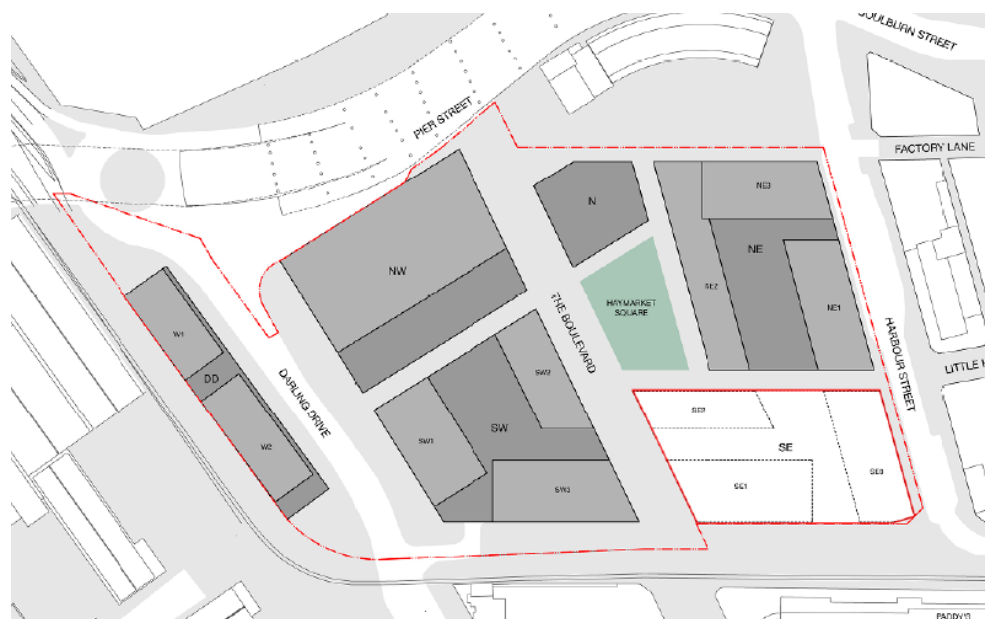


Figure 6 – Location of the SSDA9 Site within Darling Square (outlined in red)

The legal description of the land comprising Darling Square is identified in **Table 3**. Parcels of land to which this application relates are in bold. 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 1 DP612907	Sydney Harbour Foreshore Authority
Lot 2 DP612907	Sydney Harbour Foreshore Authority
Lot 200 DP1165804	Sydney Harbour Foreshore Authority
Lot 201 DP1165804	Sydney Harbour Foreshore Authority
Lot 205 DP771841	Sydney Harbour Foreshore Authority
Lot 210 DP771841	Sydney Harbour Foreshore Authority
Lot 1 DP827982	Sydney Harbour Foreshore Authority
Lot 900 DP1132344	Sydney Harbour Foreshore Authority
Lot 1 DP812844	Sydney Harbour Foreshore Authority
Lot 2 DP827982	Sydney Harbour Foreshore Authority
Lot 503 DP812423	Sydney Harbour Foreshore Authority
Lot 2 868663	Sydney Harbour Foreshore Authority
Lot 1 DP812344	Sydney Harbour Foreshore Authority

2.3 Existing Development

The SSDA9 Site currently accommodates the southern portion of the closed Sydney Entertainment Centre (SEC) and a portion of the existing public domain improvements and associated landscaping. Photographs of the existing development are provided in **Figures 7 to 9** below.

The SEC is a large multipurpose entertainment facility located in the eastern portion of the Darling Square Site. The SEC building is roughly square in shape and occupies an area of approximately 1.18 hectares. The SEC comprises a central arena, which is surrounded by a variety of bars, restaurants, and administration offices. Generally, there are no basement or underground structures located on the SSDA9 Site; however an orchestra pit is located immediately adjacent to the performance arena. The building rises to a height of approximately five storeys.

The SEC has been operational since 1983 and is capable of hosting a variety of events, including large theatre, music concerts, and sporting events. The capacity of the venue is variable depending on the type of event being held, but typically accommodates between 8,000 and 13,000 people. The SEC is now closed with hoarding around the site and internal demolition is underway.

A large public plaza is located directly to the south of the SEC adjacent to Hay Street and accommodates the Paddy's Market Light Rail stop. The Plaza is paved and includes some seating benches.



Figure 7 – Eastern façade of the Sydney Entertainment Centre



Figure 8 – South eastern corner of the Sydney Entertainment Centre



Figure 9 – Rear of the Sydney Entertainment Centre, viewed from Hay Street

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 SSDA9 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 C**).

The topography around the SSDA9 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

The SEC precinct currently provides two large areas of hard landscaping (public plazas) to the north and south of the SEC, with the southern area located within the South East Plot. The Southern Plaza is paved with grey brickwork and occupies the south east corner of the SSDA9 Site. The plaza incorporates public seating and an outdoor dining area organised around two trees and open space.

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 D**). 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 South East Plot:

- Chinese Garden of Friendship;
- 64 Harbour Street (façade);
- Former Hydraulic Pumping Station No.1 (the Pumphouse) (Section 170 Register); and
- Sydney Trades Hall; and
- Market City Façade (State significance).

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



Figure 10 – Heritage items within and surrounding the SICEEP Site (Update)

Archaeology

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 identifies that known archaeological remains of Section 170 register items are located within the Darling Square Site, those being the Hay Street Stormwater Channel (Hay Lackey Drain), and the Pier Street Precinct Archaeological Remains. These items are partially located within the South East Plot.

Indigenous Archaeology

An Aboriginal Archaeological Assessment Report for the Concept Proposal 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. The Report is included at **Appendix E**.

Comber Consultants have previously 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, 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 in the vicinity of the original shoreline. It is not expected that deposits will be located in areas comprising reclaimed land which includes the SSDA 9 site. This conclusion is confirmed in the Casey and Lowe SSDA 9 Archaeological Impact Statement provided at **Appendix E**.

Handling procedures for unexpected encounters with Aboriginal archaeology are outlined in Section 5.14 of this report, and within the Aboriginal Archaeological Assessment Report included at **Appendix E**.

2.3.4 Access

Pedestrian Access

The Chinatown precinct to the east has a fine grain street pattern which provides four (4) direct connections between Harbour and Dixon Streets, and Sussex Street further to the east. Darling Drive and Quay Street provide pedestrian connections to developments in the south, including Central Station, Broadway and Ultimo.

Pedestrian connections to the west are inhibited due to the location of the Light Rail Corridor and the topography of the land; pedestrian access is presently available via a pedestrian walkway from the Powerhouse Museum and a pedestrian footpath on the Pier Street overpass.

On 15 March 2013 approval was granted for the Ultimo Pedestrian Network (UPN), now known as the 'The Goods Line'. Construction of the Goods Line in 2015 has delivered a linear park and pedestrian link from Ultimo to the south-western portion of 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 Dulwich Hill 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 200m 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 500m 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 F**. 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 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;
- Possible presence of GPO fault (or sheared zone) mapped as striking in a north-east/south-west direction to the east of the Darling Square boundary; and
- The Great Sydney Dyke running through Darling Square in a north-west/south-east direction.

Subsurface Conditions

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

- Fill – comprising sand, sandy gravel, clay and sandy clay/silt with cobbles and boulder sized rock fragments;
- Alluvium and estuarine deposits – clayey sands and clays with occasional shell layers and organic matter, very loose to medium density with very soft to stiff consistency;
- Residual soils – clayey sands or sandy clays with stiff consistency above bedrock; and
- Bedrock, comprising:
 - Sandstone (Class V/IV) extremely low to low strength;
 - Sandstone (Class III) medium strength; and
 - Sandstone (Class II or better) medium and high strength.

Groundwater levels at Darling Square are indicated to be at depths between 3m to 3.5m 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 has been prepared by Coffey Environments for the South East Plot (**Appendix G**). 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.

Investigations into the SSDA9 Site have identified contaminants including:

- TPH, Total PAHs and benzo(a)pyrene;
- Bonded ACM, Asbestos and Asbestos fines;
- Hydrocarbon compounds at the subsurface; and
- Concentrations of arsenic, copper and zinc.

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.

Detailed discussion of site-specific contamination and remedial strategies is contained within Section 5.22 of this EIS.

2.3.7 Water Cycle

Stormwater

Stormwater drainage within the SSDA9 Site is comprised of a below ground local network and trunk drainage and overland flow paths. Stormwater is captured by surface inlet pits within roadways, pedestrian thoroughfares and landscaped areas which drain into minor pipe networks, and ultimately into major trunk stormwater culverts that discharge into Cockle Bay. Overland flow paths which bypass the drainage network flow through the Darling Harbour Precinct and also 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. In terms of the SSDA9 Site, these overland flow paths are modified but maintained to manage stormwater flows.

Refer to Section 5.18 for further details regarding the management of flood impacts.

Water Quality

There is 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 has undertaken a desktop study of existing utility infrastructure services within and in the vicinity of Darling Square and undertaken subsequent consultation with service providers as detailed in the Services Infrastructure Report (**Appendix H**). Existing essential infrastructure services for water, sewer, gas, electricity, communications and stormwater are provided to the Darling Square Site.

2.4 Surrounding Development

The Darling Square 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 12**. The existing and future development surrounding the SSDA9 Site is discussed further below.



Figure 12 – Map of surrounding development

To the North

Immediately to the north of the South East Plot is the approved future North East Plot in Darling Square. An SSDA for the development of the North East Plot was approved in April 2015 and will contain a mixed use development comprising a shared podium and three tower buildings (**Figure 13**). Currently, the location of the North East Plot is occupied by the northern portion of the Sydney Entertainment Centre and associated open space fronting the corner of Harbour Street and Little Pier Street (refer to **Figure 14**).

Adjoining the SSDA9 Site to the north is a large public plaza which connects the Darling Square Site with the rest of the Darling Harbour Precinct. The Plaza is paved with red Herringbone bricks, which extend beneath the Pier Street overpass for pedestrian connectivity with Darling Walk, Tumbalong Park, the Chinese Garden of Friendship.

On the northern side of this plaza is a grassed area which adjoins the Novotel Rockford Hotel further to the north. An image of this public plaza is provided at **Figure 14**.



Figure 13 – Artist's impression of the approved North East Plot development



Figure 14 – Northern Public plaza in front of the SEC

To the East

Immediately adjoining the site to the east is Harbour Street. Opposite the site on the eastern side of Harbour Street is a row of shops and commercial buildings which accommodate a mix of retail and restaurant uses (refer to **Figure 15**).

68 Harbour Street is located further to the north east and occupies the entire block bound by Harbour, Factory, and Little Hay Streets, and Kimber Lane. The site accommodates the Holiday Inn Darling Harbour, a 12 storey hotel providing 346 guest rooms.

Half of the hotel is accommodated within the former John Bridge Woolstore, which is an item of local heritage significance. The remainder of the hotel is accommodated in a more recent addition fronting Little Hay Street (see **Figure 16**).

Further to the east is the Chinatown precinct, which accommodates a variety of commercial, retail and restaurant uses. The Chinatown precinct is generally bounded by Liverpool Street to the north, George Street to the east, Quay and Harbour Streets to the west, and Railway Square to the south.



Figure 15 – Harbour Street retail and restaurant buildings



Figure 16 – 68 Harbour Street, viewed from Harbour Street

To the South

Immediately to the south of the South East Plot is the Hay Street which runs in an east-west direction and traverses the southern boundary of Darling Square. Hay Street is closed to motor vehicles between the intersections of Darling Drive and Harbour Street, where it becomes a shared zone for pedestrians and the Metro Light Rail (refer to **Figure 17**). The Paddy's Market Metro Light Rail Station is situated in this location.

On the eastern side of Quay Street is 9-13 Hay Street, which occupies the entire block bounded by Hay, Quay and Thomas Streets, and Ultimo Road. The development rises to 46-storeys and accommodates a mixed use development which includes Peak Apartments and the Market City Shopping Centre. Market City accommodates 'Paddy's Market' on Lower Ground Level, and three storeys of retail tenancies above. The Peak Apartments are situated in a tower above the podium level (refer to **Figure 18**).



Figure 17 – 9-13 Hay Street viewed from the west along Hay Street



Figure 18 – The Peak Apartments

To the West

Immediately to the west are the future Square and the South West Plot of Darling Square, which includes approval for the construction and use of three mixed use buildings over a shared podium and associated landscaping and public domain works (refer to **Figure 19**). Further to the north west is the North West Plot which includes an approved 12 storey commercial building incorporating an above ground car park (**Figure 20**).



Figure 19 – South West Plot under construction



Figure 20 – Photomontage of the approved North West Plot development

3.0 Description of Proposed Development

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

- Staged construction and use of a predominantly 5 storey mixed use podium, including:
 - retail floor space and residential lobbies on Ground Level;
 - above ground parking;
 - residential apartments; and
 - communal facilities (on the podium);
- Staged construction and use of three residential buildings above podium;
- Public domain improvements including:
 - Footpath along Harbour Street within the site;
 - Conceptual design for Harbour Street (located outside the site) to include paving, planting of four street trees, installation of lighting; and
 - Paving within the colonnade walkway; and
 - provision of vehicular access to the SSDA9 Site from Harbour Street;
- Landscaping works to the podium roof level;
- Extension and augmentation of physical infrastructure and utilities as required;
- Any associated remediation as may be required; and
- Associated tree removal and planting.

In total, the South East Plot will accommodate 391 residential apartments.

Architectural drawings of the proposed development have been prepared by FJMT and are included in the Design Report (**Appendix B**). Podium Landscape Plans prepared by Turf are included as an appendix to the Design Report. Also included is a Ground Plane and Retail Principles report prepared by Six Degrees Pty Ltd Architects that will guide the future retail use and fitout of the retail uses at ground level. Landscape Plans prepared by Aspect are included at **Appendix B**.

It should be noted that the final design and make-up of the proposed retail tenancies will be determined at a later stage. As such, details provided as part of this SSDA in relation to these ground floor retail uses should be considered in this context.

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 key design principles underpinning the Concept Proposal relevant to SSDA9 include:

- Produce elegant distinctive buildings appropriate to their place and setting;
- Maximise the South East Plot's contribution to the surrounding environment, ensuring the buildings stitch into the existing city fabric and positively contribute to the vitality of the area;
- Promote view sharing with surrounding buildings;
- Create efficient floor layouts and apartment designs of high residential amenity;

- Focus the development around the future new central Square;
- Establish an activated and engaging frontage along the edge of the future urban square, laneway and street frontages where possible;
- Generate a contemporary and innovative building form for each tower, reinforcing an elegant and vertically articulated design for the towers; and
- Create an urban edge for high-rise built form that is responsive to the City context.

3.2 Numerical Overview

Table 4 below provides a summary of numerical information relating to SSDA9. 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	37,000m ²
South East Plot	4,646m ²
GFA	
▪ Total	▪ 31,905 m ²
▪ Residential	▪ 30,395m ²
▪ Retail	▪ 1,510m ²
Maximum Height	Maximum Height
▪ storeys	▪ 29 storeys
▪ RL	▪ RL 99.7
No. of apartments	391
Total no. of car spaces	265

3.3 Site Preparation and Remediation

Site preparation works will include the regrading of the site, the removal of vegetation as necessary, and the removal of redundant infrastructure.

Remediation

This application seeks consent for any associated site remediation works as may be required as detailed in the Site Specific Remedial Action Plan prepared by Coffey Environmental in relation to the SSDA 9 site (**Appendix G**) and discussed further at Section 5.22.

3.4 South East Plot

The South East Plot is proposed to be developed as a mixed use residential development. The South East Plot is a major component of the overall Darling Square Concept Proposal and will accommodate four distinct built components:

- The podium structure;
- Residential building SE1;
- Residential building SE2; and
- Residential building SE3.

Overall, the development will provide a mix of retail tenancies with residential parking and services on the lower levels, and 391 residential apartments and residential parking located within the podium and the residential buildings above. A photomontage of the overall development is provided at **Figure 21**. Each of the four components is described in detail in the following sections of this report.

3.4.1 Podium Structure

The proposed podium structure will accommodate a mix of land uses comprised of the following:

- Retail floor space (1,510m²) on the Ground Level;
- Residential car parking for 265 vehicles on Level 2 to Level 6;
- Residential apartments around the boundary of the podium on levels 2 – 6;
- Retail shopfronts and awnings / canopies; and
- Ancillary services throughout (loading, circulation, storage, bicycle parking, waste storage, services etc.).

The final fitout of the Ground Level retail spaces, including signage will be determined at a future stage. An artist's impression of Little Hay Street is shown at **Figure 22**. The roof of the podium will serve as an area of shared open space for the future residents. This is described in further detail in Section 3.5 of this EIS.

Residential apartments will be provided around the boundary of the podium (Level 2-6), effectively sleeving the above ground parking, however these apartments form part of the lower levels of residential buildings SE1, SE2, and SE3 above, and are therefore described in additional detail in the relevant sections below.

A colonnade is proposed along the ground floor southern boundary of the podium fronting Hay Street. This podium will be continuous along the southern boundary and will act as a strong edge to the podium, providing a high quality architectural response to the pedestrianised section of Hay Street including design measures to protect against flooding.

External Materials and Finishes

A limited, direct and simple palette of terracotta (or similar), metal, precast concrete and glass has been selected for the South East Plot. The materiality of the buildings reference existing masonry buildings of the site and respond to the new neighbouring developments. The development has utilised natural materials to provide a contemporary, timeless residential character that will complement and contrast with development at Darling Square.

A photomontage of the proposed podium structure is provided at **Figure 23**.



Figure 21 – Photomontage of the proposed development, viewed from the south-west (SE1 Building in foreground)



Figure 22 – Photomontage of the podium, viewed from Hay Street



Figure 23 – Artist's impression of Little Hay Street

3.4.2 Building SE1

Building SE1 is located in the southern portion of the South East Plot. Building SE1 commences on Level 2, with the first five levels contained within the podium structure. As with all of the proposed residential buildings, apartments within the podium are arranged in a linear fashion on the outer perimeter, addressing the public domain and wrapping the ancillary car park within.

Above the podium roof level Building SE1 widens to a typical tower floor plate, and rises to 29 storeys in total (including podium and ground). Building SE1 has been articulated into twin unequal towers, providing a continuous slot on the southern façade which articulates the longer façade of the building to Hay Street (**Figure 24**). On the northern façade, the proportion of the building is divided into three to provide greater articulation. A photomontage of northern façade of Building SE1 is provided at **Figure 24**.



Figure 24 – Building SE1 in background, viewed from The Square

Building Height

The lower levels of Building SE1 are located within the podium, commencing on Level 2 at RL 7.8. This level is approximately 4.2m above existing ground level. The maximum proposed building height for Building SE1 is RL 96.10 (approximately 96m above ground level).

Dwelling Mix

Table 5 – Building SE1 apartment mix

Apartment Type	Building SE1
Studio	4
One Bedroom	135
Two Bedroom	149
Three Bedroom	4
Total	292

Building Setbacks and Building separation

In line with the principles of perimeter edge planning adopted in the Concept Proposal (as modified), all buildings proposed within the South East Plot are built to the edge of the podium. A change of building materials and full height re-entrant is provided at Level 6 above the podium to create a distinction between the tower and podium elements. The following setbacks between Building SE1 and the remaining buildings above the podium are proposed:

- Building SE2 – 12.7m;
- Building SE3 – 18m; and
- South West Plot (Residential) – 24m

External Materials and Finishes

Consistent with the other residential buildings, Building SE1 is differentiated from the podium. This is achieved through the provision of a re-entrant at Podium Level 7, along with the selection of alternative materials.

To the south the façade of SE1 has been broken into two unequal towers by the service cores expressed as distinctly recessed elements. To the north the tower is articulated with strong horizontal and vertical fine grain white 'pearl' brise soleil screen elements that make up the majority of the tower façade along with glazing. Eastern and western facades are pre-cast with windows.

The building is clad in terracotta (or similar material) to the lower levels of the podium, providing a distinctive 'base' of the building separated in materiality from the tower form.

3.4.3 Building SE2

Building SE2 is located in the northern portion of the South East Plot. The building commences on Level 2 of the podium, with the first six levels contained within the podium. Building SE2 is a total of 9 levels (including podium and ground). The building has two distinct components separated by a vertical slot carried up through the building. A photomontage of Building SE2 is provided at **Figure 25** further below.

Building Height

Building SE2 commences at the ground level followed by Podium Level 1 at RL 9.8. This level is approximately 6.2m above Ground Level. The maximum proposed building height for Building SE2 is RL 34.965 (approximately 32m above ground level).

Dwelling Mix

Table 6 – Building SE2 apartment mix

Apartment Type	Building SE2
One Bedroom	6
Two Bedroom	14
Three Bedroom	9
Total	29

Building Setbacks

The following setbacks between Building SE2 and the remaining buildings above the podium are proposed:

- Building SE1 – 12.7m;
- Building SE3 – 24m; and
- North East Plot (residential) – 8m.

External Materials and Finishes

At the northern façade to The Square, the Building SE2 is proposed to include bronzed perforated bi-folding screens topped with a fine white frame that connects the South-East Plot and North-East Plot buildings, creating a consistent language between the buildings.

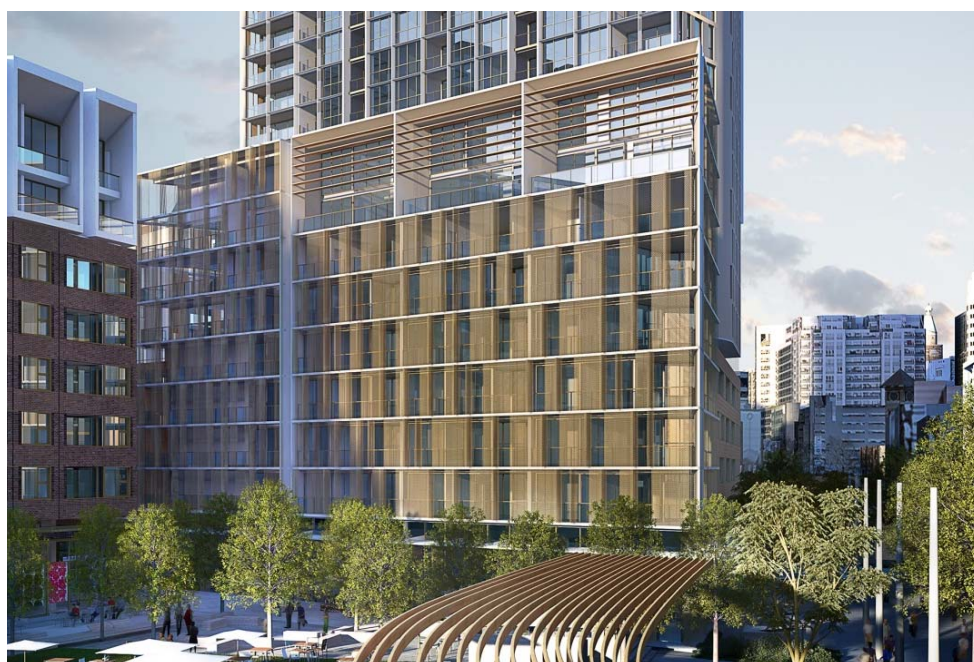


Figure 25 – Photomontage of Building SE2, viewed from the future Square

3.4.4 Building SE3

Building SE3 is located in the eastern portion of the South East Plot. The building contains six levels within the podium. The apartments within the podium are arranged in a linear fashion on the outer perimeter, wrapping the ancillary car park.

Above the podium roof level the building widens to a typical tower floor plate, and rises to 10 storeys in total (including podium). A photomontage of Building SE3 is provided at **Figure 26** further below.

Building Height

The lower levels of Building SE3 are located within the podium, commencing on Level 2 at RL 7.8. This level is approximately 4.2m above Ground Level. The maximum proposed building height for Building SE3 is RL 35.85 (approximately 32m above ground level).

Dwelling Mix

Table 7 – Building SE3 apartment mix

Apartment Type	Building SE3
One Bedroom	45
Two Bedroom	25
Total	70

Building Setbacks

The following setbacks between Building SE3 and the remaining buildings above the podium are proposed:

- Building SE1 - 18m;
- Building SE2 - 24m; and
- North East Plot (residential) – 12m.

External Materials and Finishes

Similar to Building SE1, the Building SE3 tower is differentiated from the podium through the provision of a significant re-entrant at Podium Level 7, along with the selection of alternative materials.

The façade of Building SE3 is composed of a geometric collage blending autumnal tones to create a finely scaled screen of warm hues. The white framing of balconies relates strongly to the brise soleil of Building SE1 and opens to the sky at the top.



Figure 26 – Photomontage of Building SE3, viewed from the north east

3.5 Landscaping and Public Domain

3.5.1 Communal Open Space

Landscape Drawings have been prepared by Turf Design and are included at **Appendix B**. The proposed landscaping works will provide a number of distinct landscaped zones within the communal open space of the podium that will be suitable for a range of active and passive recreational activities. These include:

- Boundary screening planting and interspersed islands of dense planting;
- Circulation pathways;
- Swimming pool;
- Outdoor gym area;
- Secluded seating areas; and
- Outdoor dining area with barbecues and covered pergola.
- Grassed open space

The completed communal landscape area will ultimately cover the entire podium roof and will comprise a variety of spaces and external areas, each offering different aesthetic qualities and opportunities for people to gather, relax or play.

The circulation zones of the podium link the series of communal spaces on the podium roof and provide clear sight lines across the podium. Pathways are clearly defined and vary in width and texture, creating opportunities for informal groups to gather and socialise. Soft landscaping comprises a diverse range of trees, shrubs and grasses. Where trees are proposed, suitable soil depth will be provided to support a wide variety of native and exotic tree species.

Figure 27 is an extract of the Landscape Plan and illustrates the proposed layout of the podium roof level.



Figure 27 – Podium Roof Level Landscape Plan

3.5.2 Public Domain

Public Domain drawings and a Landscape Statement have been prepared by Aspect Studios included at **Appendix B**. The Public Domain Plan has been prepared in accordance with the Public Domain Concept Proposal approved with the Concept Proposal (as modified).

An illustration of the Public Domain Concept is provided at **Figure 28**, with key components summarised below.

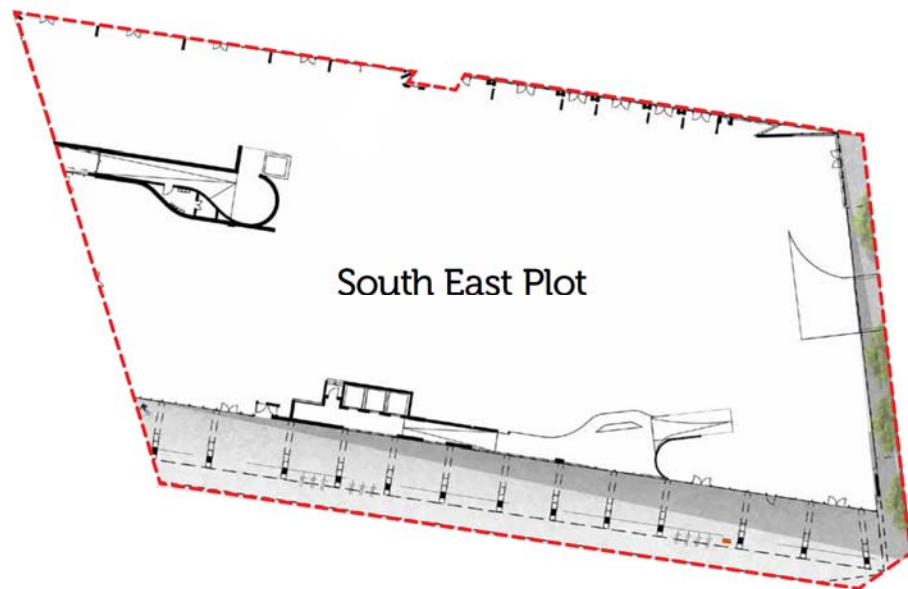


Figure 28 – Public Domain Plan

Southern Boundary

A nine (9) metre wide colonnade will line the SSDA9 Site boundary to Hay Street. The colonnade will provide for overflow flooding requirements that affect the site by allowing water flow across the site as identified in **Appendix I**. The colonnade will feature arched columns allowing sheltered access for pedestrians accessing Darling Square.

Within the colonnade there will be a total of 20 bicycle hoops. The pavement treatment is proposed to be in accordance with the City of Sydney standard black granite paving.

Eastern Boundary

Aspect has developed a draft concept for the land along Harbour Street outside of the site boundary and owned by Council (refer to **Appendix B**). This conceptual design includes a widened footpath on Harbour Street paved with City of Sydney standard black granite paving; the planting of four new *Koleuteria paniculata* (Golden Rain Tree) street trees; and lighting. This conceptual design will be further refined and finalised in consultation with Council and TfNSW, consistent with the approved approach for the draft concept of the extension of Harbour Street to the north (approved under the NE plot development (SSDA7)).

Northern and Western Boundaries

No public domain works are proposed along the northern and western boundaries. Public domain treatments in these locations will be the subject of a separate approval (SSDA10) currently under assessment.

3.6 Access and Parking

Pedestrian Access

As outlined in the Design Report prepared by FJMT at **Appendix B**, the development provides for public pedestrian access along all four edges of the proposed mixed use residential building. Separate pedestrian access points will be provided to all residential lobbies from the public domain, whilst direct and separate pedestrian access will be provided to the retail tenancies.

Buildings SE1 and SE3 will share a single grand lobby entry off Hay Street, whilst Building SE2 will have a lobby accessed from The Boulevard.

Vehicular Access

On-site car parking for the mixed use residential development is located within the first six levels of the podium. Vehicle access to the car park is via Harbour Street. **Figure 29** illustrates the location of the vehicle access point. A roller shutter door will control entry into and out of car park. Past the roller shutter door, access to parking on Levels 2-6 is provided via a ramp. There is also a secondary roller shutter providing access to upper level residential parking.

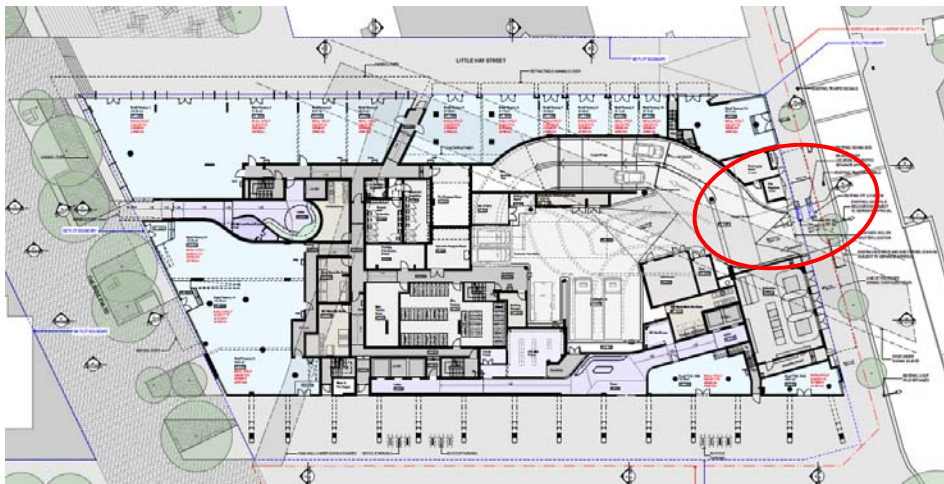


Figure 29 – South East Plot vehicle entry point (shown in red circle)

Car Parking

The proposal includes the provision of 265 above ground car parking spaces within the podium level car park, including 10 accessible spaces. The car parking spaces will be allocated to apartments at a future stage.

Loading Dock and Servicing

Access to the building's loading dock will be provided via the vehicle access point on Harbour Street. The loading dock is capable of containing two service vehicles and is limited to a height of 3.9m clearance in the manoeuvring areas and 4.5m in the loading area.

3.7 Water Cycle Management

The Flooding, Stormwater and WSUD Report prepared by Hyder Consulting (**Appendix I**) includes details of the proposed stormwater drainage and water cycle management measures proposed for the South East Plot. The detailed proposal for the South East Plot operates within the water cycle management framework established under the Stage 1 Concept Proposal (SSDA2).

In particular, SSDA9 seeks consent for modifications to the existing stormwater systems in accordance with the precinct-wide approach outlined in the Concept Proposal and new local drainage systems which connect to existing systems. On-site stormwater detention is not provided due to the lower-catchment location of the site.

The proposed development also incorporates water sensitive urban design (WSUD) measures to reduce potable water consumption, minimise wastewater generation and treat urban stormwater. The following WSUD measures are proposed:

- 80m³ rainwater tank with first-flush device;
- Engineered filtration system; and
- Green roof on the podium level.

Specific details on these measures are discussed in Section 8 of the Flooding, Stormwater and WSUD Report (**Appendix I**).

3.8 Environmentally Sustainable Development

The Sustainability Report prepared by Lend Lease (**Appendix J**) details the sustainability strategy and detailed design measures which will be implemented within Darling Square and the South East Plot mixed use residential development. Key sustainable design measures include the use / provision of:

- fluorescent or LED lighting;
- ventilation and lighting controls which will ensure lighting and ventilation are only provided when required;
- ventilated air (filtered outside air) in common areas, rather than air conditioning;
- energy efficient appliances;
- energy and water metering to monitor common energy and water use; and
- variable refrigerant flow system providing heating and cooling to enable numerous indoor fan coil units to be serviced by central condenser units.

A commitment has been made to achieve a 4-Star Green Star rating using the Multi-unit Residential v1 tool. The initiatives proposed will also ensure that the NSW sustainability performance requirements set by BASIX will be met.

3.9 Infrastructure and Services

A Services Infrastructure Report has been prepared by Hyder and is provided at **Appendix H**. This Report builds upon the original report prepared in support of the Concept Proposal and details the existing infrastructure available at the SSDA9 Site, identifies likely points of future connection, associated upgrades and augmentation of services to facilitate the proposed development. The detailed design and coordination of each of these services will continue to be explored in consultation with the relevant service providers, and will be completed prior to the commencement of works on the SSDA9 Site.

Water

A water main is currently located within the eastern façade of Harbour Street to the east of the South-East Plot and within Hay Street on the southern side of the Plot. These mains are fed by a main on the western side of the South East Plot, which has been upgraded as part of the South West Plot development.

It is proposed that private water services will be taken off the new DN200 PVC water main along The Boulevard to supply potable water and fire requirements to the South East Plot in the south west corner. Two DN150 PVC offtakes with isolation valves have been installed for South East plot private water and fire services connections. In addition, the Hay Street water main is required to be relocated and upgraded to a DN225 CICL for the entire South East Plot frontage. This design has been approved by Sydney Water.

Sewer

A sewer is located within Harbour Street on the eastern side of the South East Plot. There are existing private sewers connecting the existing Entertainment Centre that can be terminated without need to relocate, divert or reconnect once the centre is demolished. The South East Plot will be serviced via a connection to the existing sewer at the junction of Harbour and Little Hay Street, from the north east corner of the plot. A sewer across Harbour St will be provided at the north east corner of the South East Plot. This design has been approved by Sydney Water.

Gas

The South East Plot will be serviced via a connection to the existing 1050kPa high pressure gas main in Harbour Street on the eastern side of the development site.

Electricity

There are a number of HV distribution cables located in Harbour Street on the eastern side of the site and forms part of the CBD Triplex Network. Further HV distribution cables are located in Hay Street on the southern side of the South East Plot.

The proposed development will require the provision of new electrical conduits along the southern and eastern boundaries in the road reserves. In addition, electrical conduits will be installed on the northern side of the South East Plot, including some temporary electrical connections through to the North East Plot development site.

The South East Plot will be serviced via a connection in the south east corner of the plot to an existing pit in Harbour Street which forms part of the 11kV CBD Triplex HV Network.

Telecommunications

Hyder have identified that there is in-ground telecommunication infrastructure in the SSDA9 Site operated by Telstra and Optus. This infrastructure will be removed with the demolition of the SEC. New communications conduits will be provided from existing infrastructure located to the north of the North Plot.

Communications infrastructure is proposed to be delivered to the South East Plot through 3x100mm conduits. Telecommunication providers will be able to use this infrastructure to provide communications services to the SSDA9 Site. The new infrastructure will connect with existing Telstra services on Harbour Street.

3.10 Construction Staging

3.10.1 Construction Staging

Whilst a single development consent is sought, the development may be constructed in a staged manner. The proposal has therefore been developed in a way that will facilitate building in various stages as necessary.

To facilitate the staging of the construction process, it is proposed to stage the issuing of construction certificates. It is anticipated that the Department will structure the Conditions of Consent to facilitate staged Construction and Occupation Certificates being obtained.

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 K**) has been prepared by Lend Lease outlining the consultation undertaken to date, including for the Stage 1 Concept Proposal (SSDA2) and specifically for SSDA9. This Report also 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

Three key engagement platforms have been used across all stakeholder groups in the lead up to the lodgement of this SSDA, specifically:

- printed material – newspaper adverts, newsletters, letter box drop and feedback forms;
- face-to-face communication – drop in Community Information sessions x 2 and one on one briefings x 2; and
- Technology – Web based materials on the project website, project telephone number, project email, direct email.

The Stakeholder and Community Engagement Report at **Appendix K** elaborate further on the above engagement activities.

4.1.2 SSDA9 Outcomes from Consultation

The Stakeholder and Community Engagement Report (**Appendix K**) provides a detailed summary of the consultation conducted specifically for SSDA9. A range of stakeholders were engaged in this process, ranging from state authorities to local residents and the general public. Matters raised during the consultation were both positive and negative, with several points of clarification sought in regards to proposed development setbacks, surrounding built form, retail opportunities and sustainability targets for the buildings. Specific matters raised in regards to SSDA9 included:

- Varying opinions about the architectural design and materiality with both positive and negative feedback received;
- Support for the use of retail to activate the ground plane;
- Support for the landscaped podium to provide point of interest to neighbouring buildings;
- Desire for provision of more plants and public space;
- Concern regarding the building height impacting views and overshadowing on neighbouring residential apartments;
- Concern regarding the potential for increased traffic on neighbouring streets;
- Concern regarding car parking provision causing increased traffic in the surrounding streets; and
- Concern regarding the level of activation on Harbour Street.

A detailed response to each of these matters is provided in Section 5 of **Appendix K**. Meetings with City of Sydney Council, Roads and Maritime Services and Transport for New South Wales have also been undertaken.

It is noted that the proposed development will be placed on public exhibition for at least 30 days in accordance with clause 83 of the Regulations. 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 to 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 8** below.

Table 8 – 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 and Urban Design	Section 5.7	Appendix B
Internal Residential Amenity	Section 5.8	Appendix B
Visual and View Analysis	Section 5.9	Appendix P
Public Domain and Landscaping	Section 5.10	Appendix B
Transport and Accessibility	Section 5.11	Appendix Q
Accessibility	Section 5.12	Appendix R
Non-Indigenous Heritage	Section 5.13	Appendix D
Archaeology	Section 5.14	Appendix E
Noise and Vibration	Section 5.15	Appendix M
Infrastructure and Utilities	Section 5.16	Appendix G
Operational Waste Management	Section 5.17	Appendix S
Water Cycle Management	Section 5.18	Appendix J
Air Quality	Section 5.19	-
Reflectivity	Section 5.20	Appendix T
Geotechnical Issues	Section 5.21	Appendix F
Contamination	Section 5.22	Appendix H and Appendix I
Wind Impact	Section 5.23	Appendix U
BCA	Section 5.24	Appendix V
Environmental Sustainability	Section 5.25	Appendix K
Social and Economic Impact	Section 5.26	-
Crime and Public Safety	Section 5.27	Appendix N
Environmental and Construction Management	Section 5.28	Appendix X
Ecologically Sustainable Development	Section 5.29	-

Planning Issues	Assessment	
Development Contributions	Section 5.30	-
Site Suitability	Section 5.31	-
Public Interest	Section 5.32	-

5.1 Secretary's Environmental Assessment Requirements

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

5.2.1 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 mixed use residential buildings within the South East Plot of Darling Square.

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 (as modified) and is not inconsistent with the approved Concept Proposal (as modified).

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 9** provides an assessment of the proposed development against the objects of the EP&A Act. **Table 10** provides an assessment of the proposal against the matters for consideration listed in section 79C of the EP&A Act.

Table 9 – 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 the South East Plot will contribute to the proper management, development and conservation of the natural and artificial resources of the SSDA9 Site. In particular, a range of measures outlined in the Sustainability Report prepared by Lend Lease and included as Appendix J 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 the South East Plot 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 South East Plot for the provision of mixed use residential buildings with ground floor retail uses 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 H) 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 SSDA9 development supports the overall re-development of the Darling Square site that will provide a substantial quantum of public domain works including the provision of a new public square, 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, as part of the broader Darling Square precinct and overall SICEEP redevelopment, supports the provision of community services and facilities such as a childcare centre, library, and IQ hub.
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 would not impact on biodiversity values. The SSDA9 Site is not considered to have habitat suitable for any threatened flora and fauna, and the only vegetation proposed to be removed are introduced street trees.
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 5.29 of this EIS.
5(a)(viii) To encourage the provision and maintenance of affordable housing.	The development of the South East Plot will deliver 391 apartments and improve housing supply, choice and affordability in the locality.
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 10 – 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 (as modified).
(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 SSDA9 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 SSDA9 Site is suitable for the proposed development as outlined in Section 5.31.
(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 5.32.

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 11**.

Table 11 – Consistency with relevant strategies, policies and guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW 2021	SSDA9 is consistent with the Strategy in that it will: ■ encourage patronage on public transport by increasing residential density in close proximity to Metro Light Rail, rail, bus and ferry services; and ■ enhance the 'liveability' of Haymarket and its surrounding neighbourhoods by providing: – a substantial quantum of residential dwellings in close proximity to employment, education, and recreational activities; – improved amenity in the public domain; and – support for improved pedestrian connectivity with surrounding precincts.
A Plan for Growing Sydney	SSD9 is consistent with the Plan in that it will: ■ Accelerate housing supply by delivering 391 additional apartments in the Sydney CBD; ■ Provide a range of apartment types and sizes to cater to the changing population of Sydney; ■ Delivers a large number of new homes in a location closer to 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, attracting development and business and creating a vibrant centre where people want to spend time.
Draft Metropolitan Strategy for Sydney to 2031	Although the Draft Metropolitan Strategy for Sydney to 2031 has been superseded by A Plan for Growing Sydney, SSDA9 is consistent with the Draft Plan in that it will: ■ Contribute 391 additional apartments within the centre of Sydney; ■ Provide a range of apartment types and sizes to cater to the changing population of Sydney; ■ Provide employment opportunities during the construction and operation period of the proposed development; ■ Contribute to the strengthening of 'Global Sydney' as a centre for economic, educational, medical, creative and cultural activity; and ■ Supporting existing and new public transport infrastructure, as well as providing dwellings within close proximity of existing services and facilities.
Metropolitan Plan for Sydney 2036	Although the Metropolitan Plan for Sydney 2036 has been superseded by A Plan for Growing Sydney, SSDA9 is consistent with the Plan in that it will: ■ contribute to making Sydney more compact and connected by increasing residential density in an underutilised area of the CBD with excellent public transport links; ■ assist in achieving 70% of new dwellings being located within existing areas by facilitating residential growth in an established suburb;

Instrument/Strategy	Comments
	- provide a substantial quantum of residential dwellings in the CBD with excellent public transport links, allowing more people to work closer to home; - provide local opportunities for residents and visitors to walk, cycle, or use public transport; and - encourage growth in close proximity to existing light rail, rail, bus and ferry services.
NSW Long Term Transport Masterplan	SSDA9 is consistent with the Masterplan in that it will: - support the expansion of the Light Rail System, by providing housing in direct proximity to existing Metro Light Rail stations; - assist in unclogging the Sydney CBD transport system by connecting more people to existing Light Rail Infrastructure and encouraging patronage on an existing network with spare capacity; - encourage public transport use by providing residential dwellings in close proximity to light rail, rail, bus and ferry services; and - support a reduced reliance on private vehicles, assisting in improving the modal split between cars and public transport.
Sydney City Draft Subregional Strategy	SSDA9 is consistent with the Strategy in that it will: - provide for increased housing on a significant renewal site that is strategically located within 'Global Sydney'; - encourage more sustainable travel behaviour through locating residential development within walking distance of light rail, rail, bus, and ferry services, whilst improving access to transport via walking and cycling networks; - create a built form that will achieve design excellence; - support the UTS Haymarket Campus and other nearby universities and TAFE institutions by providing nearby housing with transport connections; - involves infill development which will assist in containing Sydney's urban footprint; - incorporates design features and construction methods that will assist with tackling climate change and protecting Sydney's natural environment; and - supports the provision of increased, improved and accessible open space in Darling Square.
Sustainable Sydney 2030	SSDA9 is generally in accordance with the Strategy in that it will: - support public transport usage by encouraging Rail/Light Rail patronage; and - improve pedestrian and cyclist access to the Sydney Harbour foreshore.
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 South East 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.

Instrument/Strategy	Comments
City of Sydney Chinatown Public Domain Plan	Whilst the City of Sydney Chinatown Public Domain Plan is not strictly relevant to the proposed SSDA, it has been considered in the design of the overall concept proposal (SSDA2). This is evident in the extension of Factory and Little Hay Streets into Darling Square and through the vision of replicating the urban grain and laneway characteristics of nearby Chinatown streets into the precinct. SSDA9 supports these objectives.
Planning Guidelines for Walking and Cycling	SSDA9 will improve walkability and cycle access across the City and support a reduced reliance on private vehicles.
NSW Bike Plan 2010	SSDA9 will support the investment in new/existing cycle paths through consolidating development in a location which is located in close proximity to the regional cycle network. Provision is made in this regard for bicycle parking for future residents, workers and visitors, along with end of trip facilities.
Integrating Land Use and Transport Policy Package	SSDA9 will provide residential development in the CBD with excellent public transport links, allowing students to live close to key education facilities, and workers to live closer to their place of employment.
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 as required. This assessment is outlined in the Noise and Vibration Report (Appendix L).
Sydney's Light Rail Future	SSDA9 recognises the expanded role light rail will play in Sydney's transport future, and encourages the utilisation of Paddy's Market Light Rail Station as one of the main public transport node for Darling Square.
Sydney's Cycling Future	SSDA9 will support the investment in new/existing cycle paths through consolidating development in a location which is located in close proximity to the regional cycle network. Provision is made in this regard for bicycle parking for future residents, workers and visitors, along with end of trip facilities.
Sydney's Walking Future	SSDA9 will support the implementation of Sydney's Walking Future through concentrating a greater population in the centre of Sydney. The proposal will result in 391 additional apartments located within walking distance of a range of services and facilities.
Sydney City Centre Access Strategy	SSDA9 is consistent with the Strategy in that it provides a significant number of new dwellings in walking/cycling distance of services and facilities. The location of a greater population of people within the centre of Sydney will improve public transport patronage and the modal split of travel away from private car usage.
Healthy Urban Development (HUD) Checklist	The proposed development is consistent with the HUD checklist in that it: - incorporates open space which promotes and is conducive to physical activity; - promotes walking, cycling and public transport, and improved connectivity to the existing urban network; and - provides a safe urban environment designed with regard to CPTED principles.
Waste Classification Guidelines (DECC 2008)	The Waste Classification Guidelines have been considered in the Remediation Action Plan included as Appendix G .
Heritage Council Guidelines Assessing the Significance of Archaeological Sites and Relics	The Heritage Council Guidelines are addressed in Appendix D and E , and Section 5.14 of this report.
CPTED	CPTED principles are addressed in Appendix M and Section 5.27 of this report.

5.4 Compliance with Environmental Planning Instruments

The proposal's consistency and compliance with the relevant statutory plans and policies is summarised in **Table 12** or discussed in more detail below.

Table 12 – 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 also triggers consultation with NSW Roads and Maritime Services (RMS) under the provisions of clause 104 and Schedule 3 of the SEPP as the proposed development provides over 300 dwellings.
SEPP (BASIX)	The proposed development will meet a 4 Star Design rating under the Green Star Multi-Unit Residential v1 tool. 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 initiatives proposed will enable the NSW sustainability performance requirements set by BASIX to be met.
SEPP 65 (Design Quality of Residential Flat Development)	The proposal is generally consistent with the principles of SEPP 65 and the Apartment Design Guide (ADG), as well as the benchmarks established in the Concept Proposal. Refer to Section 5.8 and Appendix B .
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 Remedial Action Plan has been prepared for the SSDA9 Site by Coffey Environments and is included at Appendix G . The Plan has been summarised in Section 5.22 of this EIS. In summary, the Plan considers that the SSDA9 Site can be made suitable for the proposed development and future uses, and outlines a strategy to ensure that the requirements of SEPP 55 are appropriately addressed.
Draft SEPP (Competition)	The proposal is consistent with the aims of the Draft SEPP (Competition) in that it will promote economic growth within NSW.

5.4.1 State Environmental Planning Policy No.65 – Design Quality of Residential Flat Development

FJMT has prepared an assessment of the proposed development against the design principles of SEPP 65 and the ADG (included within the Design Report provided at **Appendix B**). The SEPP 65 Assessment includes a design verification statement (refer to **Appendix B**). Based on the assessment undertaken by FJMT, the proposal meets the objectives and principles of SEPP 65.

5.4.2 Apartment Design Guidelines

The proposed development has been designed to provide all dwellings with a high quality of internal amenity and outlook. As outlined in the Design Report provided at **Appendix B**, the proposal has been designed in accordance with the nine principles of *State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development* (SEPP 65).

An assessment of the proposal's consistency with the key objectives of the Apartment Design Guideline (ADG) is provided in **Table 13** and elements that warrant further consideration in respect of internal amenity are discussed in **Section 5.8**.

Table 13 – Consistency with the Apartment Design Guidelines

Design Criteria	Proposal															
Part 3 Siting the Development																
3D Communal and Public Open Space																
<i>Objective</i> An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping	✓															
<i>Design Criteria</i> Communal open space has a minimum area equal to 25% of the site	✓															
Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid winter)	✓															
3E Deep Soil Zones																
<i>Objective</i> Deep soil zones provide areas on the site that allow for and support healthy plant and tree growth. They improve residential amenity and promote management of water and air quality.	✓															
<i>Design Criteria</i> Deep soil zones are to meet the following minimum requirements: <table><tr><th>Site Area</th><th>Minimum Dimensions</th><th>Deep Soil Zone (% of site area)</th></tr><tr><td>Less than 650m²</td><td>-</td><td>7%</td></tr><tr><td>650m² – 1,500m²</td><td>3m</td><td></td></tr><tr><td>Greater than 1,500m²</td><td>6m</td><td></td></tr><tr><td>Greater than 1,500m² with significant existing tree cover</td><td>6m</td><td></td></tr></table>	Site Area	Minimum Dimensions	Deep Soil Zone (% of site area)	Less than 650m ²	-	7%	650m ² – 1,500m ²	3m		Greater than 1,500m ²	6m		Greater than 1,500m ² with significant existing tree cover	6m		Alternative solution see discussion below
Site Area	Minimum Dimensions	Deep Soil Zone (% of site area)														
Less than 650m ²	-	7%														
650m ² – 1,500m ²	3m															
Greater than 1,500m ²	6m															
Greater than 1,500m ² with significant existing tree cover	6m															
3F Visual Privacy																
<i>Objective</i> Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy.	✓															
<i>Design Criteria</i> Separation between windows and balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows: <table><tr><th>Building Height</th><th>Habitable rooms and balconies</th><th>Non-habitable rooms</th></tr><tr><td>Up to 12m (4 storeys)</td><td>6m</td><td>3m</td></tr><tr><td>Up to 25m (5-8 storeys)</td><td>9m</td><td>4.5m</td></tr><tr><td>Over 25m (9+ storeys)</td><td>12m</td><td>6m</td></tr></table>	Building Height	Habitable rooms and balconies	Non-habitable rooms	Up to 12m (4 storeys)	6m	3m	Up to 25m (5-8 storeys)	9m	4.5m	Over 25m (9+ storeys)	12m	6m	✓			
Building Height	Habitable rooms and balconies	Non-habitable rooms														
Up to 12m (4 storeys)	6m	3m														
Up to 25m (5-8 storeys)	9m	4.5m														
Over 25m (9+ storeys)	12m	6m														
3K Bicycle and Car Parking																
<i>Objective</i> Car Parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas	✓															
<i>Design Criteria</i> For development in the following locations: - on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or - on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre The minimum car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less. The car parking needs for a development must be provided off street.	✓															

Design Criteria	Proposal										
Part 4 Designing the Buildings											
4A Solar and Daylight access											
<i>Objective</i> To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space	✓										
<i>Design Criteria</i> Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas.	Alternative solution see discussion below										
A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter.	Alternative solution see discussion below										
4B Natural Ventilation											
<i>Objective</i> The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents	✓										
<i>Design Criteria</i> At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.	✓										
Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line.	N/A										
4C Ceiling Height											
<i>Objective</i> Ceiling height achieves sufficient natural ventilation and daylight access	✓										
<i>Design Criteria</i> Measured from finished floor level to finished ceiling level, minimum ceiling heights are: Minimum ceiling height Habitable rooms 2.7m Non-habitable 2.4m For 2 storey apartments 2.7m for main living area floor 2.4m for second floor, where its area does not exceed 50% of the apartment area Attic spaces 1.8m at edge of room with a 30 degree minimum ceiling slope If located in mixed use areas 3.3m for ground and first floor to promote future flexibility of use These minimums do not preclude higher ceilings if desired.	✓										
4D Apartment Size and Layout											
<i>Objective</i> The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity	✓										
<i>Design Criteria</i> Apartments are required to have the following minimum internal areas: <table> <tr> <th>Apartment Type</th><th>Minimum internal area</th></tr> <tr> <td>Studio</td><td>35m²</td></tr> <tr> <td>1 bedroom</td><td>50m²</td></tr> <tr> <td>2 bedroom</td><td>70m²</td></tr> <tr> <td>3 bedroom</td><td>90m²</td></tr> </table> The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5m ² each. A fourth bedroom and further additional bedrooms increase the minimum internal area by 12m ² each.	Apartment Type	Minimum internal area	Studio	35m ²	1 bedroom	50m ²	2 bedroom	70m ²	3 bedroom	90m ²	All studios, 2 bedrooms, 2 bathroom and all 3 bedroom apartments comply. Alternative solution for 1 bedroom and 2 bedroom, 1 bathroom apartments see discussion below
Apartment Type	Minimum internal area										
Studio	35m ²										
1 bedroom	50m ²										
2 bedroom	70m ²										
3 bedroom	90m ²										
Every habitable room must have a window in an external wall with a total minimum glass area of not less than 10% of the floor area of the room. Daylight and air may not be borrowed from other rooms.	✓										
<i>Objective</i> Environmental performance of the apartment is maximised	✓										

Design Criteria	Proposal															
<i>Design Criteria</i> Habitable room depths are limited to a maximum of 2.5 x the ceiling height.	N/A															
In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window.	The proposal generally complies, however there are some apartments that have a depth of 9m, including a kitchen island bench. Alternative solution see discussion below															
<i>Objective</i> Apartment layouts are designed to accommodate a variety of household activities and needs	✓															
<i>Design Criteria</i> Master bedrooms have a minimum area of 10m ² and other bedrooms 9m ² (excluding wardrobe space).	Alternative solution see discussion below															
Bedrooms have a minimum dimension of 3m (excluding wardrobe space).	✓															
Living rooms or combined living/dining rooms have a minimum width of: ▪ 3.6m for studio and 1 bedroom apartments ▪ 4m for 2 and 3 bedroom apartments	Alternative solution see discussion below															
▪ The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts.	N/A															
4E Private Open Space and Balconies																
<i>Objectives</i> Apartments provide appropriately sized private open space and balconies to enhance residential amenity	✓															
<i>Design Criteria</i> All apartments are required to have primary balconies as follows: <table><tr><td>Dwelling Type</td><td>Minimum Area</td><td>Minimum internal area</td></tr><tr><td>Studio apartment</td><td>4m²</td><td>-</td></tr><tr><td>1 bedroom apartment</td><td>8m²</td><td>2m</td></tr><tr><td>2 bedroom apartment</td><td>10m²</td><td>2m</td></tr><tr><td>3+ bedroom apartment</td><td>12m²</td><td>2.4m</td></tr></table> The minimum balcony depth to be counted as contributing to the balcony area is 1m.	Dwelling Type	Minimum Area	Minimum internal area	Studio apartment	4m ²	-	1 bedroom apartment	8m ²	2m	2 bedroom apartment	10m ²	2m	3+ bedroom apartment	12m ²	2.4m	Alternative solution see discussion below
Dwelling Type	Minimum Area	Minimum internal area														
Studio apartment	4m ²	-														
1 bedroom apartment	8m ²	2m														
2 bedroom apartment	10m ²	2m														
3+ bedroom apartment	12m ²	2.4m														
For apartments at ground level or on a podium or similar structure, a private open space is provided instead of a balcony. It must have a minimum area of 15m ² and a minimum depth of 3m.	✓															
4F Common Circulation and Spaces																
<i>Objective</i> Common circulation spaces achieve good amenity and properly service the number of apartments	✓															
<i>Design Criteria</i> The maximum number of apartments off a circulation core on a single level is eight.	Alternative solution see discussion below															
For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40.	✓															
4G Storage																
<i>Objective</i> Adequate, well designed storage is provided in each apartment	✓															
<i>Design Criteria</i> In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided: <table><tr><td>Dwelling Type</td><td>Minimum Area</td></tr><tr><td>Studio apartment</td><td>4m²</td></tr><tr><td>1 bedroom apartment</td><td>6m²</td></tr><tr><td>2 bedroom apartment</td><td>8m²</td></tr><tr><td>3+ bedroom apartment</td><td>10m²</td></tr></table> At least 50% of the required storage is to be located within the apartment.	Dwelling Type	Minimum Area	Studio apartment	4m ²	1 bedroom apartment	6m ²	2 bedroom apartment	8m ²	3+ bedroom apartment	10m ²	✓					
Dwelling Type	Minimum Area															
Studio apartment	4m ²															
1 bedroom apartment	6m ²															
2 bedroom apartment	8m ²															
3+ bedroom apartment	10m ²															

5.4.3 Sydney Harbour Catchment REP

The SSDA9 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 14 illustrates the proposal's consistency with the relevant provisions and matters for consideration set out in clauses 20 to 27 of the SREP.

Table 14 – Consistency with relevant provisions of the SREP

Relevant matters for consideration	Comment
Biodiversity, ecology and environment protection	Specific WSUD measures have been and will be implemented into applications where appropriate 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 the South East Plot 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 5.14 of this EIS and at Appendix D .

5.4.4 Darling Harbour Development Plan No.1

The DHDP is the principal planning instrument applicable to the SICEEP Site, and more specifically the South East Plot within Darling Square. 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 proposed development is consistent with these objectives as part of the SICEEP redevelopment project. The SICEEP redevelopment 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. The proposed development is a key component of SICEEP Project and will contribute to a new vibrant neighbourhood.

A summary of the permissibility of the proposed and potential future uses (subject to future approval) is provided in **Table 15** below.

Table 15 – Permissibility of land uses (including possible future land uses)

Component	Darling Harbour Development Plan No 1	Permissible?
Residential Buildings	Clause 6 (d) of DHDP - Schedule 1 includes 'residential buildings' as a permissible use.	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
Retail premises etc	Clause 6 (d) of DHDP – Schedule 1 includes 'art galleries', 'child care centres', 'commercial premises (other than premises used for pawn broking or other forms of moneylending)', 'professional consulting rooms', 'recreation facilities', 'refreshment rooms', 'shops', and 'theatre restaurants' as permissible uses.	Yes
Remediation	Clause 6 (e) of DHDP includes development for any purpose incidental or subsidiary to permitted development as a permissible use.	Yes
Car parking	Clause 6 (d) of DHDP – Schedule 1 includes 'car parking stations' 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

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

5.5.1 Gross Floor Area

SSDA9 represents the sixth application progressed under the Darling Square Concept Proposal (SSD 13_5878). **Table 16** below provides a reconciliation of GFA approved/proposed to date, demonstrating compliance with the approved Concept Proposal (as modified). A detailed assessment of the proposal against the conditions of consent within the Stage 1 Concept Proposal is provided at **Appendix Z**.

Table 16 – GFA approved/proposed within Darling Square

Application	GFA Approved/Proposed (m ²)	
	Non-Residential	Residential
Western Plot (Student Accommodation)	-	27,563
North-West Plot (Public car park/ commercial office building)	44,010	-
South-West Plot (Mixed Use Residential Development)	2,308	44,812
North-East Plot (Mixed Use Residential Development)	2,050	51,602
South-East Plot (Mixed Use Residential Development)	1,510	30,395
North Plot (Mixed Use Development)	6,685	-
Total	56,563	154,372
Maximum approved under Concept Proposal (as modified)	56,563	154,372
Total Remaining	-	-

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**.

Table 17 – Consistency with the Concept Proposal

Component	Concept Proposal	Proposed Development	Consistent
Land Use	Mixed Use Residential	Mixed Use Residential	✓
Height	Maximum RL 99.85	Maximum RL99.70	✓
Building footprint	Approximate maximum 51m x 96m	Approximate maximum 51m x 96m	✓
Building separation	Minimum 8 metres (to North East Plot)	Min. 8 metres	✓
	Minimum 24 metres (to South West Plot)	Min. 24 metres	✓

In addition to the above key development parameters, SSDA9 is completely within the maximum envelope illustrated in the Concept Proposal (SSDA2). The relationship between the proposed development and the approved Concept Proposal parameter envelope is illustrated in the Design Report at **Appendix B**, refer also to **Figure 30**.

Tower Separation

The proposed development is generally consistent with the building plot, separation distances and horizontal building envelopes shown on the relevant parameter plans. However, it is noted that there is a minor separation between SE1 and SE3 which is 16.8 metres rather than 18 metres. The portion of non-compliance is very minor and only applies to the solid balcony edge of the SE1 corner apartment on Levels 07, 08 and 09 only. This is shown in **Figure 31** at the north-east corner of the SE1 tower.

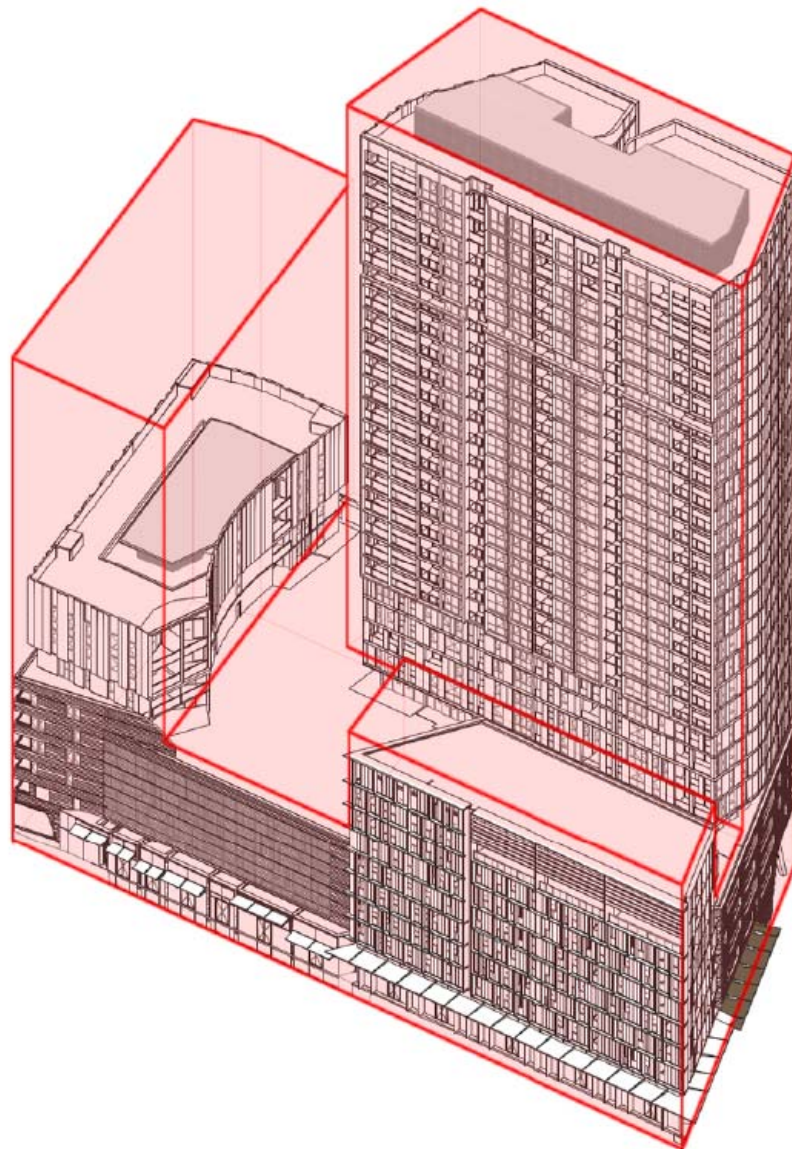


Figure 30 – The proposal sitting within the Concept Proposal building envelope

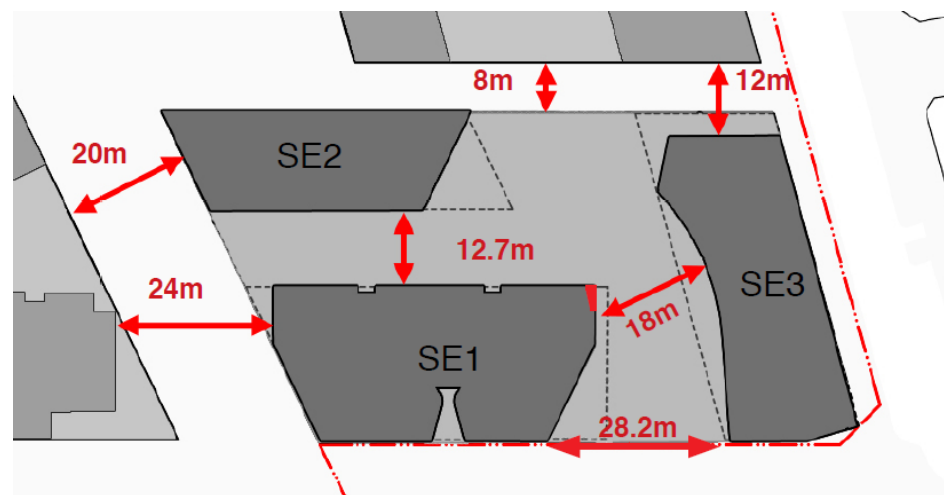


Figure 31 – Building Separation Plan

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 SSDA9). 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 FJMT (**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 'master plan' was required as the overarching document, guiding all aspects of the proposal. Through development of the master 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 the South East Plot was presented on 22 February 2016. Notes from the meeting are available at **Appendix BB**.

At this meeting, the DRP were generally supportive of the proposal and noted that the design of the colonnade is critical to ensure that a safe and active space is delivered. This has been considered as part of the proposal with the colonnade considered to be a well activated space with retail space at the entrance of each end of the colonnade and a visually prominent lobby which will be utilised by towers SE1 and SE3.

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 internationally and Australian renowned design team, including Denton Corker Marshall, Woods Bagot, Tzannes Associates, Kengo Kuma and Associates and FJMT, 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;
- 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 FJMT 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 and Urban Design

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 (as modified). The key elements of the built form and urban design of the South East Plot are explored below.

Building Height, Bulk 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.

The proposed building heights and scale will contribute to the creation of a highly functional and aesthetically pleasing high density mixed use residential development, and are acceptable for the following reasons:

- The proposed building heights are compatible with heights of the existing buildings around the development site, with particular reference to 'The Peak' apartment building, which provides a vertical benchmark of 46 storeys (RL160). All three proposed buildings are below the height of The Peak and within the maximum heights approved under the Stage 1 Concept Proposal (as modified).
- The proposed heights reflect the City fringe location, and are suitable given the immediate proximity to high capacity mass transit (rail and light rail).
- The layout supports a positive urban design outcome in terms of the interface between built form and public domain. The taller Building SE1 is setback from the future Square to ensure adequate solar access and create a sense of enclosure for the SSDA9 Site.
- An intermediate scale is proposed for Building SE2, which will provide a civic scale around the future Square, and reinforces the significance of this key future component of the public domain.
- Consistent with the Concept Proposal (as modified), the location of the proposed towers promotes legibility and way finding by providing landmarks at key gateways to Darling Square.
- The tallest building (SE1) is principally oriented to the north to ensure maximum solar access and outlook, whilst providing for view sharing for surrounding developments (including for example through being well contained within the building envelope proposed under SSDA 2).
- Buildings are provided with a change in materiality and expression at the top of the podium, providing a striking built form that responds to its Global City context. The proposed buildings achieve a human scale by clearly defining the ground plane from the podium, and the podium from the tower, particularly through the provision of a re-entrant, along with differentiation in materials (as detailed in Section 3.0 of this EIS).
- The arrangement of the buildings above podium level provides suitable building separation and maximises solar access and outlook (in a Global City context).
- The siting of the proposed towers provides for building separation that aims to support view sharing, and provide privacy and amenity benefits for future residents. The building separation achieved is compliant with the parameters established within the approved Concept Proposal (as modified). Although there is a minor non-compliance with the minimum separation requirements of the concept proposal, the apartment layouts provided ensure the intent of the design separation criteria can be readily achieved due to their positioning which ensures apartments do not overlook one another.
- Visual analysis of the proposed built form at Section 5.9 demonstrates that the proposed building heights are capable of integration into the built form typology of the locality.

As illustrated in the indicative photomontages (see **Figure 32**), the proposed buildings have been designed to achieve a high level of articulation whilst also incorporating high quality and diverse façade treatments to provide interest and diversity whilst reflecting characteristics of surrounding masonry buildings. This design has been developed with strong architectural input through the design excellence process detailed in Section 5.6 above.

Podium and Tower Separation

An important design element of the South East Plot has been the provision of a re-entrant to differentiate between the podium and tower buildings above. The re-entrant varies in height around the podium to respond to the differing contexts. The emphasis of the full storey re-entrant is not only exhibited through physical/spatial separation of the podium and tower elements, but also through a façade detailing and materiality change. In addition to the physical re-entrant, the podium is defined by its use of terracotta and large sweeping elements at the ground plane. The tower structures above are distinct in their individual design of use of materials which include fine grain white 'pearl' brise soleil with glazed balcony facades.

Figure 33 illustrates the materiality change in the podium and towers, as well as the location of the consistent re-entrant along Hay Street.



Figure 32 – Basic 3D model of SE and NE Plot looking south east

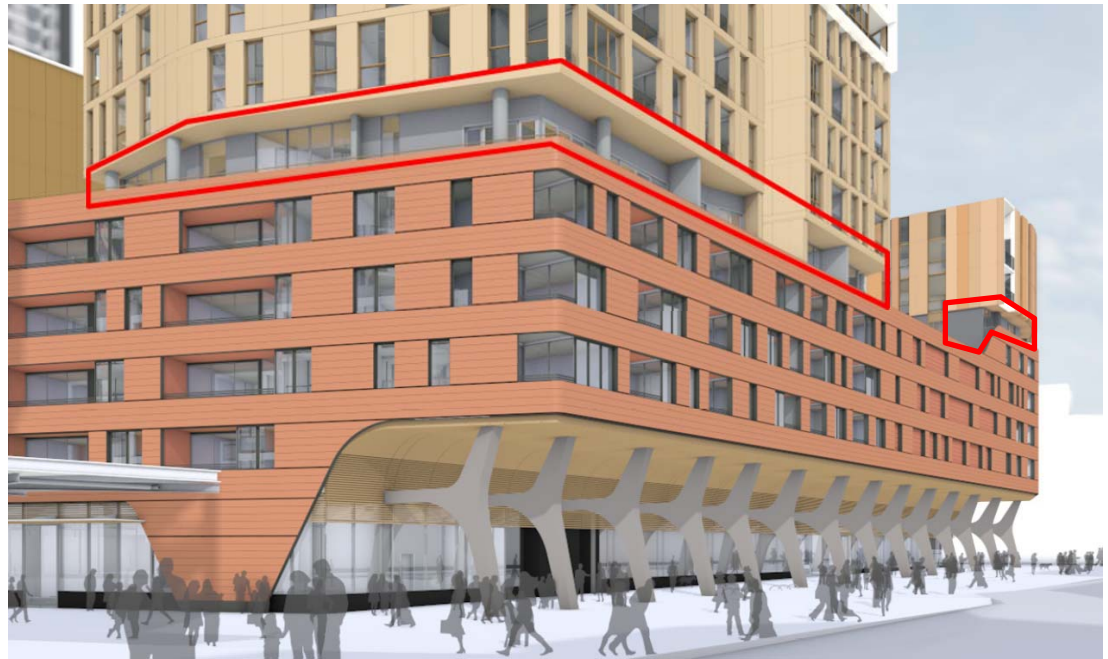


Figure 33 – Emphasis of the re-entrant and material change (outlined in red)

Building Depth

The proposed buildings are consistent with the Concept Proposal envelopes, which were approved following a thorough consideration of the principles of SEPP 65 and the intent of the ADG.

In regards to building depth, the ADG suggests a maximum internal plan depth of 18 metres from glass line to glass line to promote the use of dual aspect apartments. The objectives of the ADG is to encourage spatial arrangements of apartments that are functional and well organised and that provide for access to natural light and ventilation to enable high standards of residential amenity.

The proposed building envelope (above podium) of Building SE 2 and SE 3 is consistent with the ADG, however the maximum building depth for Building SE1 is 23.5m. This is to provide natural light and ventilation to the lobby and to apartments on the southern facade. Generally, all habitable zones, including kitchens are located within 8m of the facade with the majority of living spaces located on the facade to take maximum advantage of the northern solar access and views.

The floor plates proposed in SSDA9 are within the maximum envelopes set out in the Concept Proposal (as modified). The proposed building envelope depths are acceptable given that the proposal meets the key objectives of SEPP 65. More specifically:

- The building depths still achieve a satisfactory level of solar access despite the challenges posed by the inner city context;
- The proposed building envelopes achieve a high standard of residential amenity in terms of views and outlook; and
- The extent of building depth variation is minor and is considered to be acceptable given that the scheme has demonstrated compliance with other key ADG design criteria.

5.7.1 Overshadowing

Shadow Diagrams of the proposed design are included at **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 1m² of living room windows and a minimum 50% to private open space.
- New development must not create any additional overshadowing onto a neighbouring dwelling where that dwelling currently receives less than 2 hours direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm on 21 June.

Impacts 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 Hay Street throughout the day during the equinox and winter solstice;
- To the communal recreation podium at The Peak from midday during the equinox; and
- To the lowest levels of The Peak façade for a portion of 21 June.

The shadow cast by the proposed buildings is less than the shadow envisaged for the approved maximum Concept Proposal envelopes. This is due to a substantial amount of the approved building envelopes not being filled by the proposal. In particular, the tower of SE3 is substantially lower than the maximum height approved under the concept plan, being 10 storeys in height compared to the maximum 21 storeys that the building is permitted to achieve under the concept plan (refer to **Figure 34**).



Figure 34 – Comparison of built for versus the concept approved envelopes

Furthermore, there are limited shadows cast onto significant surrounding public spaces or residential buildings. Notably, the reduced SE3 tower results in significant improvements to the amount of solar access in the communal recreation podium at The Peak. This area continues to receive solar access between 9am and 12pm during the winter equinox.

Shadow is cast onto the façade of The Peak Apartments; however this is restricted to the first floor of residential apartments from midday on 21 June. The majority of the landscaped podium associated with The Peak Apartments will continue to receive at least two hours of solar access, ensuring compliance with the intent of the Sydney DCP 2012.

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 SSDA9 are acceptable.

5.8 Internal Residential Amenity

The built form of the proposed development promotes design excellence and has been designed to maximise the opportunities available to the SSDA9 Site and the amenity of each apartment. The principles of *State Environmental Planning Policy No 65—Design Quality of Residential Flat Development* (SEPP 65) and the accompanying Apartment Design Guide (ADG) have been considered in the design of the proposal, and addressed in Section 5.4 above. These principles are generally addressed further below in regards to their influence on internal amenity. Furthermore, a detailed discussion of the internal amenity and the design concepts behind the proposal are discussed in the Design Report at **Appendix B**.

It is noted that the approach for assessing amenity across the SSDA9 Site is on a site wide basis in light of the master planned nature of Darling Square precinct and the progression of a single SSDA. This is also considered appropriate as the provision of amenities across the SSDA9 Site is being delivered in a precinct plan, with consistent public domain elements and generous areas of open space to be shared by all future residents.

Furthermore, a thorough understanding of the ADG and its function is required in order to determine the appropriateness of the proposal, particularly in regards to amenity. The underlying purpose of the ADG is to provide guidance for the development of new apartment buildings, specifically in relation to achieving the design principles set out in SEPP 65.

The ADG establishes flexibility in achieving these design principles, encouraging architects to innovate and demonstrate compliance through a range of means, essentially achieving the same result with a different approach. Of particular relevance to the assessment of new developments is Parts 3 and 4 of the ADG. Within these parts are a number of objectives, some of which contain Design Criteria and Design Guidance.

Where provided, design criteria are the first step in ensuring consistency with an objective. Essentially, if a proposal numerically complies with the criteria it automatically achieves the objective. There is an acknowledgment in the ADG that rigid numerical controls (the criteria) are not always able to be achieved. As such, a set of Design Guidance are provided as a starting point for an alternative solution to achieve the objective. The guidance are assessed on merit and importantly are not intended to be an exhaustive list of alternative solutions of achieving consistency with the objective.

The ADG reinforces the validity in this method of implementation by stating:

The design criteria set a clear measurable benchmark for how the objective can be practically achieved. If it is not possible to satisfy the design criteria, applications must demonstrate what other design responses are used to achieve the objective and the design guidance be used to assist in this.

The Department of Planning and Environment's publication 'Better Apartment Design Frequently Asked Questions' (June 2015) also reinforces this method of implementation:

It may not be possible in all instances to satisfy the design criteria in the Guide, so it gives designers the flexibility to innovate and demonstrate they will achieve the same result with a different approach.

Given the above, it must be understood that the ADG is not intended to be applied as a rigid set of controls, rather as a facilitative tool to encourage designers to provide the highest level of amenity through a range of means.

In light of this understanding, and with a good grasp of the context of the South East Plot as an inner city location, it is considered that on balance the proposed buildings support a good level of internal amenity and outlook.

Natural Ventilation

Under Objective 4B-3 of the ADG, 'Design Criteria' are provided for guidance on achieving natural cross ventilation to create a comfortable indoor environment. The relevant design criterion to this proposal states that at least 60% of apartments in the first nine stories should be naturally cross ventilated. In order to determine consistency with the design criterion, Cermak Peterka Petersen has undertaken an assessment of natural ventilation (**Appendix N**).

The assessment by Cermak Peterka Petersen identifies that 54% of apartments located between levels 2 and 5, and 56% of apartments between levels 6 and 7 are naturally cross ventilated or achieve natural ventilation due to design features such as bi-fold screens. Following detailed façade pressure modelling analysis by Cermak Peterka Petersen, it was identified that on Levels 8 and 9 the wind pressures were reflective of the pressures ordinarily experienced above Level 9.

The wind pressure at these two levels is such that pressure driven forces allow for similar wind pressures to natural ventilation flows. This results in all (100%) apartments on these two levels being able to be considered naturally ventilated. The pressure differentials on Levels 2 to 7 are not comparable to that above Level 8 and have therefore been subject to an ordinary assessment of natural cross ventilation.

Based on the above, the overall proportion of apartments naturally ventilated through cross ventilation and pressure driven ventilation in the first nine floors is 67%, exceeding the design criteria of the ADG and ensuring consistency with Objective 4B-3.

Daylight and Solar Access

The ADG notes that solar and daylight access are important for apartment buildings as they reduce reliance on artificial lighting and heating, improve energy efficiency and enhance residential amenity. Objective 4A-1, which addresses solar and daylight access, seeks the following:

To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space

Two design criteria are provided to achieve this objective without any need for further merit assessment. The proposed development does not numerically comply with these design criteria, therefore an alternative solution has been adopted to achieve compliance with the objective.

In addition to the ADG, the Concept Proposal (as modified) sets a benchmark for an average of 63% of all apartments across Darling Square to receive a minimum of two hours direct sunlight between 9:00am and 3:00pm in mid-winter. This benchmark has been established in light of the dense urban context of the Darling Square precinct. Overall, across the South East Plot a total of 47% of residential apartments will receive at least two (2) hours of solar access between 9:00am and 3:00pm during the winter solstice. A total of 34% of apartments in the proposal do not receive direct sunlight during the winter equinox.

The SSDA9 Site is highly constrained, being located in a dense urban inner city environment where overshadowing from neighbouring buildings impacts on the amount of available sunlight. Further restricting the design of the development is the pre-defined building envelopes, set under the approved Concept Proposal (as modified).

The South East Plot is unique in the Concept Proposal in that it is sited and orientated in a way which makes strict numerical compliance with the design criteria of the ADG difficult. The South East Plot is located in the southern portion of the Darling Square precinct, directly to the south of the approved North East Plot development which has a maximum height of 41 storeys. Furthermore, the pre-determined envelopes within the South East Plot include the tallest building (Building SE1) with a north-south orientation, increasing the number of apartments which face south.

The ADG acknowledges the difficulty in achieving a rigid numerical standard in all instances. As such, a set of design guidance are provided as a starting point for any alternative solution. The proposal is consistent with the following design guidance and additional considerations which contribute to the achievement of Objective 4A-1:

- Award winning architects FJMT have designed the South East Plot buildings to maximise apartments on the northern aspect within the approved parameter plan;
- Living areas are located to the north and service areas to the south and west of apartments where northern aspects are achieved;
- Dual aspect have been provided where possible to optimise the direct sunlight to habitable rooms and balconies;
- Apartment depths have been limited where possible to ensure daylight penetration into apartments is enhanced; and
- Quality outlook and panoramic city views are available to south facing apartments due to the generous separation of the South East Plot from surrounding existing development.

In addition to the above, if the assessment timeframe on 21 June was increased to 8:00am and 4:00pm, a total of 53% of apartments would receive two (2) hours sunlight. **Figure 35** indicates the apartments which will receive two hours of solar access on 21 June between 8:00am and 4:00pm.

Daylight and solar access is but one of a range of measures of amenity that contributes to good design and amenity. There are a range of other amenity measures available to future residents of the South East Plot, including but not limited to:

- Immediate proximity to extensive parks, shops, services and major transport infrastructure both within Darling Square and in the Sydney CBD;
- Cityscape views and wider regional views at upper level apartments;

- Access to high quality open space and amenities, including areas which are open to the sky and facilitative of a range of active and passive pursuits;
- Outlook to open space and access to daylight given the expanses of glass incorporated into the design of the South East Plot;
- Achievement of Objective 4B-3 relating to natural ventilation; and
- Efficient and comfortable apartment layouts.

From the above, it is evident that the proposed South East Plot development will be a good level of residential amenity and is consistent with Objective 4A-1 of the ADG through the adoption of alternative means rather than strict numerical compliance with the design criteria. In this regard, solar access should not be, and is not, the sole means of establishing whether an acceptable level of residential amenity is achieved for the development.

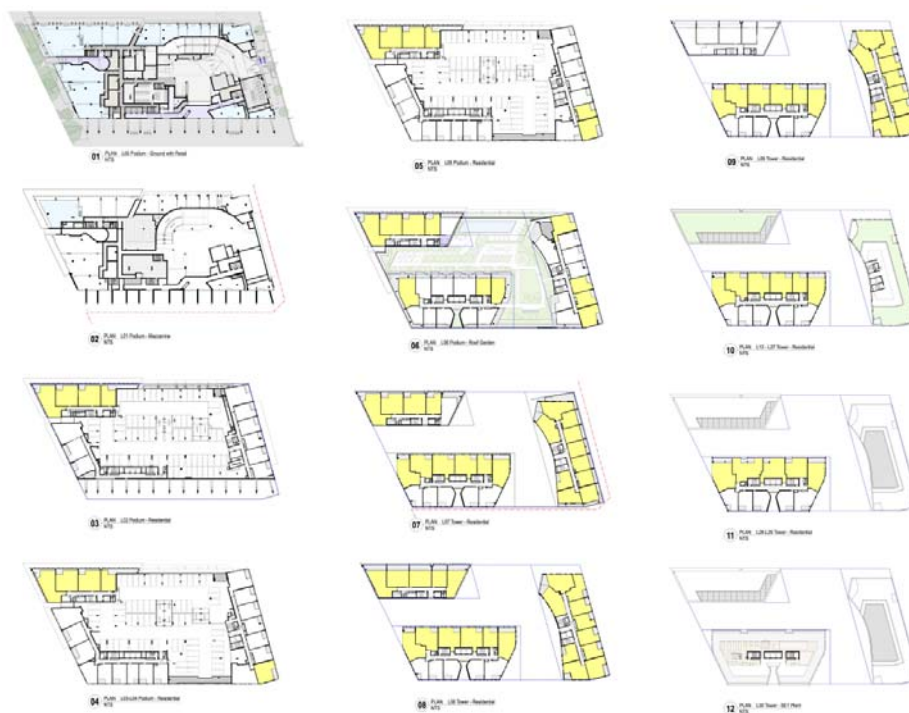


Figure 35 – Solar access on the winter solstice

Building Separation

As addressed in Section 5.5 the proposed development is generally consistent with the Concept Proposal (as modified), therefore ensuring that appropriate separation distances are provided between each of the proposed buildings. The separation distances provided in the South East Plot are appropriate in light of the individual design of each building and the provision of privacy elements and fenestration to each façade where it has been identified that additional privacy may be required.

All living rooms and balconies have been oriented away from other apartments where possible to further maximise privacy. The location of the proposed buildings has been determined in the Concept Proposal based on a balance between view sharing, minimising impacts on existing surrounding buildings, and promoting views for apartments within the three buildings. **Figure 36** illustrates the separation distances provided in the proposed development.

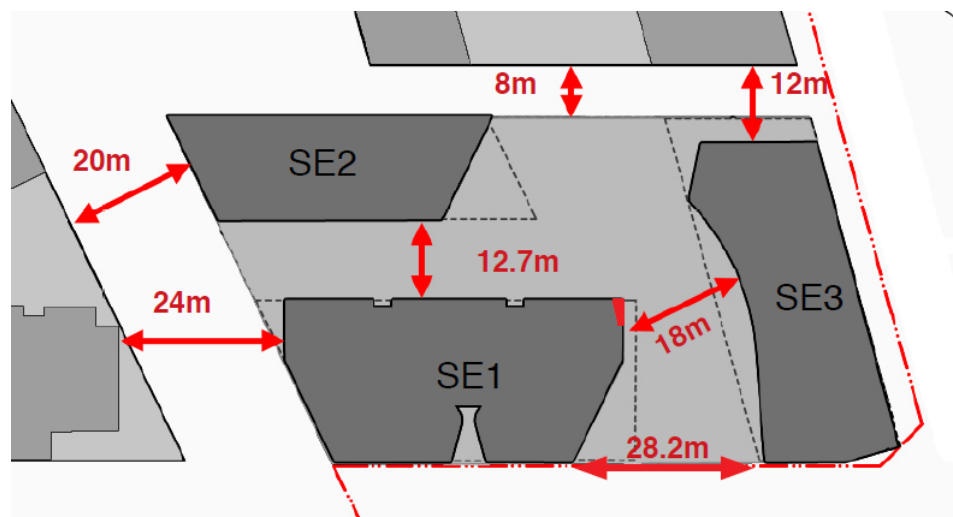


Figure 36 – Building separation distances

Apartment Size and Layout

The proposed South East Plot development provides a range of apartment sizes and layout options across the 391 apartments. The proposal is consistent with Objective 4D-1 through the use of an alternative solution rather than compliance with both design criteria. Objective 4D -1 states:

The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity.

The proposal is consistent with Design Criteria No. 2, but does not strictly meet Design Criteria No. 1 which provides minimum internal areas for apartments. A number of apartments are lower in area than the design criteria provided in ADG, while others apartments are more generous and well above the specified design criteria.

The proposal includes one bedroom apartments with a range of 42 - 58m² and two bedroom apartments with a range of 59 - 99m². All studio apartments, two bedroom, two bathroom apartments and three bedroom apartments are in excess of the design criteria within the ADG. A summary of the proposal in relation to the ADG is provided at **Table 18** below.

Table 18 – Apartment size summary

Type	ADG Design Criteria	Proposed size	Numerical Consistency
Studio	35m ²	39m ²	✓
1 Bedroom	50m ²	42-58m ² (avg. size 47m ²)	✗
2 Bedroom 1 Bathroom	70m ²	59-75m ² (avg. size 65m ²)	✗
2 Bedroom 2 Bathroom	75m ²	75-99m ²	✓
3 Bedroom	90m ²	98-138m ²	✓

The proposal achieves the aforementioned objective by providing a high standard of amenity and functionality in each apartment, as well as within those apartments which fall below the design criteria of Objective 4D -1. A number of apartments exceed the minimum design criteria, however, where internal areas are on average marginally below the criteria, these apartments have been designed to maintain useability and functionality. The planning of these spaces has been made highly efficient through the removal of excessive corridors and inefficient circulation spaces consistent with the design intent of Objective 4D-1.

Particular attention has been paid in the design of the apartments to the provision of layouts which facilitate useable and functional furniture arrangements typical of two person occupancy per apartment. The resulting apartments are well suited to city living, with an aim of providing efficiently spaces apartments which encourage the full use of surrounding facilities and services in the CBD environment. In a number of cases these particular apartments are provided with large balconies or expansive local and district views, providing alternative means of amenity.

Generally, the proposed apartment layouts are consistent with the design criteria of the ADG, however, the small percentage of apartments that present a technical non-compliance are considered acceptable as:

- Apartments are generally compact, efficient, highly functional and suited to inner city living, providing a range of sizing and layout options;
- Apartments have been designed with good separation of bedroom and living spaces, ensuring that the functionality of the apartment is enhanced;
- Smaller and well-designed apartments will enable lower price points in the market meeting a need for competitively priced, well located housing;
- Apartments have highly efficient planning that enables unique space saving design measures as outlined below;
- Large setbacks to adjacent development enable south facing and podium apartments to have increased daylight amenity;
- All two bedroom, one bathroom apartments are naturally ventilated;
- All habitable rooms have windows which represent more than 10% of the floor area of the room;
- No kitchens are located in the main circulation space; and
- A window is visible from any point in a habitable room ensuring a high standard of amenity.

Objective 4D-2 seeks to ensure a high environmental performance of apartments is achieved. The design criteria of Objective 4D-2 outline a recommended habitable room depth for open plan layouts of 8m from a window. The proposal is consistent with this criterion as all apartments in Building SE2 and Building SE3 achieve a depth of 8m or less. However, three of the twelve apartments on the typical floor plate of Building SE1 have a depth of approximately 9m to the back of the kitchen. In these instances, the kitchen contains an island bench which is within 8m from a window.

This variation is considered acceptable as the limited number of apartments to which it relates and given the principle living area remains within 8m of a window with no detrimental impact to the environmental performance of those apartments.

Objective 4D-3 of the ADG seeks to establish well designed apartments which accommodate a variety of household activities and needs. The proposed apartment layouts have been designed to be highly efficient and functional and ensure high levels of amenity for future residents.

Objective 4D-3 includes four design criteria, three of which are relevant to the proposal. The South East Plot development is consistent with Design Criteria No. 2, but is not numerically consistent with Design Criteria No. 1 and 3. Design Criteria No. 1 specifies that master bedrooms should have a minimum area of 10m² and other bedrooms 9m² (excluding wardrobes). Generally, the proposed South East Plot development meets these criteria with the exception of a number of apartments.

All bedrooms have been designed to be highly usable and arranged to accommodate a queen size bed and bed side tables with built in cupboards designed for two people. Entry doors to bedrooms have been carefully located off living / kitchen areas to ensure privacy and functional efficiency. Where provided, ensuites to master bedrooms have been provided to allow for an additional level of amenity to these primary bedrooms. In many cases bedrooms have direct access to balconies further enhancing their amenity, consistent with Objective 4D-3.

Design Criteria No. 3 for Objective 4D-3 recommends that living rooms and combined living/dining rooms are to have a minimum width of:

- 3.6m for studio and one bedroom apartments; and
- 4m for two and three bedroom apartments.

The proposed South East Plot development provides the following minimum width:

- 3.4m for studio and one bedroom apartments; and
- 3.6m for two and three bedroom apartments.

While these minimums are slightly lower than the design criteria of Objective 4D-3, the subject apartments have been designed to accommodate a variety of furniture arrangements including a minimum four seater dining table, two seater couch and separate armchair. The efficient and flexible design of these spaces is consistent with the context of the development in an urban environment and meets the desired needs of city living.

Common Circulation Space

Under Objective 4F-1 of the ADG, common circulation spaces are required to achieve good amenity and properly service the number of apartments proposed on each level. The proposed South East Plot development is consistent with Objective 4F-1 through an alternative solution rather than strict numerical compliance with the specified design criteria.

The proposal does not strictly comply with the design criteria which states that the maximum number of apartments off a circulation core on a single level is eight. Despite this, the proposal is consistent with the 'Design Guidance' which states that no more than 12 apartments should be provided off a circulation core on a single level. As such, the proposal is consistent with Objective 4F-1.

Private Open Space

The proposed South East Plot development is consistent with Objective 4E-1 through an alternative solution rather than strict numerical compliance with the specified design criteria. Objective 4E-1 states:

Apartments provide appropriately sized private open space and balconies to enhance residential amenity

All apartments in the South East Plot are provided with balconies. While some balcony areas are less than the specified design criteria, others exceed the criteria. All balconies have a minimum depth of 2m.

The proposed balconies are spacious and designed to be usable in all instances, enhancing the amenity of each apartment. In addition to the private balcony provided to each apartment, a variety of communal open space areas will be available to residents, such as Tumbalong Park, Cockle Bay and the proposed podium rooftop. This approach is consistent with the design guidance for Objective 4E-1 which states that increased communal open space should be provided where the design criteria are unable to be achieved.

Communal Open Space

The landscaped podium to be provided between the three residential buildings is a significant amenity benefit of the proposal. This communal area of open space is accessible for all residential apartments proposed in the South East Plot. The podium area provides a high level of amenity to future residents, with opportunities for both active and passive recreation. The pool and outdoor gym area will encourage active recreational pursuits for residents, whilst the sheltered dining and BBQ area and various seating areas will provide spaces for relaxation and socialising.

The internal location of this podium and the proposed landscaping scheme ensures that a high level of privacy is achieved for residents using the space. The selection and location of planting within the landscape scheme has been carefully managed to ensure that opportunities for a level of visual connectivity and passive surveillance to promote safety and security of this space.

Photomontages of the proposed rooftop landscaping scheme are provided at **Figure 37**.

Deep Soil Zone

The proposal is consistent with Objective 3E-1 relating to deep soil zones. Strict consistency with the Design Criteria of Objective 3E-1 is not achieved; rather an alternative solution has been adopted to ensure compliance with the object.

Objective 3E-1 states:

Deep soil zones provide areas on the site that allow for and support healthy plant tree growth. They improve residential amenity and promote management of water and air quality.

The final Design Guidance provided with Objective 3E-1 states the following:

Achieving the design criteria may not be possible on some sites including where:

- the location and building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres)*
- there is 100% site coverage or non-residential uses at ground floor level*

Where a proposal does not achieve deep soil requirements, acceptable stormwater management should be achieved and alternative forms of planting provided such as on structure

The above guidance demonstrates an understanding that on particular sites the achievement of the criteria is difficult. This is the case for the subject site, which is an urban infill site in an established high density locality. The current built form on the site has 100% site coverage and there is no deep soil. As such, the proposal will enhance the current situation, improving the ability for stormwater infiltration and the establishment of tree planting.

While no provision is made for deep soil planting as part of the subject SSDA, the proposal is consistent with the approved Concept Proposal which envisaged for the wider 37,700m² Darling Square to be provided with specific areas of landscaping. Of the Darling Square site, approximately, 3360m² or around 8.9% is proposed to be deep soil planting or structural soil zones with permeable surfacing.

Surrounding Amenities

In addition to the useable landscaped podium space and the wide variety of existing services and facilities in the surrounding locality, a range of retail, commercial, and community uses are proposed across Darling Square (as part of this application; within the South West, North East and North West Plots; and future applications including the North Plot). This mix of uses will ensure that future residents have immediate access to a range of services and facilities, significantly enhancing the liveability of the precinct.

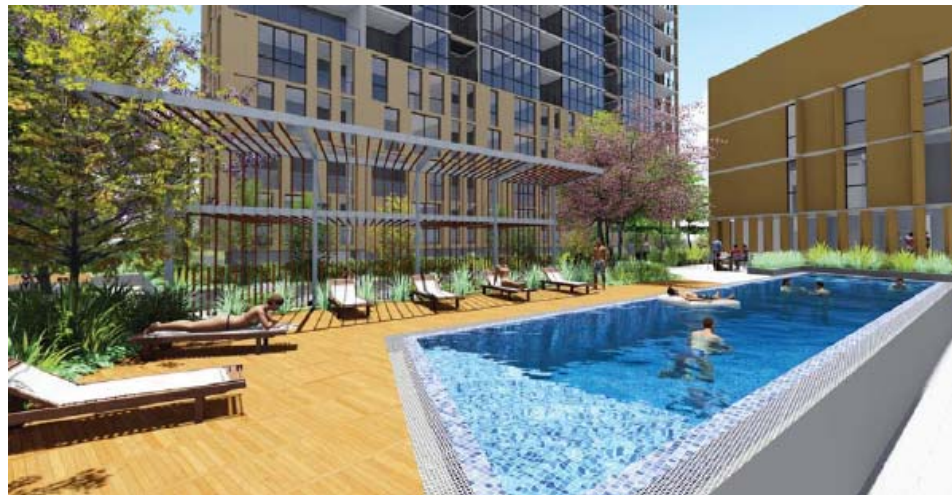


Figure 37 – Photomontages of the pool and gym area on the landscaped podium rooftop

Storage

Adequate storage has been provided to each apartment through an appropriate mix of apartment and secure car park storage (which is located within the podium). A number of storage cages are provided in the mezzanine of Level 2 and within building SE2 close to lifts. Where apartments are not provided with 50% internal storage target, larger storage areas are provided within proximity of the apartment to ensure the minimum storage volume is achieved.

Many apartments have been provided with storage areas that are greater than the ADG requirements. Secure and allocated storage space for bicycles has also been provided to further promote more sustainable modes of transport in the precinct.

Summary

The ADG is a resource to improve the planning and design of apartments in NSW and is intended to be used in conjunction SEPP 65. Whilst a significant aspect of the ADG focuses on external building design to improve the aesthetics and quality of apartment developments, one of the most important aims is to improve liveability through enhanced internal and external apartment amenity.

Nine categories are included in the ADG to address amenity, with each possessing various objectives designed to work together to enhance the liveability of new apartments and improve the quality of life for residents in NSW. The intent of the ADG is to consider each of these objectives in unison, holistically assessing amenity to lift the standard of living. When considering amenity holistically, the proposed apartments are shown to have a considerably high level of amenity.

In light of the above assessment it is evident that all apartments proposed as part of SSD9 will receive a high level of amenity, ranging from visual and acoustic privacy to natural amenities such as daylight access, natural ventilation and access to open space. The application of the numeric ADG 'design criteria' is a significant challenge in all infill urban renewal projects such as the current proposal, and it is necessary to consider all types of amenity available to the proposal.

In addition to the amenities provided within the proposed development and across the entire SICEEP Site, by living in an urban environment, amenity factors such as access to jobs, transport, retail and services mean the overall amenity and lifestyle benefits afforded a resident who lives in the South East Plot is high. A significant number of facilities and services are proposed to be provided over the SICEEP Site, accompanied by a high quality public domain, further enhancing the liveability and attraction of the precinct.

The SSDA 9 proposal is considered to deliver mixed use residential buildings that achieve high levels of internal amenity, with significant enhancements of amenity given the proximity to surrounding services and facilities.

5.9 Visual and View Analysis

A Visual and View Impact Analysis has been prepared by JBA in support of SSDA9 and is included at **Appendix O**. This analysis builds on and provides further detail on the 'overarching' Visual and View Impact Analysis prepared and submitted in support of the approved Concept Proposal (SSDA2).

To support the visual analysis key public domain views, view corridors and public vantage points within and surrounding the SSDA 9 Site have been identified.

Photomontages have been prepared for a total of 21 public domain views and vantage points in the following general locations (**Figure 39**).

- King Street Wharf;
- Pyrmont Bridge;
- Western Distributor;
- Tumbalong Park;
- Harbour Street;
- Macarthur Street;
- Darling Square;
- Pier Street;
- The Boulevard;

- Quay Street;
- Hay Street;
- Factory Street; and
- Little Hay Street.

Of those 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 38**), 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) the proposed Mixed Use Residential development 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 to be retained or unaffected by the proposal including to the Darling Harbour Water Feature, Chinese Garden of Friendship, and Pumping station No.1;
- Visual connectivity to other heritage items in the vicinity being generally affected by the proposed new built form;
- The proposed new building will frame existing public domain views and enclose streets adjoining creating 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 principal east west public domain view corridors providing both physical and visual access to the foreshore are retained; and
- The continuation of existing streets into and through the SICEEP Site (eg 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. It will not detract from the overall visual connectivity for pedestrians in the public domain nor result in any significant adverse impact.

Generally, the affected vantage points are not key places for pedestrians to stop and view the 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.

Low, medium and high level views of the sky along streets and from public domain places (squares, parks etc.) are retained, created or enhanced in a variety of contexts. The siting and design of the new building has sought to preserve important views of the Sydney CBD from encroachment and to both maintain and open up significant views from the public domain.

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 as far as practicable in a highly urbanised inner city environment. The detailed design of the proposed building does not fill the maximum proposed envelope;
- 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 CBD which recognise that outlook, as distinct from views, is the appropriate measure of residential amenity within a global CBD context. Outlook is retained from all affected apartments with an appropriate distance separation between towers and with space / daylight provided between the proposed new built form elements; and
- There will be a reduction in some views available from, in particular, the upper levels of The Peak when looking towards the north. 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 development has accommodated view sharing between and above buildings and has achieved the principles of view sharing appropriate in an highly urbanised CBD location seeking 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 the South-East Plot building envelope) achieves a reasonable balance between the protection of private views and the protection of public domain views.

With the subject SSDA9 being wholly contained within the approved building envelope for the South-East plot, the visual and view impacts resulting from the proposed mixed use residential 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 38 – Key Buildings (Private Views)



Figure 39 – Visual analysis – photomontage locations SSDA 9

5.10 Public Domain and Landscaping

As outlined in Section 5.5 above, the proposal is substantially consistent with the Concept Proposal (as modified) in regards to the public domain concept. This application does not seek approval for works within the public domain, as works related to this application are entirely within the site boundary. However, this application presents the conceptual works for the public domain along the Harbour Street frontage of the site, located outside of the SSDA9 Site.

Ultimately, the final decision on the design and funding of the Harbour Street Concept public domain works will be the subject of further detailed discussion/resolution/collaboration with key stakeholders. It is intended to resolve this conceptual design at the detailed design/construction phase of the project.

The public domain works for which approval is sought under SSDA9 is limited to the Hay Street colonnade and land between the building and the Darling Square southern boundary and immediately to the east of the buildings fronting Harbour Street. Discussion of the merits of the public domain is provided below, with a more detailed description provided in the Landscape Statement prepared by Aspect Studios at **Appendix B**.

Hay Street Colonnade

A nine (9) metre wide colonnade will line the site boundary to Hay Street. The colonnade will provide for overflow flooding requirements that affect the site by allowing overland flow of water in the event of flood. The Hay Street colonnade has been designed to reflect the regular alignment of the masonry of Paddy's Market opposite. The colonnade will feature K-shaped concrete columns which create an archway linking the façade and ground plane providing shelter for those accessing the Darling Square site from the south.

The colonnade is the entry point to the grand lobby for Buildings SE1 and SE3, ensuring a high volume of pedestrian traffic will utilise this space. Two large retail spaces are located at the entry corners of the colonnade and will be orientated to focus outdoor activities/seating within the colonnade where possible to activate the space. The management of the colonnade will be undertaken by the future owner's corporation of Darling Square. Section 6 of the Design Report at **Appendix B** further details the Colonnade. Safety and security in the colonnade has been enhanced through the provision of a highly activated façade, with residential entries and continuous glazing to retail tenancies where possible.

The inclusion of markets within this colonnade space has been investigated but is not currently proposed as part of the subject SSDA. This does not preclude further investigations and use of this space for such uses. If in the event such a use were to be contemplated, a separate future application would be progressed.

Eastern Boundary

Along the footpath of Harbour Street, the pedestrian walkway will be paved with City of Sydney standard black granite paving. The conceptual design for Harbour Street outside of the site includes a widened footpath with four new *Koleuteria paniculata* (Golden Rain Tree) street trees and lighting.

Northern and Western Boundaries

No public domain works are proposed along the northern and western boundaries. Public domain works in these locations are the subject of a future separate application (SSDA10).

Retail Facade

Retail tenancies are located at each façade of the proposal and will feature varying style of awnings. Awnings have been specifically chosen to suit the design of the space and the character of each respective façade. Awnings will also provide protection from the elements.

- Little Hay Street will feature retractable fabric awnings of varying 'pop' colours to provide a contemporary and eclectic shopfront language;
- Darling Square Retail will feature fixed awnings / canopies to mitigate wind impacts;

- The Boulevard will feature fixed awnings / canopies providing protection from the elements, including wind downwash.

Each of the retail tenancies will be subject to separate future applications for their fit-out.

5.11 Transport and Accessibility

A Traffic, Transport and Accessibility Assessment has been prepared by Hyder to determine the potential impacts of the proposed development on the existing transport network (see **Appendix P**).

The proposal is not anticipated to impact Light Rail infrastructure. The key components of the Traffic, Transport and Accessibility Assessment are outlined below.

5.11.1 Operational Phase

Car Parking

It is proposed that 265 residential car parking spaces will be provided as part of this application, including 10 accessible spaces. The proposal will be compliant with the specified approved parking rate per unit type. This provision is significantly less than the maximum allowable under the approved Concept Proposal car parking rates, as demonstrated in **Table 19** below.

Table 19 – SSDA9 consistency with Stage 1 maximum parking rates

Unit Type	No. of Units	Approved parking rate	Maximum No. of Spaces
Studio	4	0.1	0
One bedroom	186	0.5	93
Two bedrooms	188	1	188
Three bedrooms	13	1.5	20
Retail	0	0	0
Total		-	301
<i>Total number of car parking spaces proposed in SSDA 9</i>			<i>265 + 2 service vehicle parking spaces and 2 loading bays</i>

In light of the above, the proposed car parking provision is below that permissible and therefore acceptable.

Bicycle Parking

A storage locker of sufficient size for a bicycle will be provided within the proposed development for each residential apartment (a total of 391), whilst an additional 45 visitor/retail bicycle parking spaces will be provided on the ground level. 20 visitor spaces are also provided within the public domain fronting Little Hay Street. This rate far exceeds the suggested rates under the (former) Department of Planning's publication 'Planning Guidelines for Walking and Cycling'. Provision will also be made within the public realm for additional bicycle parking in order to serve visitors to the area.

Pedestrian Network

The pedestrian connections proposed within Darling Square were detailed in the Concept Proposal. The pedestrian connections proposed as part of SSDA9 are consistent with the Concept Proposal and will ensure a high level of connectivity is achieved into and across Darling Square. Pedestrian safety has been addressed in **Appendix P** and modelling of pedestrian volumes with specific reference to the light rail operations on Hay Street will be provided during the assessment process.

Cycle Network

Future cycle linkages through Darling Square have been earmarked under the Concept Proposal. A new shared cycle/pedestrian path will be provided on the western side of Darling Drive connecting to existing cycle linkages (proposed under SSDA3). This will provide a direct connection to the greater Sydney cycle network.

5.11.2 Traffic Impact Assessment

Existing Traffic Conditions

The peak periods in the local traffic network has been identified as weekday (17:00 PM and 18:00 PM) and weekend (18:00 PM and 19:00 PM). Based on the existing traffic conditions, all intersections perform at an acceptable level of service.

Trip Generation

RMS TDT 2013/04, released in the latter part of 2013 provides updated traffic generation rates for residential, retail and office/commercial developments blocks. The generation rates are based on new surveys conducted in 2010-12 on various developments within Sydney, located close to public transport. The updated rates suggest lower vehicle trip generation trends and a reduction by 20% of the previous rates for high density residential developments. The traffic generation rate for residential development is:

- Residential morning vehicle trips - 0.19 vehicle trips per hour per unit; and
- Residential evening peak vehicle trips – 0.15 vehicle trips per hour per unit.

For the purposes of the assessment, it was assumed retail trips are linked rather than stand-alone trips. Application of the above traffic generation rates results in a weekday peak period total traffic generation potential of 19 In / 76 Out in the morning peak and 47 In / 12 Out in the evening peak. This is based on an arrival/departure split of 80/20 for residential and 50/50 for retail during the evening peak period. This traffic generation is 37% less than what was assessed in SSDA 1 and SSDA2. Although the number of units has increased overall in the Precinct, the updated traffic generation rates from the RMS have substantially decreased.

For the purpose of this assessment, the following traffic distribution is assumed:

- 30% trips anticipated to arrive from western suburbs via M4 Western Distributor;
- 10% trips anticipated to arrive from western suburbs via Great Western Highway;
- 30% trips anticipated to arrive from northern suburbs via M4 Western Distributor and then through Darling Drive and Ultimo Road;
- 20% trips anticipated to arrive from southern suburbs by using Eastern Distributor and then through north Darling Drive and Ultimo Road; and

- 10% trips anticipated to arrive from southern suburbs by using Great Western Highway and then through Harris Street and Ultimo Road.

Assessment

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.

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.

The primary construction heavy vehicle egress will be via George Street, left onto Hay Street and into Harbour Street to access the site. Vehicles leaving site will do so in a forward motion along Harbour St and left into Pier Street or continue on towards the Harbour Bridge or Cross city Tunnel. Alternatively vehicles servicing the southern elevation of the site would exit via Quay Street. All of these movements will conform to RMS requirements.

The truck movements will be spread evenly throughout the construction programme. Bulk truck movements will be required during the excavation phase; however, the adopted design involves minimal bulk excavation thereby reducing this heavy vehicle activity.

Based on the programme and volume of materials required, it is estimated that a maximum of 38 trucks per day or approximately 3-4 trucks per hour will access the site for the duration of the construction period. During busy periods vehicle movements will be controlled to reduce traffic impacts.

5.11.4 Construction Mitigation Measures

To alleviate any potential adverse traffic and pedestrian safety impacts during the construction period, Hyder recommends that the following measures be put in place:

- Appropriate directional signage and traffic control 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 should be subject of coordination with the appropriate authorities.
- All traffic related issues and changes should also be presented to Stakeholders as part of the consultation process. These should, wherever and whenever possible, be carried out in non-peak periods.
- Risks to the public and the construction crew would be minimised through the implementation of the construction management plans specifically prepared for the SICEEP construction works of the PPP and Darling Square. The Plan will be regularly updated to address any new outcomes identified through constant monitoring as the works progress.

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) 2014 in regards to accessibility. The Access Report (refer to **Appendix Q**) 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 accessible car parking 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 2014.

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 SSDA9 Site. The SOHI followed the general guidelines for Statements of Heritage Impact set out in the NSW Heritage Manual and has 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 SSDA9 which is also included at **Appendix D**. The supplementary SOHI concludes that the proposed development is consistent with the Concept Proposal and that the assessment of the potential heritage impacts remains unchanged.

5.13.1 Mitigation Measures

The Heritage Interpretation Strategy prepared by TKD Architects (Issue C, dated October 2014) should be incorporated into the detailed design of the SICEEP redevelopment. This Strategy has informed a Heritage Interpretation Plan for Darling Square which should be addressed in the detailed design of SSDA9.

5.14 Archaeology

5.14.1 Indigenous Archaeology

An Aboriginal Archaeological Assessment Report was 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 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, including the South East Plot.

In accordance with the recommendations of the original report, an additional Aboriginal Archaeological Research Design and Management Plan outlining the manner in which subsurface testing on the subject site has now been prepared. Both reports are provided at **Appendix E**.

Casey and Lowe has concluded in the Archaeological Impact Statement for SSDA9 that the SSDA9 site is fully within reclaimed land that was once Darling Harbour and therefore has no potential for Aboriginal archaeology. All testing and salvage for Aboriginal archaeology within Darling Square has been completed and no further testing or mitigation measures are required for SSDA9.

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 SEARs. The Statement identified non-indigenous archaeological items within and in the vicinity of the SICEEP Site, and found that there is the potential for significant non-indigenous archaeological potential in the South East Plot.

A supplementary non-Indigenous Archaeology Statement relating to this Stage SSDA has been prepared by Casey and Lowe and is included with the original Non-Indigenous Archaeological Assessment and Impact Statement at **Appendix E**.

Archaeological Background

An assessment of the potential archaeological remains has been carried out in accordance with the Burra Charter of Australia ICOMOS. It is anticipated that many archaeological remains may be present on the SSDA9 Site, which as detailed below, may be of State or local heritage significance. Casey and Lowe have identified the following items which may contain archaeological significance:

State Significance

- Dickson's c1815 dam wall

Local Significance

- Reclamation fills and harbour sediments
- Large Drain on 1865 plan
- Rear yards of 5 houses along Harbour Street
- 12 to 15 houses and yards along Hay Street, Little Hay Street and laneway
- 1880s/90s manufactories

No items of maritime significance were identified by Casey and Lowe at this time.

Potential Impacts of SSDA9

The statement notes that archaeology may already be impacted by existing development on the Darling Square Site. Casey and Lowe has determined that the construction of the mixed use podium will require extensive piling across the South East Plot and deeper excavation for lift shafts, fire stairs, a rainwater tank and a grease arrestor, which all may have the potential to impact on archaeological remains.

Casey and Lowe has undertaken an assessment of these potential impacts and formulated mitigation measures to manage or ameliorate any potential adverse impacts. Casey and Lowe has determined that the potential impacts are relatively minor and a range of recommendations and mitigation measures should be implemented into the detailed design of the proposal.

Mitigation Measures

In order to minimise impacts to known and potential archaeological resources the following mitigation measures are proposed by Casey and Lowe:

- Archaeological excavation of the location of the two piles which are proposed to impact on the dam wall. This includes the associated impacts from the adjacent piles. The aim of this work is to confirm the location of the dam wall, investigate the materials of the wall and how the wall related to the 1850s reclamation fill.
- Archaeological excavation of the portion of Lift Pit 1 which will impact on the Dam Wall.
- Archaeological excavation of the dam wall where it will be impacted by the 1.8m of the stormwater amplification pipe. This archaeological work will be undertaken prior to stormwater amplification pipe excavation works.
- Excavation for the new stormwater amplification pipe is to be minimised within the vicinity of the dam wall by use of shoring or similar means. Recent redesign requires that shoring boxes be sited along the 100m length of the new service. Battering of the excavation trench for the culvert should be no closer than 5m to either side of the dam wall.
- At detail design stage the design of the impacts of the piles or services in relation to the dam wall may be reduced but cannot be increased. The design development of services should avoid impacts on the dam wall as much as possible.
- Undertake archaeological stratigraphic recording within the:
 - Footprint of Lift Pit 1, and part of Lift Pits 2 and 3.
 - Cesspits where impacted by piles.
 - Areas of concentration of piles and/or services which would impede archaeological investigation in the future and/or remove remains.
- Review all piles at the detailed design stage and reassess predicted impacts.
- Record the archaeology found within the excavation of the stormwater and sewerage lines.
- Review services design and identify further archaeological requirements, notably in areas of cumulative impacts from deeper services.
- Archaeological recording should be undertaken in accordance with best practice standards.
- The identified mitigation strategies should be incorporated into the Archaeological Research Design required to guide any archaeological fieldwork, after appropriate consultation with the SHFA and Heritage Division archaeologists.
- Archaeological remains of State significance within subject area should be retained in situ where possible. Strategies to mitigate development impacts to include:
 - Develop protocols to manage issues during the demolition, regrading and construction stages of redevelopment so as to minimise intended or unintended impacts.
 - Include site heritage and archaeology information during workers' inductions.
 - Use shoring for deeper services to minimise impacts from batters.
- No further impacts should be made on the c.1815 dam wall other than those already identified. New services can go in areas of existing impacts.
- The proposed South East Plot development is within an area of archaeological sensitivity and all impacts need to be assessed and approved.
- Review all works at detail design stage and reassess impacts.

- Where there are potentially substantial impacts to archaeological remains, of either local or State significance, archaeological recording will need to be undertaken in accordance with Heritage Council and Heritage Division guidelines and best practice methodologies.
- Where impacts on the historical archaeology have not been identified for the DA approval stage they will need to be the subject of a further approval under s139/s140 of the *Heritage Act 1977* from the Heritage Division or SHFA.
- Write a Non-indigenous Archaeological Research Design and Management Strategy to refine impacts, both current and proposed, identify appropriate archaeological strategies and methodologies, and research questions to guide the archaeological program. This is to be informed by the detailed design.
- SHFA should provide a repository for artefacts following the completion of the archaeological program.
- Public interpretation of the archaeology of State and locally significant archaeology should be undertaken within the proposed redevelopment. This may include a mixture of opportunities for:
 - Exposure of surviving archaeology within the redevelopment and acknowledging the environmental constraints of such displays.
 - Interpretation of artefacts through site display.
 - Interpretation of the results of the archaeology program throughout the precinct.
- Write an excavation report in accordance with Heritage Council guidelines and standard conditions of consent following the completion of archaeological investigations. This is to include:
 - detailed trench or area reports;
 - overall excavation report;
 - catalogue of artefacts and artefact reports;
 - conservation of important artefacts;
 - response to research questions; and
 - photo archive.
- Undertake consultation with SHFA and Heritage Division archaeologists about the site's archaeological issues, approaches to in situ retention of the State-significant archaeology, and the Archaeological Research Design and Management Strategy.

5.15 Noise and Vibration

An Acoustic Report has been provided by Wood and Grieve Engineers (refer to **Appendix L**). The report has identified the potential acoustic and vibration impacts of the development upon the closest receivers and also noise intrusion upon the development.

The potentially affected receivers are identified in Figure 3 of the Acoustic Report. These include receivers situated around the entire Darling Square.

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, Wood and Grieve have developed a set of project specific noise criteria (refer to Section 5.1.2 of the Noise and Vibration Assessment) and mitigation measures to minimise any impact from noise and vibration.

5.15.1 Construction Noise and Vibration

The construction program has yet to be fully established as the proposal is still at the planning phase of the development. A detailed assessment of noise and vibration impacts resulting from the proposal cannot be predicted; however Wood and Grieve has established detailed noise and vibration criteria for construction of the proposal in line with general requirements and state policy guidelines.

Construction Noise

The relevant construction noise criteria have been established by Wood and Grieve and are provided in Table 12 of the Noise and Vibration Assessment (**Appendix L**). At this early stage of the development, details on the construction program have yet to be finalised.

Accordingly, further detailed testing is to be undertaken in relation to construction noise impact modelling. A Construction Noise and Vibration Management Plan will also be developed to manage construction noise.

Mitigation Measures

- Develop a Construction Noise Management Plan prior to construction to manage construction noise;
- Install a construction hoarding taking into account the location of sensitive receivers;
- Consider providing barriers or enclosures around stationary plant;
- Locate stationary plant equipment and unloading/loading zones away from sensitive receivers;
- Where feasible and reasonable the demolition process should maintain structures which provide shielding during works;
- Where feasible and reasonable select the quietest and least vibration emitting construction methods and equipment;
- Limit unnecessary use of equipment and simultaneous operation of noisy plant and equipment;
- Switch off equipment not in use for an extended period of time; and
- Where feasible and reasonable install alternatives to reversing alarms.

Construction Vibration

The relevant construction vibration criteria have been established by Wood and Grieve and are provided at Section 5.6 of the Noise and Vibration assessment. At this early stage of the development, details on the construction program have yet to be finalised. Accordingly, further detailed testing is to be undertaken in relation to construction vibration impact modelling. A Construction Noise and Vibration Management Plan will also be developed to manage construction vibration.

Mitigation Measures

The following vibration management measures are provided to minimise vibration impact from construction activities to the nearest affected receivers:

- Develop a Construction Vibration Management Plan prior to construction to manage construction vibration;
- Monitor vibration levels using attended/un-attended methods during construction so as to manage potential excessive vibration;
- Manage construction program so as to minimise heavy machinery operating concurrently to each other;
- Prepare dilapidation reports on adjacent structures and monitor the effects; and
- As far as practical, locate heavy machinery away from nearby sensitive receivers.

5.15.2 Operational Noise

The main operational noise sources associated with the development are considered to be:

- Mechanical plant noise:
 - External VRV units;
 - External condenser units;
 - Car park, toilet, kitchen and garbage exhaust fans; and
 - Stair pressurisation fans.
- Retail and commercial activities:
 - Patron noise;
 - Music; and
 - Traffic;
- Loading dock activities;
- Traffic noise; and
- Car park noise.

An assessment of mechanical plant noise has been undertaken by Wood and Grieve and relevant mitigation measures provided for consideration in the selection of plant equipment and their location.

Restaurants, Cafes and Retail Operations

Each of the retail tenancies will be subject to separate future approvals for their fit-out, and a noise assessment will be required to be submitted with the future separate application(s). Each retailer will be subject to City of Sydney noise guidelines.

The most sensitive receivers to the retail uses will be residential apartments within Darling Square. Wood and Grieve have outlined conceptual measures which can be incorporated into the detailed design to mitigate any adverse noise impacts to the residential apartments.

Car Park, Loading Dock and Waste Activity

Car parking and loading docks are provided within the core of the podium building therefore noise emission is not expected to impact upon the amenity of surrounding sensitive receivers.

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. The assessment indicates the maximum predicted increase in traffic noise resulting from the proposal is consistent with relevant noise criteria.

Mitigation Measures

Mechanical Services

- Acoustic assessment of mechanical services equipment should be undertaken during the detail design phase of the development to ensure that the cumulative noise of all equipment does not exceed the applicable noise criteria.
- Acoustic louvres will be required for the plant rooms in order to meet the given criteria.
- Positioning mechanical plant away from nearby receivers.
- Acoustic attenuators fitted to duct work.
- Screening around mechanical plant.
- Acoustic insulation within duct work.

Waste Operations

- Garbage collection to be undertaken during the daytime period.
- Bottles are to be broken up away from the site.

Restaurants, Cafes and Retail Operations

- Residential premises exposed to high external noise levels as a result of retail type and public realm activities will need to close windows in order to meet acceptable acoustic amenity objectives within dwellings. Alternative solutions for ventilation will be provided where windows and doors are required to be closed;
- Awnings / canopies are to be provided to retail areas;
- The building envelope (primarily glazing system and floor/ceiling of first floor apartments above retail) will be designed to mitigate the intrusion of noise from external sources, Retail type premises will be designed such that they minimise noise transfer via the floor/ceiling to first floor apartments where they are located below a residential apartment; and
- Noise from licenced premises shall not be audible within any habitable room in a residential premise between 12:00 midnight and 7:00am.

5.16 Infrastructure and Utilities

Hyder has examined the location of existing utilities infrastructure in the vicinity of the SSDA9 Site and provided an assessment of the potential impact of the proposal on this existing infrastructure (see **Appendix H**). 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 **Appendix H** for further details of utility extension / augmentation.

Mitigation Measures

In light of the location of existing utilities infrastructure over the site and the nature of the proposed development, Hyder has concluded that Lend Lease will be required to continue to consult with and obtain the necessary approvals from the relevant authorities and utility providers regarding the proposed Darling Square development.

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 R**). 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.

An overview of the management of proposed and potential future uses to be accommodated within the development is provided below.

Residential Waste Systems

- Three (3) waste storage rooms will be provided (one servicing each individual residential tower), depositing general waste and recyclables into 240 litre mixed bins.
 - 30 general waste bins with 240MGB of capacity cleared five (5) times per week;
 - 9 mixed recycling bins with 660L of capacity cleared five (5) times per week;
 - 4 organics bins with 120MGB of capacity cleared five (5) times per week; and
 - 4 soft plastics with 660 litres of capacity cleared weekly.
- An oversized items storage area will be available for residents.

To ensure waste is minimised and appropriately managed, easy transportation systems and practices will be put in place throughout the life of the development. For the residential component of the development, a split chute system for general and mixed recycling waste will allow waste to be deposited in the one chute and transported from each level directly to the waste storage room. Residents will be briefed on the proper use of the split chute system and any contamination of the recycling stream will be monitored and reported by cleaners / building management.

Residential waste and recycling collection services will be provided by City of Sydney Council, and will be conducted using Council's services. Prior to each collection, building management / onsite cleaning staff will transfer all bins from each individual waste storage room to a central loading zone. It will be the responsibility of the building manager / onsite cleaning staff to return the bins to their respective waste rooms after collection. A power assisted tug and trailer will assist transferral of multiple bins to the central waste area.

Retail Waste Systems

Retailers will be responsible for separating general waste and recyclables from within their tenancies and transferring them to the waste room periodically throughout each day or as required. It will be the responsibility of each retailer to maintain the separation of recyclables from general waste from the point of generation to disposal in the systems provided.

Retail waste and recycling collection will be undertaken by a commercial waste contractor. The waste contractor will retrieve the bins from the retail waste room and load them from the central loading zone.

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 SSDA9 Site and is provided at **Appendix I**. This report builds upon the previous flooding, stormwater and WSUD investigations on the site undertaken to inform the Concept Proposal. The key sections of this report are addressed below.

Flooding and Stormwater

Under existing site conditions, a number of overland flow paths from within the upper catchment converge along Hay Street and are directed northward through the Darling Square Site. The current stormwater management system for the precinct relies on a number of large culverts for stormwater detention and disposal, however these culverts do not have sufficient capacity to accommodate flows including and above the 100-year ARI event.

Detailed stormwater and drainage designs are included within the Flooding, Stormwater and WSUD Report (**Appendix J**). The required stormwater works are illustrated on these drawings and will be further refined in consultation with Sydney Water and Sydney City Council.

An important measure to ensure impacts from flooding are appropriately mitigated is the provision of floor levels within the South East Plot at nominally RL3.6, therefore generally above the 100 year flood level (including climate change). An exception to this is the foyer and a number of retail areas which are below the 100 year flood level. Flooding Solutions Advisory Group has prepared Flood Protection Advice (included with **Appendix I**) with a strategy to protect against flooding in these retail tenancies. Additionally, Lend Lease has provided a Retail Food Strategy which is included with **Appendix I**. These measures include self-activating flood protection incorporated in tenancy openings amongst other strategies.

Further, a number of modifications to the existing stormwater system for the Darling Square precinct are proposed to improve existing overland flows through the site by amplifying the underground culvert system. The proposed modifications are consistent with the Concept Proposal strategy to control stormwater through the Darling Square precinct. A number of planning approvals are also required for stormwater works in Harbour and Hay Streets which complete the stormwater infrastructure. Approval for these works will be sought under Part 5 of the Act and will be undertaken on behalf of Sydney City Council and Sydney Water Corporation.

In light of the above it is considered that the proposed development is capable of incorporating appropriate flood mitigation and prevention measures at the detailed design stage. Mitigation measures are provided below and included at Section 7.0.

Mitigation Measures

- Provide floor levels within the South East Plot nominally at RL3.6 to be above the 100 year flood level apart from those ground floor uses (including retail and lobby); and

- Incorporate the measures and strategies in the Flooding Solutions Advisory Group report (**Appendix I**).

5.18.1 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:

- 80m³ rainwater tank with first-flush device;
- Filtration systems; and
- Green Roof on the podium roof level.

The report outlines various gross pollutant removal systems including CDS Units, pit inserts and mechanical filtration. Specific details on these measures are discussed in the Flooding, Stormwater and WSUD Report (**Appendix I**).

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.

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 SSDA9 Site.

Mitigation Measures

To appropriately manage and mitigate stormwater runoff on the SSDA9 Site and achieve the established water quality targets, Hyder have recommended the following measures:

- provide a 80m³ rainwater tank to capture rainwater from the roofs of the proposal;
- a stormwater quality treatment strategy will be put in place to
- implement a stormwater quality treatment strategy to ensure that pollutant levels achieve Councils nominated pollution reduction targets; and
- implement appropriate sediment and erosion controls during the construction phase of the proposal.

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 SSDA9 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 SSDA9 Site's proximity to the Cross City Tunnel ventilation stack.

5.20 Reflectivity

Cermak Peterka Petersen has prepared a Solar Reflectivity Report for the proposed development (refer to **Appendix S**). The Report investigates the potential for solar reflectivity glare from the proposed development to impact on motorists using roadways, intersections and buildings surrounding Darling Square, as well as impacts on pedestrians. The reflectivity measures of the Sydney DCP 2012 have been adopted as a guide for this assessment.

The report has tested the potential impact of reflectivity in a range of locations surrounding the SSDA9 Site, testing allowable specular reflectivity for each façade to ensure there are no adverse impacts on motorists.

The report found that the greatest potential for glare would be on The Boulevard, Hay Street and Harbour Street due to solar interaction with the façade of the building. Design elements such as vertically aligned opaque fin type elements have been incorporated to ensure the development limits reflectivity to 20% or less.

The assessment concludes that with adoption of the measures in the report regarding the choice of façade materials and façade articulation, the proposed South East Plot development does not present a driver hazard in terms of solar glare, and will meet the Sydney DCP 2012 controls for reflectivity.

Mitigation Measures

To ensure that there are no adverse impacts with respect to reflectivity and solar glare, the assessment has recommended that exterior façade elements used throughout the development are to limit light reflectivity to 20% or less.

5.21 Geotechnical Issues

The soil and geotechnical conditions of the site are summarised in Section 2.2 of this EIS, and detailed in the Coffey Geotechnics Preliminary Geotechnical Assessment included as **Appendix F**.

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.

5.22 Contamination

Human Health and Ecological Risk

A Human Health and Ecological Risk Assessment has been prepared by EnRisk (**Appendix T**) which presents a specific assessment of the Darling Square site of potential risks to human health and identified environmental receptors in the context of the proposed development and existing site conditions.

Based on the results of recent site investigations it is evident that the Darling Square Site is subject to widely distributed contamination from polycyclic aromatic hydrocarbons (PAH) and potential and actual acid sulphate soils, with localised hydrocarbon, metal and asbestos contamination hotspots. Contamination within the Darling Square Site is generally within the established site criteria, with the exception of two localised areas where levels of benzo(a)pyrene and naphthalene, and asbestos, are considered to be hazardous human health. One of these localised areas is within the SSDA 10 Site, whilst the other is located outside of the subject SSDA10 development site boundary.

The Human Health and Ecological Risk Assessment prepared by EnRisks (**Appendix T**) considers the potential impact of site contamination on construction workers and occupants of the future development (during Stage 1 and 2 occupation if construction is staged). Based on conservative estimates and existing knowledge of potential site contamination, and the nature of the proposed development, this assessment finds that the potential future health risks to users of the proposed development are low and acceptable.

The only exception is the risk posed to employees within ground level non-residential retail and commercial spaces which are above acceptable levels without remedial works.

The Human Health and Ecological Risk Assessment prepared by EnRisks (**Appendix T**) considers the potential impact of site contamination to terrestrial flora within Darling Square and to marine receptors within Cockle Bay. Based on existing knowledge of site contamination and the condition of existing mature vegetation within Darling Square, the assessment finds that existing site conditions will have minimal ecological impact to new landscape plantings within the site.

Whilst groundwater concentrations of acenaphthene, arsenic, chromium, copper, lead and zinc exceeded the screening criteria in some samples collected within the site, these exceedances were found to be minor.

Potential leachate from existing fill on the site has been migrating from the Darling Square Site to Cockle Bay for over 20 years and there is existing potential for the dilution of groundwater from the site prior to entering the active waterway. The assessment therefore considers the potential ecological risks from site-derived groundwater to Cockle Bay to be low and acceptable.

Remediation

A Site Specific Remedial Action Plan (RAP) has been prepared by Coffey Environments (**Appendix G**) which details the strategy for remediating the two hotspots (one within, and the other outside of the SSDA9 site) identified in the HHERA, along with establishing protocols for unexpected finds.

Coffey confirms that contamination assessment results reported contaminant concentrations of TPH, Total PAHs and benzo(a)pyrene. Presence of bonded asbestos and asbestos fines was also identified in the SSDA9 Site. Coffey considers that if remediation and validation is undertaken in accordance with relevant parts of the RAP, then the South East Plot can be made suitable for the proposed development.

If any other localised contamination presents a higher than expected environmental risk, or if unexpected contamination is discovered, then the Unexpected Finds Procedure, listed in the RAP will be implemented to reduce such risk to an acceptable level.

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

- Remediation and validation should be undertaken in accordance with the relevant parts of the RAP to ensure the South East Plot is made suitable for the proposed use;
- If localised contamination presents a higher than expected environmental risk, or if unexpected contamination is discovered, then the Unexpected Finds Procedure, listed in the Site Specific Remedial Action Plan prepared by Coffey dated 13 January 2014 will be implemented to reduce such risk to an acceptable level; and
- A detailed acid sulphate soils management plan will be prepared generally in accordance with the Acid Soils Assessment and Preliminary Management Plan prepared by Coffey dated 11 March 2013.

5.23 Wind Impact

A Wind Impact Assessment Report has been prepared by Cermak Peterka Petersen (CPP) for the proposed development and is provided at **Appendix U**. This wind assessment has 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.

Strong winds are expected at the southern portion of the site with southerly wind directions causing downwash at tower facades. The resulting conditions at ground level are considered to meet distress criterion, being suitable for pedestrian walking, pedestrian sitting and pedestrian standing.

Wind conditions on the landscaped podium roof are consistent with that modelled for neighbouring development and show the windiest conditions are due to southerly and northerly winds accelerating between SE1 and SE3 towers.

Mitigation Measures

Potential mitigation measures including awnings or landscaping (or both) could be incorporated into locations if it is deemed that wind conditions need to be further enhanced.

5.24 BCA

A review of the proposal against the applicable requirements of the Building Code of Australia (BCA) 2014 has been undertaken by Philip Chun (refer to **Appendix V**). 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 developed prior to Construction Certificate stage in consultation with Fire and Rescue NSW.

Mitigation Measures

The detailed design of the development must ensure that the proposal complies with the applicable requirements of the BCA 2014 or appropriate alternative solutions should be developed and verified by a qualified BCA Consultant or Fire Safety Engineer.

5.25 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 initiatives proposed will enable the NSW sustainability performance requirements set by BASIX to be met. The various measures designed to achieve sustainable development are outlined below.

5.25.1 SSDA9 Site

Specifically in regards to SSDA9, Lend Lease has prepared a Sustainability Report examining the achievement of sustainability objectives and initiatives in the proposed development (see **Appendix J**). This report focuses on the residential component of the proposal. The key elements of the design which will contribute to the achievement of the sustainability target ratings are explored below.

Energy and Greenhouse Gas Emissions

Lend Lease has identified a number of technologies which will be implemented to ensure that the project's greenhouse emission reductions are achieved. These include the use / provision of:

- fluorescent or LED lighting;
- ventilation and lighting controls which will ensure lighting and ventilation are only provided when required;
- energy efficient appliances;
- energy and water metering to monitor common energy and water use; and
- variable refrigerant flow system providing heating and cooling to enable numerous indoor fan coil units to be serviced by central condenser units.

Water Conservation and Management

To ensure that the project achieves the 40% water reduction target, a number of initiatives are currently proposed including the selection of fittings, fixtures and appliances with flow rates as low as possible to reduce potable water demand.

Due to the height of the proposed towers, the collection of rainwater is limited given the small ratio of roof area to the number of apartments. Regardless, it is proposed to collect rainwater from roofs to reduce the potable water consumption associated with the irrigation of the landscape podium area. In addition, the landscaped podium area will incorporate low-water use species wherever possible.

In addition, fire services test water will not be directed to sewer or stormwater. While some test water will be recirculated via a break tank, other test water (which is to be drawn from the mains) will be diverted to the rainwater tank. The size of the rainwater tank will therefore be increased to minimise the possibility of overflow when the fire services are tested.

Finally, given the existing site condition and the proposed landscaping associated with the proposed development, stormwater flows are not expected to be increased post development.

Third Party Certification and Regulatory Compliance

The residential development is proposed to be at least 4 -Star Design and As-Built Green Star rating under the Green Star Multi-Unit Residential v1 tool. This will be independent certification of the project's sustainability commitments, and confirms the project's commitment to deliver a development in accordance with current best practice standards. The initiatives relevant to Green Star are discussed below, and address numerous sustainability issues.

In addition to Green Star, the project will achieve BASIX compliance to ensure that the project will be capable of providing significant reductions to both energy and water consumption. BASIX compliance is also addressed below, and confirmed with the BASIX certificate included as **Appendix W**.

Green Star Multi-Unit Residential Tool

The Green Star rating scheme established by the Green Building Council of Australia has been used to guide the design process and ensure that appropriate initiatives are put in place to achieve the desired ratings and sustainability target. Section 5 of the Sustainability Report at **Appendix J** establishes the various initiatives to be put in place in the following areas:

- Management;
- Indoor Environmental Quality;
- Energy;
- Transport;
- Water;
- Materials;
- Land Use and Ecology; and
- Emissions.

With the implementation of the initiatives contained within each of these areas it is considered by Lend Lease that the proposal will achieve the target rating, as well as the target reductions in greenhouse gases and potable water use.

Regulatory Compliance – BASIX

BASIX sets energy reduction, thermal comfort and water reduction targets for new residential developments based on the average energy and water consumption of dwellings in NSW. The BASIX summary report provided as part of the Sustainability Report at **Appendix J** demonstrates that the BASIX targets for the reduction of energy and water usage and the thermal comfort target will be achieved. BASIX certificates and stamped plans are included as **Appendix W**.

5.26 Social and Economic Impacts

5.26.1 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 mixed use 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 total of 1500 construction jobs and 100 operational jobs will be associated with the South East Plot.

The new residential population to be established within the proposed mixed use residential development, along with the new workers, will also generate direct expenditure on retail within the vicinity of their place of residence and work.

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.

5.26.2 Housing Supply and Choice

Once fully developed Darling Square (based on the indicative design scheme) is expected to accommodate approximately 2,360 dwellings (comprising 1,360 residential apartments and 1,000 student beds) with a resident population in the order of 3,400 – 3,700. SSDA9 provides for 391 of those dwellings.

The proposed mixed use development will accommodate a mix of apartment types and a range of apartment sizes, and seeks to meet the City of Sydney's vision for a diverse and vibrant community. Underpinning the type and size of dwellings to be provided is the objective of supporting attainable city apartment living, targeted at young professionals and students.

Located on the edge of the City Centre, with a high level of public transport accessibility, proximity to employment and activity centres, and access to extensive areas of open space, SSDA9 supports key Local and State Government strategic planning objectives and contributes towards achieving housing targets.

5.26.3 Community Services and Facilities

The proposed mixed use development is also a major urban renewal project that will deliver significant benefits for the locality. Key benefits to the community of the development include:

- Providing integral elements of public domain designed to stitch into the future public domain of Darling Square which will be enjoyed by residents and visitors alike;
- Providing improved permeability and better connections to surrounding areas (including contributing to resolving the existing poor east-west connections between Pyrmont and the CBD);
- Creating a vibrant and activated precinct for Sydneysiders and visitors to enjoy, with a mix of apartments, retail shops, public spaces, and dining areas; and
- Increased safety and security in the surrounding public domain through positive design, enhanced activation and surveillance.

5.27 Crime and Public Safety

Harris Crime Prevention Services has prepared a Crime Prevention Through Environmental Design (CPTED) Report to assess key public and private spaces within the SSDA9 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.

Harris Crime Prevention Services conclude that the public domain design accords with the CPTED principles listed above. The development will result in a significant increase in activity generation within and around the SSDA9 Site, which will in turn increase safety and passive surveillance. The ways in which these principles will be applied to the public domain design of the SSDA9 Site are summarised below.

The application of CPTED principles should ultimately extend to the Plot's entire external and internal architecture, which will be addressed during the detailed design stage.

Perimeter and Façade Design

Definitional clarity has been provided to the proposed development with no visual uncertainty between the South East Plot, The Square and surrounding existing and future developments. The Harbour and Little Hay Street connections to the Square promote uninterrupted close and distant observation and surveillance. The lighting strategy complements surrounding street lighting to create a sense of safe, purposeful way-finding pedestrian movement. Harris Crime Prevention Services have concluded that pedestrian movement in and around the South East Plot is sufficiently directional and legible.

Access to Podium

Each of the entry foyer approaches have unobstructed sight lines and are provided with good surveillance. The separation of the residential and retail entries is positive and ensures clarity on the use of each space. The residential parking is appropriately separated by a roller shutter ensuring restricted access.

Outdoor Retail – The Square

The SSDA9 Site will enhance the activation of the Square and Little Hay Street with retail tenancies provided along the northern frontage. These tenancies will add safe-place value to the Square and characterise the space as a place to stay. There will be fewer opportunities for anti-social intimidating behaviour given the level of activation continuity provided by the proposed development.

Public Domain

The South East Plot footprint connects seamlessly with pocket gathering spaces within the future Square and surrounding pedestrian network. The development of the South East Plot will contribute to the overall achievement of a safe and active environment in Darling Square.

The design development of ground level landscaping in the public domain should ensure there are no opportunities for concealment or entrapment along pathways or at gathering spaces. Appropriate lighting should be included in locations to illuminate corners, under crofts and recesses to light the public domain and create a safe and welcoming place.

5.28 Environmental and Construction Management

A Construction Management Plan (CMP) has been prepared by Lend Lease Building (**Appendix X**) which details the site construction and environmental management principles for the proposed development. The CMP details management principles which seek to manage the impact of construction activities in terms of public and employee safety, noise, vibration, air and water quality and construction traffic.

Traffic, Parking and Pedestrian Management (Construction)

The Construction Management Plan prepared by Lend Lease Building included within the Transport and Traffic Impact Assessment **Appendix P** provides details relating to traffic, parking and pedestrian management during the demolition and construction phase of the development. More specifically it outlines planned mitigation arrangements demonstrating how, during demolition and construction of the development, the pedestrian and vehicular movements will be addressed to minimise impact.

Construction Traffic

Construction traffic routes and access points detailed in the CMP have been established following consultation with the RMS and will be communicated to all contractors throughout the construction process. This will involve construction heavy vehicle egress will be via George Street, left onto Hay Street and into Harbour Street to access the site. Vehicles leaving site will do so in a forward motion along Harbour St and left into Pier Street or continue on towards the Harbour Bridge or Cross city Tunnel. Alternatively vehicles servicing the southern elevation of the site would exit via Quay Street. The CMP outlines construction vehicle and pedestrian access arrangements during the Sydney Entertainment Centre demolition and enabling works program.

All vehicle access points will include control measures to ensure unauthorised site access is prohibited. Major site entrance points will be manned to provide site security and ensure the safe and efficient operation of vehicle movements into and out of the site.

On-site parking for construction workers will not be provided, with the developer to convey information on local public transport routes and public car parking stations.

Sediment and Erosion Control

Sediment and erosion controls will be provided in accordance with the principles and site actions identified in the CMP. These controls will ensure that there are no unacceptable impacts on water quality and volumes within existing watercourses and stormwater drainage systems as a result of the proposed development.

Noise and Vibration

The CMP details noise and vibration management principles and measures which will be formalised in a detailed Noise and Vibration Management Plan prior to the issue of a Construction Certificate as recommended by the Environmental Noise and Vibration Impact Assessment.

Air Quality

An Air Quality Management Plan and Air Quality Monitoring Program will be implemented prior to issue of a Construction Certificate to detail preventative measures to minimise the impact of construction activities, including dust emissions, and monitoring measures to ensure that air quality issues are promptly identified and addressed.

Mitigation Measures

- Construction Traffic Management Plan to be included in tender documents for all works;
- Construction Traffic Management plan to form part of site induction package;
- Subcontractors / suppliers to submit formal delivery booking requests 48 hours prior to delivery;

- Establishment of holding areas for urgent and emergency vehicles within the development site;
- Strategic location of construction zones to eliminate double handling of materials delivered to site;
- Controlled delivery of materials necessary to maintain programme;
- Nominated and controlled storage areas within the development site hoardings;
- Prefabrication of materials off site will assist in minimizing storage requirements; and
- An Air Quality Management Plan and Air Quality Monitoring Program will be implemented prior to implementation of works detailing preventative and monitoring measures to minimise construction impacts on air quality.

5.29 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 proposed mixed use residential 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 the South East Plot 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 the South East Plot as detailed in the Sustainability Report prepared by Lend Lease (**Appendix J**) and summarised at Section 5.25 of this report. Each principle of ESD as relevant to the proposed development is addressed below.

5.29.1 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 mechanical plant and electrical services to reduce energy dependence;
- Locate residential development in close proximity to public transport 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 reuse for toilet flushing and landscape irrigation to reduce reliance on mains potable water.

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 given effect to, and not infringed by the proposal.

5.29.2 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 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 housing in close proximity to public transport; and
- Supporting the improvement of 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.

5.29.3 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 site and reduce the export of gross pollutants into the waterway all contribute directly the conservation of biological diversity and ecological integrity within Sydney Harbour.

5.29.4 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 would be implemented to ensure resources are used responsibly in the first instance in order to divert resources from landfill.

5.30 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. The proposal will result in significant public benefits in any event. The approach of not burdening the development with contributions has been consistently applied in the initial SSDA's approved for components of the SICEEP project.

5.31 Site Suitability

Having regard to the characteristics of the site and its location, the proposed development is considered suitable for the SSDA9 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 mix of complementary land uses and support for new and improved public spaces;
- is capable of being developed in a manner that will minimise impacts to the natural, artificial, historical, and environmental qualities of the SSDA9 Site;
- will result in only minor environmental impacts that can be appropriately managed and mitigated; and
- will facilitate the renewal of the SSDA9 Site with considerable benefits to the local community.

Conversely, the SSDA9 Site is considered suitable for the proposed development in that:

- the location of the SSDA9 Site at the edge of the Sydney CBD and in the vicinity of existing transport, tourism and business infrastructure is considered to be an appropriate location for a major new mixed use residential development;
- the SSDA9 Site is disconnected from the urban grain of surrounding precincts (including Chinatown) and is in need of urban renewal;
- it is capable of being appropriately serviced to accommodate future development;
- it has excellent access to a wide range of services and facilities that will support the future occupants;
- it provides opportunities for future residents to live and work in the CBD;
- it is well served by public transport; and
- it is in close proximity to high quality public open space (existing and proposed), and employment and education opportunities.

5.32 Public Interest

The proposed mixed use residential 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;
- create new jobs during construction, with the proposed commercial/retail tenancies providing ongoing employment opportunities during the operational phase;
- provide opportunities for public activity and enterprise 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 391 dwellings upon completion with a resident population in the order of 742¹;
- provide for diverse city apartment living, suitable for a wide range of household types;

¹ Based on a household size of 1.9 persons

- facilitate a greater number of people living close to their place of work or study, including staff and students of the nearby education and health precinct;
- minimise urban sprawl and the costs to society associated with this inefficient form of growth;
- encourage sustainable travel behaviour by providing a significant quantum of dwellings close to public transport;
- embrace and respect the vitality and character of the neighbouring Chinatown precinct;
- provide a quality visitor experience through the design of the proposed mixed use residential building and the provision of a high-quality public domain, which will contribute to the establishment of Darling Square as a distinctive destination within a revitalised quarter of the City;
- support Sydney's development as a compact and well-connected city;
- increase and improve connections with Chinatown, Ultimo, the CBD and the south of the City; and
- contribute to repairing the urban fabric of this part of the City restoring street grain and connectivity.

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 SSDA9 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 SSDA9 Site. This assessment has determined that there are no adverse environment, social or economic impacts which cannot be managed or mitigated.

Figure 40 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 40 – 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.	3	2	5 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 material impact on the significance or value of adjoining Items of Heritage Significance or the Heritage Conservation Area (HCA), and as a result, no further assessment or mitigation measures are considered necessary.	1	1	2 Low
Non-Indigenous Archaeology	C	Impacts to archaeological items of significance.	Use of a combination of transfer beams and piles to minimise impacts to archaeological items. This will include the sensitive locating of piles and lift core pits.	3	2	5 Low / medium
Noise and Vibration	C	- Increase in noise levels during construction activities - Adverse noise impacts on proposed residential apartments	- Complete a range of mitigating measures such as hoarding, sensitive location of plant and efforts to reduce noise where possible. - Detailed design of residential apartments to respond to potential noise impacts from surrounding uses. - Implement measures to minimise constriction Noise and Vibration impacts as outlined in the Construction Noise and Vibration Management Plan	3	2	5 Low / medium
Infrastructure and Utilities	O	Adequate connection to infrastructure and utilities.	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.	2	2	4 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 proposed flood strategy. - Implement the mitigation measures proposed in the Flooding, Stormwater & WSUD Report (Appendix J).	3	2	5 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 SSDA9 Site's proximity to the Cross City Tunnel ventilation stack.	1	1	2 Low/medium

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Risk Assessment		
				Significance of Impact	Manageability of Impact	Residual Impact
Reflectivity	O	Adverse solar reflectivity glare to motorists and pedestrians	Exterior façade elements used throughout the development are to limit light reflectivity to 20% or less.	2	2	4 Low / medium
Geotechnical Issues	O	Instability of future development	Ongoing monitoring should occur and a suitable piled footing design should be adopted to transfer the building loads to the underlying bedrock.	2	2	4 Low / medium
Contamination	C+O	Exposure of contamination or hazardous materials during construction and operation	- Remediation and validation should be undertaken in accordance with the relevant parts of the RAP to ensure the South East Plot is made suitable for the proposed use; - If localised contamination presents a higher than expected environmental risk, or if unexpected contamination is discovered, then the Unexpected Finds Procedure, listed in the Site Specific Remedial Action Plan prepared by Coffey dated 13 January 2014 will be implemented to reduce such risk to an acceptable level; and - A detailed acid sulphate soils management plan will be prepared generally in accordance with the Acid Soils Assessment and Preliminary Management Plan prepared by Coffey dated 11 March 2013.	3	3	6 Medium
Wind Impact	O	Adverse wind environment	Potential mitigation measures including awnings or landscaping could be incorporated into locations where it is deemed that wind conditions need to be further enhanced.	3	2	5 Low / medium
Crime and Public Safety	O	Anti-social intimidating behaviour.	- The design development of ground level landscaping in the public domain should ensure there are no opportunities for concealment or entrapment along pathways or at gathering spaces. - Detailed design should address corridor (back of house) circulation. - Install an audio-video system at every podium and tower apartment integrated with lift access control. - Appropriate lighting should be included in the public domain.	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 20** below. These measures have been derived from the previous assessment in Section 5.0 and those detailed in appended consultants' reports.

Table 20 – Mitigation Measures to be implemented

Mitigation Measures
Traffic Generation To alleviate any potential adverse traffic and pedestrian safety impacts during the construction period, Hyder recommends that the following measures be put in place: ▪ Appropriate directional signage and traffic control 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 should be subject of coordination with the appropriate authorities. ▪ All traffic related issues and changes should also be presented to Stakeholders as part of the consultation process. These should, wherever and whenever possible, be carried out in non-peak periods. ▪ Risks to the public and the construction crew would be minimised through the implementation of the construction management plans specifically prepared for the SICEEP construction works of the PPP and Darling Square. The Plan will be regularly updated to address any new outcomes identified through constant monitoring as the works progress.
Accessibility ▪ The detailed design of the proposal should comply with the relevant accessibility provisions of the BCA 2014.
Non-Indigenous Heritage The Heritage Interpretation Strategy prepared by TKD Architects dated October 2014 should be incorporated into the detailed design of the SICEEP redevelopment and inform a Heritage Interpretation Plan developed for the SICEEP precinct. Preparation of the Heritage Interpretation Plan should include the opportunity for consultation with primary stakeholders such as representatives of the Sydney Harbour Foreshore Authority, the City of Sydney, NSW Heritage Branch, project architects, heritage consultants, and other appropriate statutory and non-statutory authorities. The Heritage Interpretation Plan should detail measures such as public art, wayfinding media, naming, interpretive signs and installations, archaeological remains, development of oral histories, educational tours (guided or self-guided), interpretive walks, events and/or website based information.
Non-Indigenous Archaeology ▪ Archaeological excavation of the location of the two piles which are proposed to impact on the dam wall. This includes the associated impacts from the adjacent piles. Aim of this work is to confirm the location of the dam wall, investigate the materials of the wall and how the wall related to the 1850s reclamation fill. ▪ Archaeological excavation of the portion of Lift Pit 1 which will impact on the Dam Wall. ▪ Archaeological excavation of the dam wall where it will be impacted by the 1.8m of the stormwater amplification pipe. This archaeological work will be undertaken prior to stormwater amplification pipe excavation works. ▪ Excavation for the new stormwater amplification pipe is to be minimised within the vicinity of the dam

Mitigation Measures

wall by use of shoring or similar means. Recent redesign requires that shoring boxes be used along the 100m length of the new service. Battering of the excavation trench for the culvert should be no closer than 5m to either side of the dam wall.

- At detail design stage the design of the impacts of the piles or services in relation to the dam wall may be reduced but cannot be increased. The design development of services should avoid impacts on the dam wall as much as possible.
- Undertake archaeological stratigraphic recording within the:
 - Footprint of Lift Pit 1, and part of Lift Pits 2 and 3.
 - Cesspits where impacted by piles.
 - Areas of concentration of piles and/or services which would impede archaeological investigation in the future and/or remove remains.
- Review all piles at the detailed design stage and reassess predicted impacts.
- Record the archaeology found within the excavation of the stormwater and sewerage lines.
- Review services design and identify further archaeological requirements, notably in areas of cumulative impacts from deeper services.
- Archaeological recording should be undertaken in accordance with best practice standards.
- The identified mitigation strategies should be incorporated into the Archaeological Research Design required to guide any archaeological fieldwork, after appropriate consultation with the SHFA and Heritage Division archaeologists.
- Archaeological remains of State significance within subject area should be retained in situ where possible. Strategies to mitigate development impacts to include:
- Develop protocols to manage issues during the demolition, regrading and construction stages of redevelopment so as to minimise intended or unintended impacts.
- Include site heritage and archaeology information during workers' inductions.
- Use shoring for deeper services to minimise impacts from batters.
- No further impacts should be made on the c.1815 dam wall other than those already identified. New services can go in areas of existing impacts.
- The proposed South East Plot development is within an area of archaeological sensitivity and all impacts need to be assessed and approved.
- Review all works at detail design stage and reassess impacts.
- Where there are potentially substantial impacts to archaeological remains, either local or State significance, archaeological recording will need to be undertaken in accordance with Heritage Council and Heritage Division guidelines and best practice methodologies.
- Where impacts on the historical archaeology have not been identified for the DA approval stage they will need to be the subject of a further approval under s139/s140 of the Heritage Act, 1977 from the Heritage Division or SHFA.
- Write a Non-indigenous Archaeological Research Design and Management Strategy to refine impacts, both current and proposed, identify appropriate archaeological strategies and methodologies, and research questions to guide the archaeological program. This is to be informed by the detailed design.
- SHFA should provide a repository for artefacts following the completion of the archaeological program.
- Public interpretation of the archaeology of State and locally significant archaeology should be undertaken within the proposed redevelopment. This may include a mixture of opportunities for:
- Exposure of surviving archaeology within the redevelopment and acknowledging the environmental constraints of such displays.
- Interpretation of artefacts through site display.

Mitigation Measures

- Interpretation of the results of the archaeology program throughout the precinct.
- Write an excavation report in accordance with Heritage Council guidelines and standard conditions of consent following the completion of archaeological investigations. This is to include:
 - detailed trench or area reports;
 - overall excavation report;
 - catalogue of artefacts and artefact reports;
 - conservation of important artefacts;
 - response to research questions; and
 - photo archive.
- Undertake consultation with SHFA and Heritage Division archaeologists about the site's archaeological issues, approaches to in situ retention of the State-significant archaeology, and the Archaeological Research Design and Management Strategy.

Construction Noise

- Develop a Construction Noise Management Plan prior to construction to manage construction noise;
- Install a construction hoarding taking into account the location of sensitive receivers;
- Consider providing barriers or enclosures around stationary plant;
- Locate stationary plant equipment and unloading/loading zones away from sensitive receivers;
- Where feasible and reasonable the demolition process should maintain structures which provide shielding during works;
- Where feasible and reasonable select the quietest and least vibration emitting construction methods and equipment;
- Limit unnecessary use of equipment and simultaneous operation of noisy plant and equipment;
- Switch off equipment not in use for an extended period of time; and
- Where feasible and reasonable install alternatives to reversing alarms.

Construction Vibration

- Develop a Construction Vibration Management Plan prior to construction to manage construction vibration.
- Perform high level predictions to avoid non-compliances with vibration criteria.
- Monitor vibration levels using attended/un-attended methods during construction so as to manage potential excessive vibration.
- Avoid using heavy machinery during hours of that are more sensitive to nearby receivers.
- Manage construction program so as to minimise heavy machinery operating concurrently to each other.
- Prepare dilapidation reports on adjacent structures and monitor the effects.
- As far as practical, locate heavy machinery away from nearby sensitive receivers.

Mechanical Services

- Amelioration measures for the mechanical plant located on the roof will be considered during the Design Development stage so as to comply with the outlined criteria at the nearest sensitive receivers.
- Acoustic louvres will be required for the plant rooms in order to meet the given criteria.
- Positioning mechanical plant away from nearby receivers
- Acoustic attenuators fitted to duct work

Mitigation Measures

- Screening around mechanical plant
- Acoustic insulation within duct work

Waste Operations

- Garbage collection to be undertaken during the daytime period.
- Bottles are to be broken up away from the site.

Restaurants, Cafes and Retail Operations

- Residential premises exposed to high external noise levels as a result of retail type and public realm activities will need to close windows in order to meet acceptable acoustic amenity objectives within dwellings. Alternative solutions for ventilation will be provided where windows and doors are required to be closed;
- Awnings / canopies are to be provided to retail areas;
- The building envelope (primarily glazing system and floor/ceiling of first floor apartments above retail) will be designed to mitigate the intrusion of noise from external sources, Retail type premises will be designed such that they minimise noise transfer via the floor/ceiling to first floor apartments where they are located below a residential apartment.; and
- Noise from licenced premises shall not be audible within any habitable room in a residential premises between 12:00 midnight and 7:00am

Utilities

- In light of the location of existing utilities infrastructure over the site and the nature of the proposed development, Hyder have concluded that Lend Lease will be required to continue to consult with and obtain the necessary approvals from the relevant authorities and utility providers regarding the proposed Darling Square development.

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

- Provide floor levels within the South East Plot nominally at RL3.6 to be above the 100 year flood level apart from those ground floor uses (including retail and lobby); and
- Incorporate the measures and strategies in the Flooding Solutions Advisory Group letter (Appendix I).

Water Quality

- Provide a 80m³ rainwater tank to capture rainwater from the roofs of the proposal; and
- Implement appropriate sediment and erosion controls during the construction phase of the proposal.

Reflectivity

- Exterior façade elements used throughout the development are to limit light reflectivity to 20% or less.
- Vertically aligned opaque fin type elements are to be incorporated against the façade, run perpendicular over the height of the tower and be spaced horizontally.
- Other façade and roof ancillaries to be developed during detailed design should each be assessed for potential to generate nuisance reflections during detailed design.

Mitigation Measures

BCA

- The detailed design of the development must ensure that the proposal complies with the applicable requirements of the BCA 2014 or appropriate alternative solutions should be developed and verified by a qualified BCA Consultant or Fire Safety Engineer.

Environmental and Construction Management

- Construction Traffic Management Plan to be included in tender documents for all works;
- Construction Traffic Management plan to form part of site induction package;
- Subcontractors / suppliers to submit formal delivery booking requests 48 hours prior to delivery;
- Establishment of holding areas for urgent and emergency vehicles within the development site;
- Strategic location of construction zones to eliminate double handling of materials delivered to site;
- Controlled delivery of materials necessary to maintain programme;
- Nominated and controlled storage areas within the development site hoardings;
- Prefabrication of materials off site will assist in minimizing storage requirements
- An Air Quality Management Plan and Air Quality Monitoring Program will be implemented prior to implementation of works detailing preventative and monitoring measures to minimise construction impacts on air quality.

Contamination

- Remediation and validation should be undertaken in accordance with the relevant parts of the RAP to ensure the South East Plot is made suitable for the proposed use;
- If localised contamination presents a higher than expected environmental risk, or if unexpected contamination is discovered, then the Unexpected Finds Procedure, listed in the Site Specific Remedial Action Plan prepared by Coffey dated 13 January 2014 will be implemented to reduce such risk to an acceptable level; and
- A detailed acid sulphate soils management plan will be prepared generally in accordance with the Acid Soils Assessment and Preliminary Management Plan prepared by Coffey dated 11 March 2013.

CPTED

- The design development of ground level landscaping in the public domain should ensure there are no opportunities for concealment or entrapment along pathways or at gathering spaces.
- Detailed design should address corridor (back of house) circulation.
- Install an audio-video system at every podium and tower apartment integrated with lift access control.
- Appropriate lighting should be included in the public domain.

Wind

- Potential mitigation measures including awnings or landscaping could be incorporated into locations where it is deemed that wind conditions need to be further enhanced.

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 mixed use residential development on the South-East 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, social and environmental impacts including 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 5.26 and Section 5.30);
- 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 (as modified);
- The proposal is consistent with the approved Darling Square Concept Proposal (as modified), meeting the requirements under Section 83D(2) of the *Environmental Planning and Assessment Act 1979*;
- SSDA9 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.