ENVIRONMENTAL IMPACT STATEMENT

LEES 1 SITE

Proposed scientific research and teaching facility

SSD_7054

May 2016

urbis

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Glossary

Council	City of Sydney Council
CLM Act	*Contaminated Land Management Act 1997*
CLEP	City of Sydney Local Environmental Plan 2012
SEARs	Secretary's Environmental Assessment Requirements
P&E	NSW Planning and Environment
EEC	Ecologically Endangered Community
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Commonwealth Environment Protection Biodiversity Conservation Act 1999*
ESD	Ecologically Sustainable Development
LGA	Local Government Area
NSW Government	State government for NSW
Public Land	Open space, public reserve and road dedication lots
ISEPP	*State Environmental Planning Policy (Infrastructure) 2007*
SEPP (BASIX)	*State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004*
SEPP 55	*State Environmental Planning Policy 55 (Remediation of Land)*
SEPP 64	*State Environmental Planning Policy 64 (Advertising and Signage)*
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SSD	State Significant Development
SSS	State Significant Site
TOD	Transit Oriented Development
TSC Act	*NSW Threatened Species Conservation Act 1997*
WSUD	Water Sensitive Urban Design
WIK	Work In Kind
VMP	Vegetation Management Plan
VPA	Voluntary Planning Agreement

Signed Declaration

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT

This Environmental Impact Statement has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Environmental Assessment prepared by:

Names:	Peter Strudwick (Director) Bachelor of Town Planning UNSW Sarah Horsfield (Associate Director) Bachelor of Town Planning UNSW and Masters of Environmental Law USYD
Address:	Urbis Pty Ltd Level 23, Darling Park Tower 2, 201 Sussex Street Sydney NSW 2000
In respect of:	LEES 1: Scientific research and teaching facility.

Applicant and Land Details:

Applicant:	University of Sydney
Applicant Address:	Services Building G12, 22 Codrington Street Darlington NSW 2008
Land to be Redeveloped:	Land bound to the north by the existing Carslaw Building and the south City Road, Camperdown.
Lot and DP:	Part Lot 11 DP 1171806 and Part Lot1 DP1171804
Project:	LEES 1: Scientific research and teaching facility.

Declaration:

I certify that the contents of the Environmental Impact Assessment to the best of my knowledge, has been prepared as follows:

- In accordance with the requirements of the Schedule 2 of *Environmental Planning and Assessment Regulation 2000*; and *State Environmental Planning Policy (State and Regional Development) 2011*.
- The information contained in this report is true in all material particulars and is not misleading.

Name	Peter Strudwick, Director	Sarah Horsfield, Associate Director
Signature:		
Date:	24/05/2016	24/05/2016

Executive Summary

OVERVIEW

This Environmental Impact Statement (EIS) has been prepared in support of a State Significant Development Application (SSDA) (being Project SSD 7054) pursuant to Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This SSDA seeks approval for the extension of the existing Carslaw building, with a proposed new scientific research and education facility, known as the "LEES 1 Building". The proposed development will be 8 storeys with laboratories and associated storage on levels 1 to 4, teaching spaces on levels 5 to 7 and plant services on level 8.

The building site is located to the south of the existing Carslaw Building and north of City Road, within the University of Sydney Camperdown Campus.

The new building will physically connect to the existing Carslaw Building at the lowest four levels, with internal links provided between the two buildings at the two lowest levels. It is proposed to increase the capacity of the existing loading dock serving the Carslaw building so that it can accommodate an additional Small Rigid Vehicle (6.4m long). The project will also include site preparation and minor civil and landscaping works. All works proposed are strictly limited to the University's land.

The site is zoned SP2 Infrastructure – Education Establishment under *Sydney Local Environmental Plan* 2012 (SLEP 2012). The proposed development is permissible with development consent.

The proposal is State Significant development because it is development for the purposes of educational establishment (including associated research facilities) for a University and will have a capital investment value in excess of $30 million pursuant to clause 15 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development)* 2011.

The EIS has been prepared in accordance with the Secretary Environmental Assessment Requirements (SEARSs) for the project that were issued on 28 May 2015.

Sydney University has a world class reputation in education and research. It is ranked in the top 0.3% of universities worldwide, ensuring that Australian innovation and research is recognised on the international stage. The new scientific research and teaching facility seeks to build upon the University's objective to upgrade and modernise teaching and research facilities to support the delivery of world class education standards.

The building will place "science on display" at the University's front door through a highly transparent façade to City Road. This responds to the University's strategy to engage with the broader community and to attract the best research and industry partners. Further, the proposal provides demonstrable promotion of the 'Science-Technology-Engineering-Mathematics' (STEM) fields through the building's prominent location.

The proposed building will occupy an unusually shaped parcel of land located between the existing Carslaw Building and a row of significant fig trees. Responding to these site constraints is a building layout that provides flexible teaching and research laboratories able to suit a variety of occupants. Proposed teaching laboratories are large and will compliment adjacent laboratories in the Carslaw Building in order to establish a teaching lab hub. Further, the internal layout of LEES1 will enable future connections into to the Carslaw Building across all teaching levels, when the Carslaw Building is redeveloped the future.

The proposed LEES 1 building will relocate and consolidate teaching and research teams in the Life, Earth and Science Disciplines from across the Camperdown Campus into a new purpose built building. The consolidation will provide improved functionality and operation of the campus for staff and students alike, whilst also delivering contemporary, well designed and upgraded scientific facilities for the University. The proposal will not result in any increase in students or staff and no additional parking is proposed.

The site does not form part of the Concept Approval for the Campus Improvement Program (CIP) approved by the Minister for Planning on16 February 2015 (SSD13_6123). However, the proposal is not inconsistent with the terms of the CIP and is one of several "stand alone" development sites that were intentionally excluded due to their isolation from the "precinct based approach". Notwithstanding this, the relevant built form aspects of the CIP have been considered in the design development of the project to ensure an integrated and complimentary design and planning approach. The works will not compromise the delivery of the CIP and are not inconsistent with the terms of the Concept Approval.

Separate to this application, the University of Sydney has lodged a SSDA for the F23 Administration site, which is located on the opposite corner of Eastern Avenue, fronting City Road. The F23 Building has been designed by Grimshaw Architects. Together these two buildings provide a unique opportunity to create a new urban square and coordinated entry to the University of Sydney along its frontage to City Road. Both building have been designed by the respective design teams in response to the overall campus context and following a detailed analysis of site opportunities and constraints associated with their significant location along City Road and at the southern entry of Eastern Avenue.

The EIS and the accompanying technical information have addressed the matters required to be considered in the SEARs. It is concluded the proposal demonstrates that all on-site and off-site impacts have been carefully considered and addressed. In particular, the assessment relating to key environmental considerations demonstrate:

- **Built Form and Urban Design**: The LEES 1 Building and F23 Building Sites are located on City Road at the boundary of the two campuses (Camperdown Campus and Darlington Campus). This provides a unique opportunity to create a new framed entry and urban square to further link the two campuses so that they appear as one single connected campus. The LEES 1 building has been sensitively designed to mark the juncture between the older and newer part of the campus. Together with the proposed F23 building, located on the opposite corner of Eastern Avenue, the two new buildings will provide a strong definition to the City Road end of Eastern Avenue.

- The contemporary design of the LEES 1 Building responds to the existing older part of the Campus, which is largely defined by horizontal mass buildings that express vertical façade proportions through modulation and openings. The building siting, height, scale and mass has been designed to respond to the existing built form and character of the Camperdown Campus and the likely future character and form of the Darlington Campus as dictated by the approved CIP. The height and scale of the proposed building form (RL 65.68 to the top of the building) responds to the proposed F23 building (RL 70.24) on the opposite corner of Eastern Avenue and together they will create a new entry statement to the University. The LEES 1 Building will create an appropriate transition in height between the existing 7 storey Carslaw building (RL 60.6) and the future height of the proposed Wentworth building (RL 83.10 as per the building envelope approved under the CIP) located on the opposite side of City Road.

- The LEES 1 building has been designed to respond to the geometry of the site and the functional requirements of the learning and research spaces. The functional planning for the different teaching and research spaces is quite distinct, and the building reflects this in the proposed mass and articulation, with larger floor plates required for the upper research spaces. This has resulted in a minor cantilever of the upper floors (levels 5-8).

- This design solution and its relationship and impact upon Eastern Avenue is fully supported from a heritage view-point (refer to the HIS prepared by Ian Kelly Heritage Consultant at Appendix K). It has been the subject of ongoing resign review over the past 12 months in response to issues raised by the City Council and the Heritage Office. In refining the scheme, and in response to these issues, the University has recently sought further advice on this matter from Howard Tanner. The concept of the cantilever has been supported by Mr Tanner and the degree to which cantilever once projected into the Eastern Avenue alignment has been further reduced as a result of the most recent design amendments. A 'Summary of Design Refinements' Report supplements the Architectural Design Report and is located within Appendix E of this EIS. The suitability of the design solution is further discussed below:

- **Heritage and View Corridors**: Eastern Avenue is identified in the University of Sydney Grounds Conservation Management Plan 215 as one of several significant view corridors within the University grounds. Whilst the upper levels provides a minor cantilever beyond the alignment of Carslaw

Building to the north (along the eastern side of Eastern Avenue), it remains in line with the footbridge below. It is also important to note that an expansive view corridor will still be preserved and framed by this element.

- Further, it is noted that that the eastern built form alignment of Eastern Avenue has been altered over time from its original alignment and the edge conditions of Eastern Avenue was not intended to have a hard continuous edge. An analysis of the edge conditions of Eastern Avenue reveals that only the three buildings on the south east edge of Eastern Avenue hint at the formation of a continuous edge and two of these buildings are recent additions to the University (having been developed in the last decade). Prior to this, no indication of "edge continuity" existed, with the existing Chemistry building (which has high historical significance) and Marsden Building (which has moderate historical significance) both interrupting and extending into the implied principle building edge line.

- In addition, the framing of the southern end of Eastern Avenue is currently skewed by the existing City Road pedestrian bridge and ramp, as well as the bend in City Road. Further, the north-south view line does not continue through to the Darlington Campus due to the shift in alignment of Butlin Avenue.

- Overall, the impact of the proposed new building on the cultural significance of the various locally listed heritage items in the vicinity of the site, is acceptable. The proposal achieves an appropriate balance between cultural heritage; the constraints of the site; the urban design principles guiding the future development at this location; the functional requirements of the scientific research spaces; and enhancing the University's reputation as a world class leader in research and education.

- **Trees and Landscape**: Setbacks on the site have been driven by the safeguarding of various mature Moreton Bay Fig Trees along City Road, which have been identified as having high landscape significance. The proposed development has been designed to maintain and have minimal physical impact on the row of Moreton Bay Fig Trees, which are located between the development site and City Road.

- **Traffic and Transport**: The proposal will not result in any increase in staff numbers or students and will consequently not result in any additional parking requirements. The relocation of existing University populations (staff and students) to a central location will not result in any additional traffic demands or traffic generation. The small increase in vehicles using the existing and enlarged loading dock will be sufficiently low and consequently imperceptible in terms of traffic capacity and operation.

- **Environmental Impacts**: Potential environmental impacts are able to be managed through construction and noise management measures.

This project represents a significant opportunity to promote and enhance the University of Sydney as an important place of education and research. This proposal accords with the State, Regional and Local strategic initiatives to contribute to the growth of the NSW economy via enhanced education offerings in NSW. Based upon the conclusions arising from the assessment of this SSDA, the project is considered to warrant approval.

1 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment (DPE) in support of an application for State Significant Development (SSD), application number (SSD_7054) for an education and research facility at Sydney University Camperdown Campus pursuant to Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The new building will be known as the "LEES 1 Building".

The proposal is SSD because it is development for the purposes of educational establishment (including associated research facilities for a University and will have a capital investment value of $67,818,867 pursuant to clause 15 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development)* 2011 (refer to the QS costing provided at **Appendix M**.

The EIS has been prepared by Urbis. It is based on architectural and landscape plans detailing the proposed work and other technical information in specialist consultant reports provided in the appendices of this report. The technical studies were undertaken to assess specific potential environmental impacts outlined in the SEARs. This submission consists of this EIS and supporting documentation (**Appendices A-V**).

1.1 PROJECT OVERVIEW

The proposed development has been informed through an extensive site planning and urban design process, consultation with Government agencies and the Community, and a competitive design process held by the University of Sydney to guide development on the site and the proposed works.

The subject site is not part of the Campus Improvement Plan (further described in Section 1.3.1 below), however significant background analysis has been carried out by the University in informing appropriate development of the site. An Urban Design Analysis has been prepared by the University of Sydney and provided in **Appendix D** which:

- Identifies the proposed building footprint, public domain areas and pedestrian/cycle linkages
- Forms the basis of the proposed building mass and heights
- Informs the basis for resolving this important entry point to the Camperdown Campus and its relationship with City Road and Eastern Avenue

The SDD application seeks approval for:

- Construction of a new 8 level science research and teaching facility consisting of:
  - Teaching spaces and student common areas on levels 2, 3 and 4.
  - Research facilities on levels 5, 6 and 7.
  - Building services and plant on level 8.
  - Loading facilities and waste storage facilities, including storage for hazardous materials on level 1.
- 9,800m^2 Gross Floor Area (GFA) and maximum height of building of 35m (plus exhaust flues)
- Demolition of minor structures.
- Excavation to accommodate Level 1.
- Internal building connections to the existing F07 Carslaw Building on levels 1 and 2.

- Increase the existing loading facilities and associated works to accommodate an additional small rigid vehicle.

- Civil and landscaping works, including minor regrading of Eastern Avenue, hard and soft landscaping to improve pedestrian access to the building and Eastern Avenue.

- Retention, removal and planting of trees surrounding the new development.

- Building identification signage.

- Utilities and services infrastructure upgrades and augmentation where required, including a new substation in the Carslaw basement.

The building will be physically connected to the existing F07 Carslaw Building directly to the north with future internal connections being possible at levels 3 and 4.

1.2 SEPARATE WORKS F23 BUILDING

Separate to this application, the University of Sydney is currently seeking SSD Approval for the F23 Administration building site, which is located on the southern edge of the Camperdown Campus immediately to the south of the existing Madsen Building and opposite (to the west) of the proposed LEES 1 Project.

This SSD application seeks approval for demolition of an existing car park to allow for construction of a new six (6) storey administration building above two (2) levels of basement car parking. The building will consolidate existing executive staff and administrative functions presently fragmented across the Sydney University Campus to central and prominent location on the, Camperdown Campus. The new building works will be supported by associated civil and landscaping improvements

Together these proposed buildings seek to frame Eastern Avenue and define an urban square at the City Road frontage of the site, collectively providing a strong entry to the Camperdown Campus.

1.3 BACKGROUND

The University is recognised as Sydney's oldest and principal University specialising in tertiary educational and research pedagogy. In 2014 the University attracted some 50,000 enrolments, employed over 7,500 permanent staff, and generated over 5,000 jobs in the areas of construction, facilities, maintenance and services. The University is a significant employment node and destination, as well as a future employment provider through its qualified students.

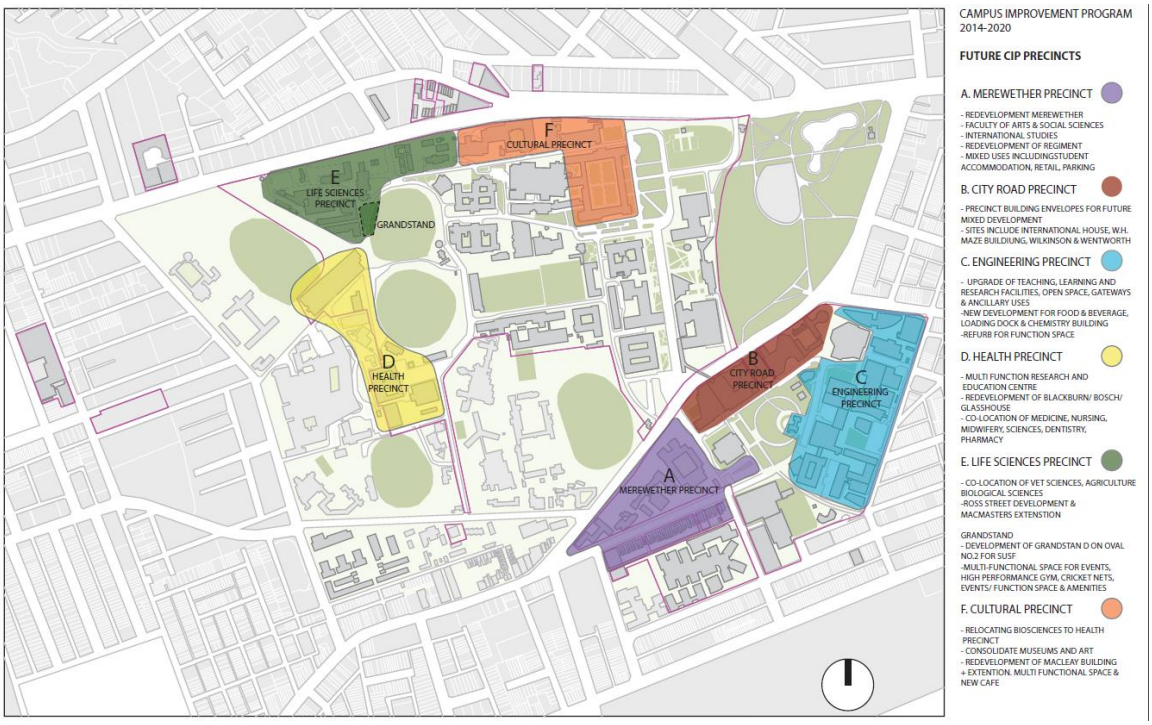
The University's Camperdown-Darlington campus is located within the Global Sydney 'city shaper' and the Sydney Education & Health precinct of the DPE's *Vision for Sydney in 2031*. The University makes a significant contribution to this precinct through high volume of domestic and international student enrolments, academic/ other staff employment and construction activity.

1.3.1 CAMPUS IMPROVEMENT PROGRAM

The University has adopted a Campus Improvement Program (CIP), a Stage 1 implementation strategy of development and infrastructure for the Camperdown-Darlington campus. The CIP, as a State Significant Development, was approved by the Minister for Planning and Environment (SSD 13_6123) on 16 February 2015.

The CIP divides the University into a total of six (6) campus precincts, as shown in **Figure 1**. The scale, form and mass reflected in each of the building envelopes adopted for each precinct was designed to respond to their respective and individual contexts. Approved land uses for a range of "*educational establishment"* University-related land uses, as well allowing for transport and access arrangements, landscape concepts, heritage and design principles for the University's campus.

FIGURE 1 –SYDNEY UNIVERSTIY CAMPUS IMPROVEMENT PROGRAM (CIP) PRECINCTS



The development site is located at the southern edge of the Camperdown Campus to the north of City Road, east of the existing pedestrian bridge and west of Barff Road and Victoria Park. The site does not form part of the Concept Approval for the Campus Improvement Program (CIP) approved by the Minister for Planning on16 February 2015 (SSD13_6123).

Notwithstanding, the proposal is not inconsistent with the terms of the CIP and is one of several "stand alone" development sites that were intentionally excluded due to their isolation from the "precinct based approach". This methodology was discussed and generally agreed with the DPE as part of the approval of the CIP Concept Plan. Further, the Minister's approval of the CIP SSD13_6123, includes the following condition:

> *"A4. This approval does not preclude additional development sites outside the identified Campus Improvement Program precincts, subject to future approval (where required) and the demonstration of satisfactory environmental impacts."*

Notwithstanding this, the relevant built form aspects of the CIP have been considered in the design development of the project to ensure an integrated and complimentary design and planning approach. The works will not compromise the delivery of the CIP and are not inconsistent with the terms of the Concept Approval.

1.3.2 SYDNEY UNIVERSITY DESIGN COMPETITION

The University has conducted and completed a Concept Design Competition for the proposed development, which is further detailed within the Urban Design Report at **Appendix D**. HDR Rice Daubney was ultimately the successful architect and they have been engaged by the University of Sydney to design the proposed new building.

1.4 PROJECT OBJECTIVES

The proposal is seeking to provide a new science research and education facility that provides teaching and research facilities in a consolidated location, enabling a greater collaboration between science and learning within the Campus. The specific objectives of the proposal include:

- Relocate and consolidate existing faculty offices, research and teaching facilities used for molecular biology and the School of Biological Sciences.

- Upgrade and modernise teaching and research facilities to support the delivery of world class education standards on the Campus, to support the University ongoing commitment to education and research.

- Continue to deliver upgraded facilities in line with the broader Campus Improvement Program to support the achievement and delivery of a world class educational establishment

- Improve pedestrian accessibility and achieve an integrated design through alterations to the existing City Road pedestrian bridge.

- Ensure that the redevelopment has minimal environmental and amenity impacts on the surrounding areas.

- Ensure that the built form will have acceptable visual impacts and preserves the importance of the Eastern Avenue view corridor.

- In conjunction with the proposed F23 administration building, create an appropriately iconic and landmark entry point and public domain into the Camperdown campus, including the definition of an urban square at this location.

- Protect the row of significant fig trees along City Road.

- Provide a transparent façade to City Road, clearly displaying the importance that the University of Sydney places on investment in research and teaching excellence.

- Enable future connection to the Carslaw Building across teaching levels 3-4. The proposed layout is to enable the orderly redevelopment of the Carslaw Building in the future.

1.5 STRUCTURE OF THIS REPORT

The EIS provides the following sections:

- **The Site and Contextual Analysis:** Provides a description of the LEES1 Site, the University of Sydney Camperdown Campus and the local and wider regional context. This section also outlines the constraints and opportunities identified for development of the site.

- **The Proposal:** Provides a description of the proposed works.

- **Justification and Assessment of Alternatives:** Details the justification for the proposed works and consideration of alternatives.

- **Consultation:** Details the consultation process undertaken to date and the specific consultation undertaken as a part of this application.

- **Planning Framework Assessment:** Provides a detailed review of the proposal against the commonwealth, state and local planning framework including an assessment of statutory and strategic planning considerations.

- **Environmental Assessment:** Details an in-depth assessment of the existing environment and the potential impacts for each of the key criteria in the SEARs.

- **Construction Environmental Management:** Details the specific considerations for the development of a Construction Environmental Management Plan.

- **Recommendations and Mitigation Measures:** Provides a consolidated list of recommendations and mitigation measures based on the technical studies undertaken as part of this application.

- **Conclusion:** Provides a summary of the impact assessment with concluding comments.

1.6 SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

The SEARs were issued on 28 May 2015. A copy of the SEARs is included at **Appendix A**. **Table 1** below summarises the requirements and identifies where responses to each of the SEARs are addressed in this report.

TABLE 1 – SSD_7054 SECRETARY ENVIRONMENTAL ASSESSMENT REQUIREMENTS

REQUIREMENTS	REFERENCE
General Requirements	
The Environmental Impact Statement (EIS) must meet the minimum requirements in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*, specifically form specifications in clause 6 and content specifications in clause 7.	Throughout EIS and appendices
1. An Environmental Risk Assessment The EIS as well as addressing the key issues specified in the SEARs must also identify the potential environmental impacts associated with the development. Where relevant the assessment to identify the potential environmental impacts associated with the development. Where relevant the assessment of the key issues, and any other significant issues identified in the risk assessment, must include: ▪ Adequate baseline data; ▪ Consideration of potential cumulative impacts due to the other development in the vicinity; and ▪ Measures to avoid, minimise and, if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	Throughout EIS and appendices
2. Capital investment value Provide a report from a quantity surveyor identifying the capital investment value for the proposal, providing: ▪ a detailed calculation of the Capital Investment Value (CIV) (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; ▪ an estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and ▪ certification that the information provided is accurate at the date of preparation.	Appendix M and Section 3.1
Key Issues: The EIS must address the key issues set out in I to 13 below	
1. Statutory and Strategic Context The EIS is to address the statutory provisions applying to the concept proposal contained in all relevant environmental planning instruments, including: ▪ State Environmental Planning Policy (State & Regional Development) 2011; ▪ State Environmental Planning Policy (Infrastructure) 2007; ▪ State Environmental Planning Policy No 33—Hazardous and Offensive Development;	Section 5

REQUIREMENTS	REFERENCE
▪ State Environmental Planning Policy No.55 – Remediation of Land; and ▪ Sydney Local Environmental Plan 2012. *Permissibility* Detail the nature and extent of any prohibitions that apply to the development. *Development Standards* Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards. *Campus Improvement Program 2014 – 2020* In accordance with section 83D(3) of the *Environmental Planning and Assessment Act 1979,* demonstrate that the proposal is not inconsistent with the development consent granted for The University of Sydney Campus Improvement Program concept proposal (SSD 6123).	
2. Policies Address the relevant planning provisions, goals and strategic planning objectives in the following: ▪ NSW 2021; ▪ Rebuilding NSW – State Infrastructure Strategy 2014 ▪ A Plan for Growing Sydney; ▪ NSW Long Term Transport Master Plan 2012; ▪ Sydney's Cycling Future 2013; ▪ Sydney's Walking Future 2013; and ▪ Healthy Urban Development Checklist, NSW Health.	Section 5
3. Built Form and Urban Design ▪ Address the height, density, bulk and scale, and setbacks of the proposal in relation to the locality and the surrounding development (including SSD 6123 Campus Improvement Program building envelopes), topography and streetscape, having particular regard to the site's City Road gateway location, alignment of existing built form along Eastern Avenue, and existing significant trees fronting City Road. ▪ Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours, landscaping (having regard to The Sydney University Concept Landscape Plan) and Crime Prevention Through Environmental Design Principles. ▪ Demonstrate design excellence, including details of any design competition, project briefs and how the design responds to comments and recommendations made by the evaluation committee. ▪ Detail how services, including but not limited to waste management, loading zones, and	Section 6.1 and Appendices D and E

REQUIREMENTS	REFERENCE
mechanical plant are integrated into the design of the development.	
4. Environmental Amenity Detail amenity impacts including: ▪ Solar access; ▪ Acoustic impacts; ▪ Visual privacy; ▪ View loss; ▪ Overshadowing; ▪ Lighting impacts; and ▪ Wind impacts. A high level of environmental amenity for any immediately adjacent residential land uses must be demonstrated.	Section 6 and appendices F,R,S and T
5. Transport and accessibility Include a transport and accessibility assessment that provides, but is not limited to, the following: ▪ the existing and proposed pedestrian and cycle movements within the vicinity of the site; ▪ an estimate of the total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and cycle trips; ▪ the adequacy of public transport to meet the likely future demand of the proposed development; ▪ measures to promote travel choices for students, staff and visitors that support the achievement of State targets, such as a location-specific sustainable travel plan, development of way-finding strategies and end of trip facilities for pedestrians and bicycle riders; ▪ the daily and peak vehicle movements impact on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works (if required); ▪ the proposed access arrangements and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and cycle networks, including the existing City Road Footbridge; ▪ proposed car and bicycle parking provision, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards; ▪ proposed location of pedestrian and bicycle facilities in secure convenient, accessible areas close to main entrances that incorporate lighting and passive surveillance; ▪ service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times); and	Section 6 and Appendix N

REQUIREMENTS	REFERENCE
▪ an assessment of traffic and transport impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact. This plan shall include details of vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures for all demolition/construction activities. → *Relevant Policies and Guidelines:* ▪ *Guide to Traffic Generating Developments (Roads and Maritime Services)* ▪ *EIS Guidelines – Road and Related Facilities (DoPI)* ▪ *NSW Planning Guidelines for Walking and Cycling* ▪ *Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development*	
6. Ecological Sustainable Development ▪ 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 and ongoing operation phases of the development. ▪ Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice. ▪ Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.	Section 6 and Appendix O
7. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land. → *Relevant Policies and Guidelines:* ▪ *NSW Industrial Noise Policy (EPA)* ▪ *Interim Construction Noise Guideline (DECC)* ▪ *Assessing Vibration: A Technical Guideline 2006*	Section 6 and Appendix T
8. Biodiversity Biodiversity impacts related to the proposed development are to be assessed and documented in accordance with the Framework for Biodiversity Assessment (FBA) (OEH 2014), unless otherwise agreed by OEH, by a person accredited in accordance with s.142B(1)(c) of the *Threatened Species Conservation Act 1995*. Note: In accordance with s.5.1.1.3 of the FBA, areas that are not native vegetation do not require further assessment in the FBA except where it is assessed as habitat for threatened species according to Section 6.4.	Section 6 and Appendix H
9. Heritage ▪ Include a statement of heritage impact prepared in accordance with the guidelines in the NSW Heritage Manual and include a statement of significance of The University of Sydney and its conservation area (C8), St Paul's College (I52) and Victoria Park (I39) and consider the	Section 6 and Appendix K

REQUIREMENTS	REFERENCE
accumulative material effect of the proposed development and proposed F23 Building (SSD 7055) on significance. ▪ Provide a landscape heritage assessment, including consideration of the cultural landscape of The University of Sydney and Victoria Park. ▪ The assessment shall address any archaeological potential and significance on the site and the impacts the development may have on this significance.	
10. Aboriginal Heritage ▪ All Aboriginal cultural heritage values that exist within the development site shall be identified, described and documented. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and in consultation with OEH officers. ▪ Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented. ▪ Where relevant, impacts on Aboriginal cultural heritage values are to be assessed and documented. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.	Section 6 and Appendix K
11. Sediment, Erosion and Dust Controls (Construction and Excavation) Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles. → *Relevant Policies and Guidelines:* ▪ *Managing Urban Stormwater – Soils & Construction Volume 1 2004c(Landcom)* ▪ *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)*	Section 6 and Appendix P
12. Contamination Demonstrate that the site is suitable for the proposed use in accordance with SEPP 55. → *Relevant Policies and Guidelines:* ▪ *Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP)*	Section 6 and Appendix Q
13. Utilities ▪ Preparation of an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure. ▪ Preparation of an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive	Section 6 and Appendix L

REQUIREMENTS	REFERENCE
urban design.	
14. Contribution Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement.	Section 7
15. Drainage and Flooding ▪ Detail drainage associated with the proposal, including stormwater and drainage infrastructure. ▪ Assess any potential flooding impacts associated with the development and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and increase in rainfall intensity.	Section 6 and Appendix P
16. Waste Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Section 6 and Appendix U
Plans and Documents	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: ▪ Architectural drawings (dimensioned and including RLs); ▪ A physical 3D model and 3D CAD model; ▪ Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and boundaries; ▪ Site Analysis Plan; ▪ Stormwater Concept Plan; ▪ Sediment and Erosion Control Plan; ▪ Shadow Diagrams; ▪ View Analysis / Photomontages; ▪ Landscape Plan (identifying any trees to be removed and trees to be retained or transplanted); ▪ Preliminary Construction Management Plan, inclusive of a Preliminary Construction Traffic Management Plan; ▪ Geotechnical and Structural Report; ▪ Arborist Report; ▪ Acid Sulphate Soils Management Plan (if required); and	Throughout EIS and appendices

REQUIREMENTS	REFERENCE
▪ Schedule of materials and finishes.	
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; ▪ Transport for NSW; ▪ Roads and Maritime Services; and ▪ Heritage Council of New South Wales. 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 8 and Appendices D,E,K and N

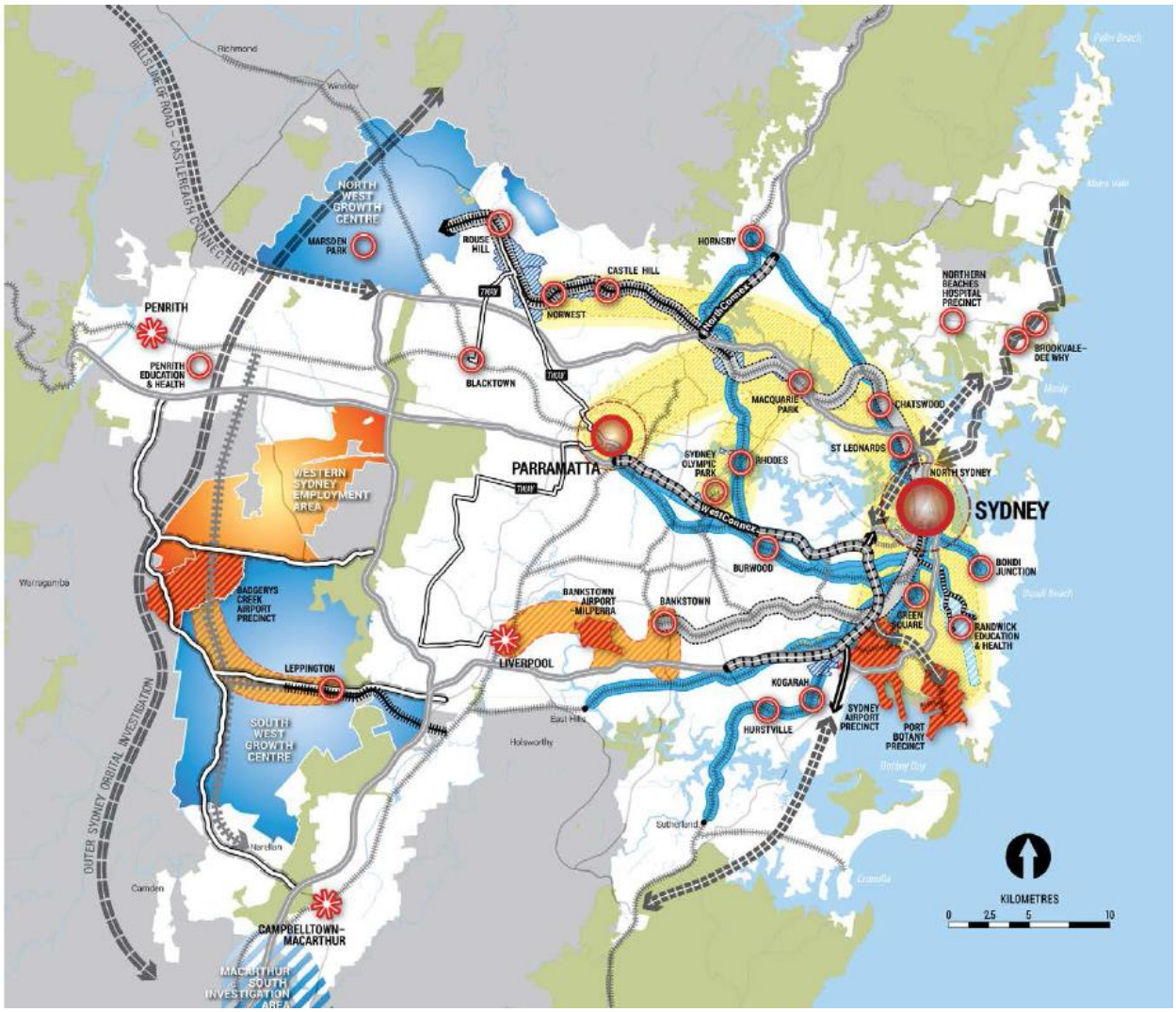
2 The Site

2.1 REGIONAL CONTEXT

The University's Camperdown Darlington Campus is an inner-Sydney campus surrounded by arterial roads, rail infrastructure, and growing residential and business communities. Founded in 1850, the University is recognised as Australia's oldest and one of the leading Group of Eight (Go8) Universities as well as the nation's principal University specialising in tertiary educational and research pedagogy.

The University of Sydney is identified within NSW planning strategies as one of the key "Knowledge Assets" of NSW and is a major activity precinct for education, research and technology based jobs. Further, the University of Sydney forms part of the Local Government Area of Sydney City of Sydney and forms part of the "Central Business District" (CBD) within the Central Subregion as defined by the metropolitan plan "A Plan for Growing Sydney" (refer to **Figure 2**).

FIGURE 2 – A PLAN FOR GROWING SYDNEY (Source: www.planning.nsw.gov.au)

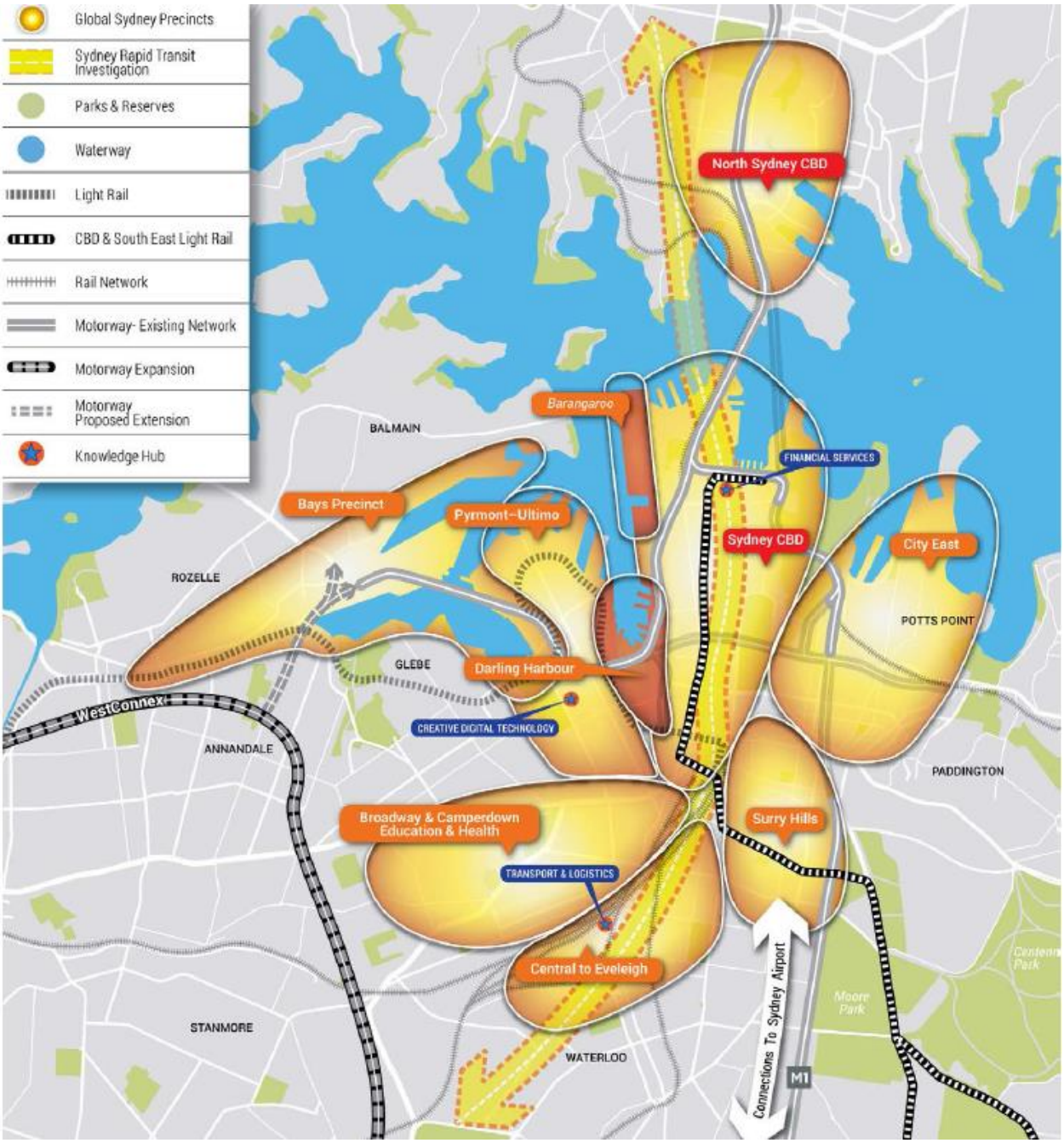


Sydney's CBD is the epicentre of the metropolitan region and is recognised as a "global city" a premier commercial market, generating 28 per cent of the City's GDP. The University Camperdown Campus is located at the south-western edge of the CBD and forms part of the "Broadway and Camperdown Education & Health Precinct" (refer to **Figure 3).**

The location of Camperdown Campus at the edge of the CBD and adjacent to Parramatta Road also places the University within University Sydney's "global economic corridor". an area of global economic activity stretching from Port Botany and Sydney Airport, through the Sydney Central Business District (CBD), North Sydney and St Leonards to Macquarie Park and Parramatta (refer to **Figure 2**). This region accounts for the majority of Sydney's globally oriented commercial businesses and over 10% of the National Gross Domestic Product.

The precinct is recognised as a significant area for world-class education, research medical, and technology-based jobs and include other significant infrastructure assets such as the University of Technology Sydney, the Sydney Institute of Technology as well as the Royal Prince Alfred Hospital (RPA) and the headquarters of the ABC.

FIGURE 3 – PRECINCTS OF GLOBAL SYDNEY (Source: www.planning.nsw.gov.au)



The University of Sydney and the neighbouring Royal Prince Alfred Hospital (RPA) collectively provides a significant inner city precinct that specialises in vital medical health, education and research. The precinct services not only Sydney but also the broader NSW and Australian community. Reflective of NSW planning principles for the integration of land use and infrastructure, there is a long standing research and teaching collaboration between the University and RPA, which is clearly demonstrated by the recently completed and opened Charles Perkins Centre.

Further, the University is a significant contributor to Sydney's cultural experiences and includes various cultural attractions such as the Seymour Centre theatre, various campus museums and art galleries and heritage educational offerings.

The campus is well placed in close proximity to regional transport networks that support the role of the University as a leading educational, employment and cultural precinct. Central, Redfern, Newton and Macdonaldtown railway stations enables frequent and walking access to the campus. Various bus services along Parramatta Road, City Road and Cleveland Street offer alternative regional access routes to the site.

2.2 LOCAL CONTEXT

The Camperdown-Darlington Campus shown in **Figure 4** is situated on the western edge of the Sydney CBD, and comprises two distinct 'sub-campuses' of very different origins: Camperdown and Darlington, each divided by City Road. The Campus is approximately 49 hectares (ha) in area (Camperdown 33ha and Darlington 16ha)

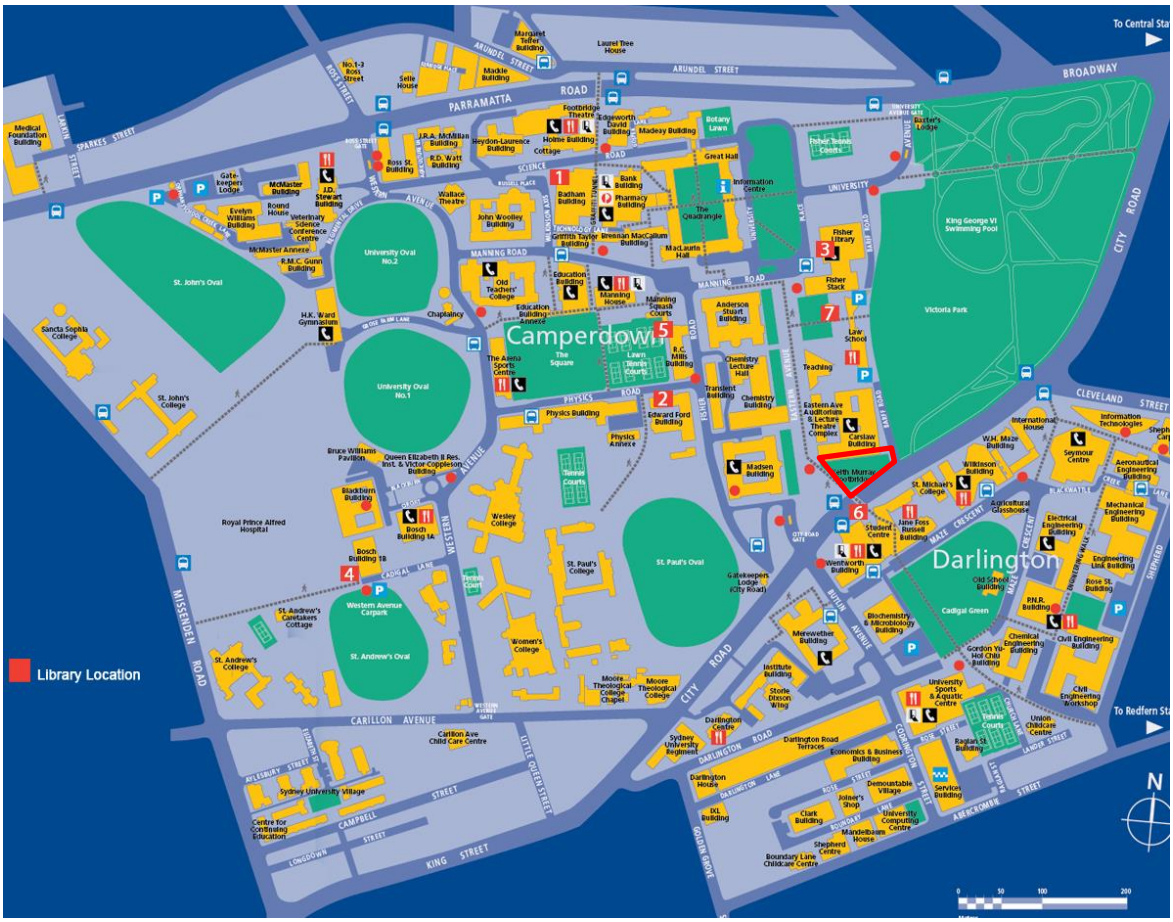
The site is located on the southern edge of the Camperdown Campus, which is bounded by Parramatta Road to the north, Victoria Park to the east, City Road to the south and the University Colleges and RPA to the west. Its major topographical feature is a ridge which drains to the Blackwattle Creek in the east and to Orphan School Creek in the west. The University grounds are on part of a broad ridge system between Port Jackson and Botany Bay.

FIGURE 4 – AERIAL VIEW, SYDNEY UNIVERSTIY CAMPERDOWN CAMPUS

Sydney University Camperdown Campus

LEES 1 Site

FIGURE 5 – CAMPERDOWN-DARLINGTON CAMPUS LAYOUT MAP (SOURCE: WWW.SYDNEY.EDU.AU)



LEES 1 Building Site

2.2.1 THE SITE

The land subject to the SSD application is legally described as part Lot 11 DP 1171806 and part Lot 1 in DP 1171804. Sydney University is located on NSW Crown Land.

The LEES 1 building site is located to south of the Camperdown Campus immediately to the south of the existing Carslaw Building. The site is bound to the south and east by City Road and Barff Road, respectively. As the site reflects an infill opportunity it is of an irregular configuration with front boundary, to City Road. The footprint of the proposed building and surrounding works occupies an area of approximately 1,600m^2.

The main pedestrian entry to the Camperdown Campus, Eastern Avenue, is to the west of the site. Refer to **Figures 5 and 6.**

The site is currently unimproved and serves informal and unused open space within the street setback between City Road and the existing Carslaw Building. The Keith Murray footbridge extends across the western boundary connecting the site and broader Camperdown Campus with the southern, Darlington Campus.

There are a number of existing trees within or adjacent to the site as identified in the Aboricultural Impact Assessment Report prepared by Tree IQ. The most significant of these is the row of Moreton Bay Figs along the City Road southern frontage, which has been given a Very High Landscape Significance. There are also a number of tress of various sizes within the site, including other less significant Moreton Bay Figs, a Chinese Hackberry (High Landscape Significance), three Brush boxes (Moderate Landscape Significance), two Spotted Gum (Low Landscape Significance) and one Magenta Brush Cherry (low significance).

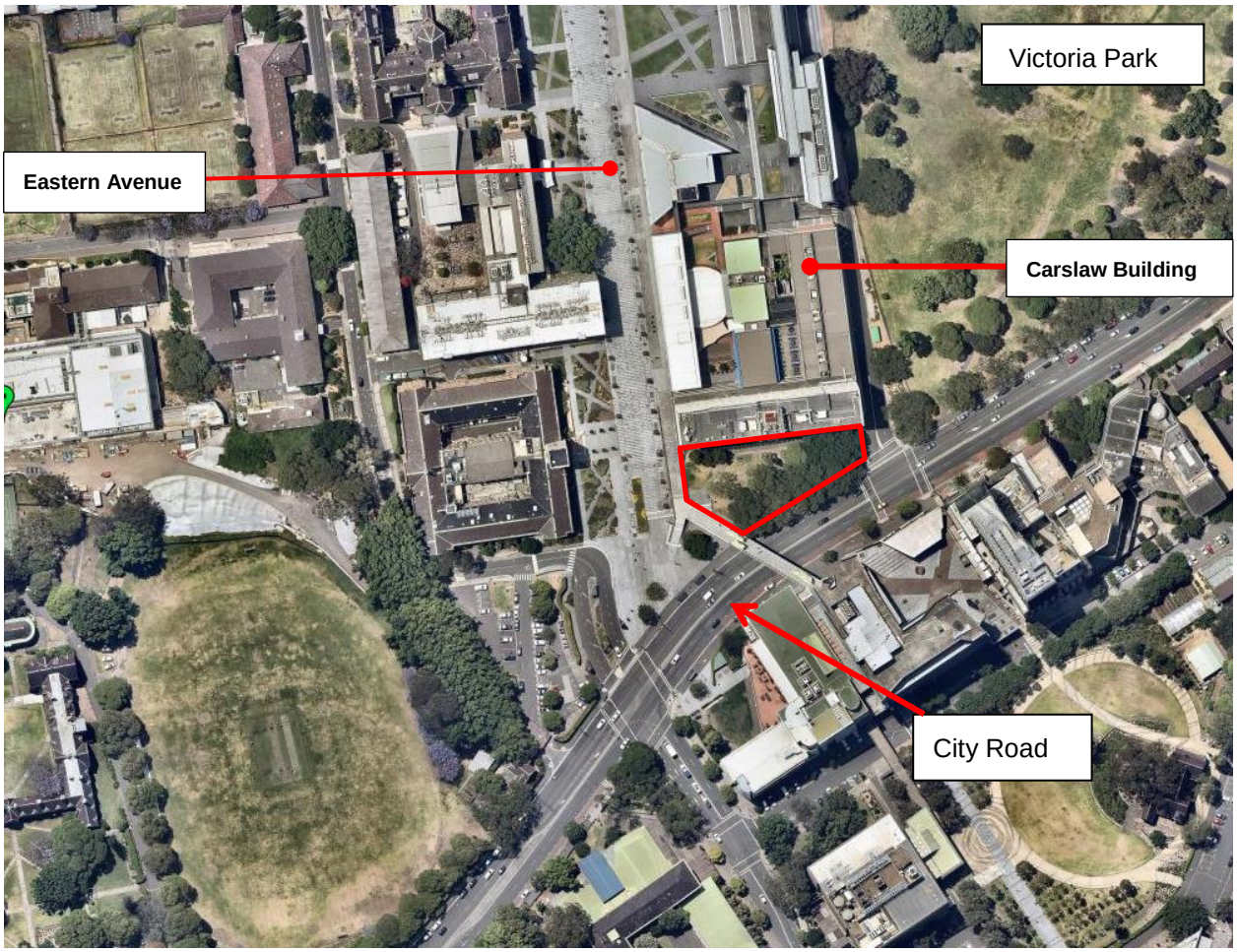
Vehicular access is provided via Barff Road to the immediate east, providing two (2) way traffic flow and a signalised intersection to City Road.

The site has a 2 – 3 metre cross fall, grading in an easterly direction from RL34.5 metres AHD to 31.5 metres AHD.

The key land uses surrounding the LEES1, Carslaw extension comprise:

- 7 storey Carslaw building to the north of the building site;
- Victoria Park immediately to the east of the building site;
- City Road is immediately to the south with the Darlington Campus beyond and connected by the pedestrian overpass; and
- To the west is of the building site Eastern Avenue.

FIGURE 6 – LEES 1 BUILDING SITE (AERIAL)



LEES 1 building site

FIGURE 7 – VIEW LOOKING NORTH EAST, SHOWING EXISTING CARSLAW BUILDING

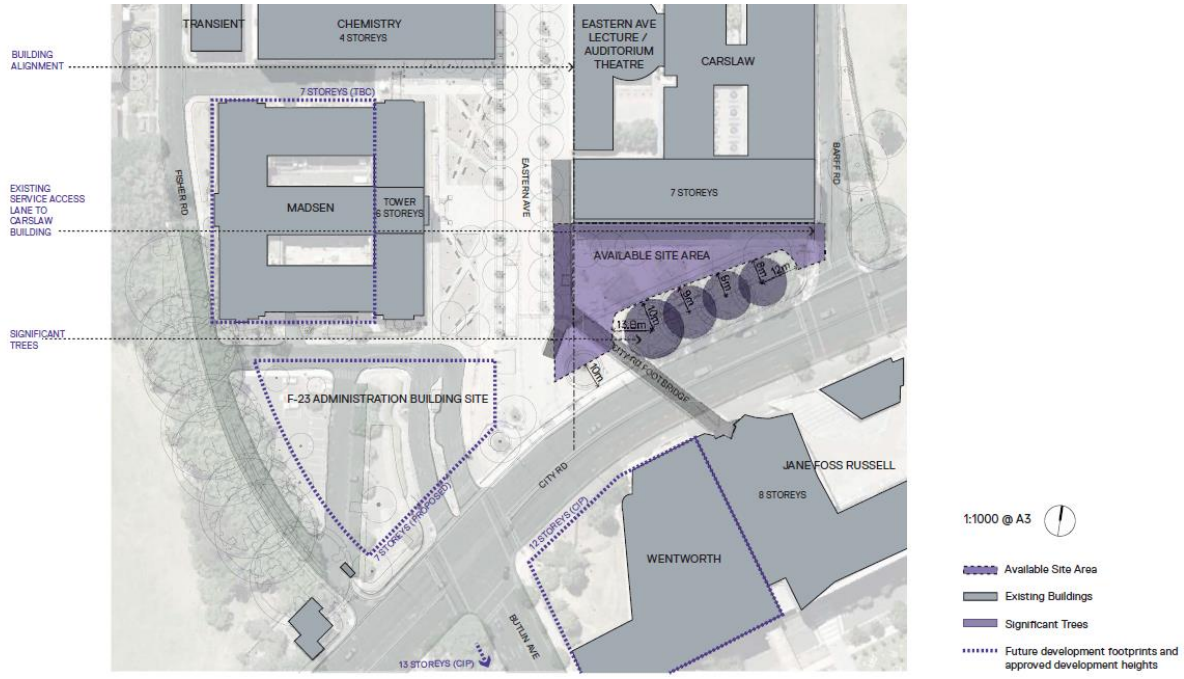
FIGURE 8 – VIEW LOOKING NORTH WEST ACROSS EXISTING KEITH MURRAY FOOTBRIDGE

FIGURE 9 – VIEW LOOKING SOUTH WEST SHOWING THE EASTERN FAÇADE OF THE CARSLAW BUILDING

2.3 CONSTRAINTS AND OPPORTUNITIES

Extensive site analysis has been undertaken as part of the detailed site planning and architectural development of the proposal. A broad overview of the primary spatial relationships and key site features is shown in **Figure 10.**

FIGURE 10 – PROPOSED BUILDING SITE (SOURCE: WARREN AND MAHONEY ARCHITECTS)



The key constraints and opportunities are identified in the table below:

TABLE 2 – CONSTRAINTS AND OPPORTUNITIES

SITE	CONSTRAINTS	OPPORTUNITIES
LEES 1	▪ Existing building alignments along Eastern Avenue. ▪ Limited vehicular access to the site. ▪ Adjacent pedestrian overpass and connection. ▪ Heritage view lines along eastern avenue. ▪ Significant street trees, particularly along the City Road frontage ▪ Heritage fence and tree roots (setback requirements ranging from 8 – 10 metres). ▪ Integration with adjacent CIP envelopes. ▪ Interface with the existing Carslaw Building.	▪ Opportunity to establish internal links and future “links” into the Carslaw Building, including the overt display of teaching and learning space to the broader public domain. ▪ Improve the integration of the footbridge into the broad site layout and design. Opportunity to improve the aesthetic of the infrastructure in relation to its context. ▪ Capture Victoria Park and City views to the north east, east and south east. ▪ Preserve significant street trees. ▪ Potential to establish an urban square to City Road and provide a defined Camperdown Campus entry with the proposed new F23 Building. ▪ Promotes orderly and economic use of land that is otherwise underutilised. ▪ Contributes to consolidation of existing facilities,

SITE	CONSTRAINTS	OPPORTUNITIES
		allowing for improved campus operations. ▪ Supports the ongoing development and use of the University Campus for educational research purposes.

The proposed development has been designed to respond to these opportunities and constraints and the detailed specialist advice which has explored these factors further.

3 The Proposal

3.1 OVERVIEW OF THE PROPOSED DEVELOPMENT

This SSD application seeks approval for a new science research and teaching facility referred to as the LEES 1 Building, and will include:

- Construction of a new 8 level science research and teaching facility consisting of:
  - Teaching spaces and student common areas on Levels 2, 3 and 4.
  - Research facilities on levels 5, 6 and 7.
  - Building services and plant on Level 8.
  - Loading facilities and waste storage facilities, including storage for hazardous materials on Level 1.
- 9,800m^2 Gross Floor Area (GFA) and maximum height of building of 35 metres.
- Demolition of minor structures.
- Excavation to accommodate one basement level.
- Increase the capacity of existing loading facilities and associated works to accommodate an additional small rigid vehicle.
- Internal building connections to the existing F07 Carslaw Building on Levels 1 and 2.
- Civil and landscaping works, including minor regrading of Eastern Avenue, hard and soft landscaping to improve pedestrian access to the building and Eastern Avenue.
- Retention, removal and planting of trees surrounding the new development.
- Building identification signage.
- Utilities and services infrastructure upgrades and augmentation where required, including a new substation in the Carslaw basement.

The building will be physically connected to the existing F07 Carslaw Building on the University of Sydney, with future internal proposed connections between the buildings proposed on Levels 3 and 4. The proposed development does not seek to increase staff or student capacity.

The LEES1 project will result in:

- the equivalent of approximately 84 full-time jobs during the construction period; and
- a total of 150 permanent jobs during its operation (these are existing positions in the University with staff relocating to the new facility).

3.2 NEW DEVELOPMENT – LEES 1 BUILDING

The proposal includes the construction of an eight (8) storey development accommodating modern teaching space, student common areas and science laboratories. A description of the built form and location of the various uses is provided below.

3.2.1 DEMOLITION

The proposal includes minor demolition works, including the demolition of parts of the interface of the existing Carslaw building to enable the physical connection of buildings, construction of links and parts of the existing loading dock to enable its expansion.

3.2.2 BUILT FORM

An asymmetrical building footprint has been designed and sited in response to the unusual geometry of the site, the existing Carslaw Building to the north and four (4) mature and significant Moreton Bay Fig Trees lining City Road to the south. The proposal is designed to physically connect with the Carslaw Building at the lower 4 levels, with a light well provided between the two buildings at Levels 5-8.

The extent of the cantilevered extension of upper Levels 5 – 8 provides visual interest and defines and 'grounds' the building at this important corner, whilst also responding to the functional requirements of the learning and research spaces. The functional planning for the different teaching and research spaces is quite distinct, and the building reflects this in the proposed mass and articulation, with larger floor plates required for the upper research spaces. This has resulted in the cantilevered extension of the upper floors.

Together with the proposed F23 building on the opposite corner of Eastern Avenue, the two new buildings will provide a strong definition to this important University entry at a scale and height which is sympathetic with existing surrounding buildings and consistent with building envelopes for nearby precincts approved under the CIP

The design of the proposed LEES 1 Building is indicated below at **Figure 11.**

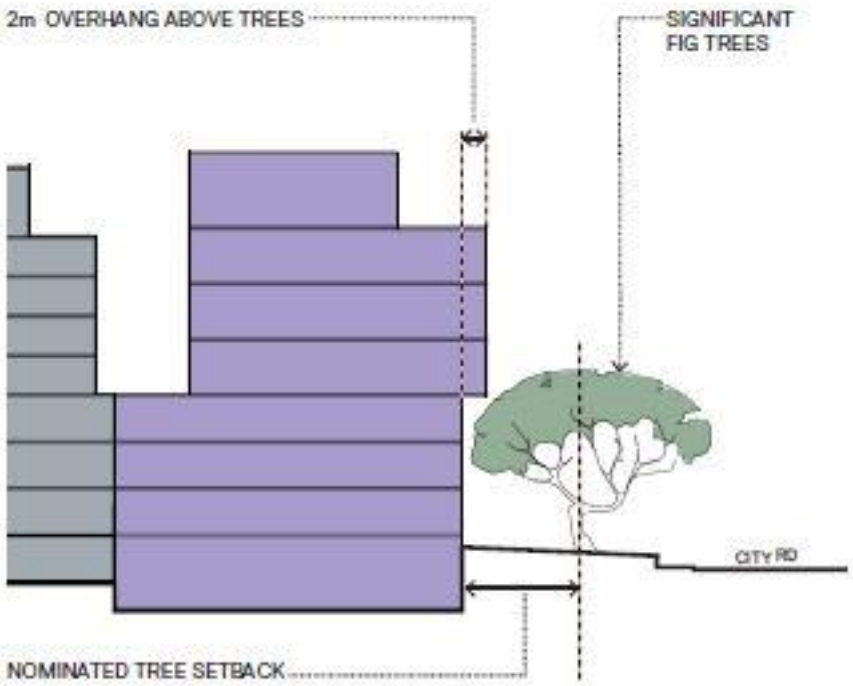
FIGURE 11 – PROPOSAL LOOKING NORTH WEST FROM CITY ROAD

3.2.3 BUILDING SETBACKS

Building setbacks have largely been devised to retain and protect the four Moreton Bay Fig Trees located between the development site and City Road. The proposed scheme includes slightly increased setbacks than those established in the preliminary information used in the request for SEARs, with a limited 2m overhang setback provided at Levels 5-8 to ensure that the proposed works will not significantly impact on the health or useful life expectancy of the four significant fig trees. The proposed setbacks from each tree have been informed by the Arboricultural assessment and are indicated in the pictures at **Figure 12** below.

FIGURE 12 – TREE SETBACKS

PICTURE 1 – SETBACK PLAN



PICTURE 2 – OVERHANG SETBACK

3.2.4 LEVEL 1

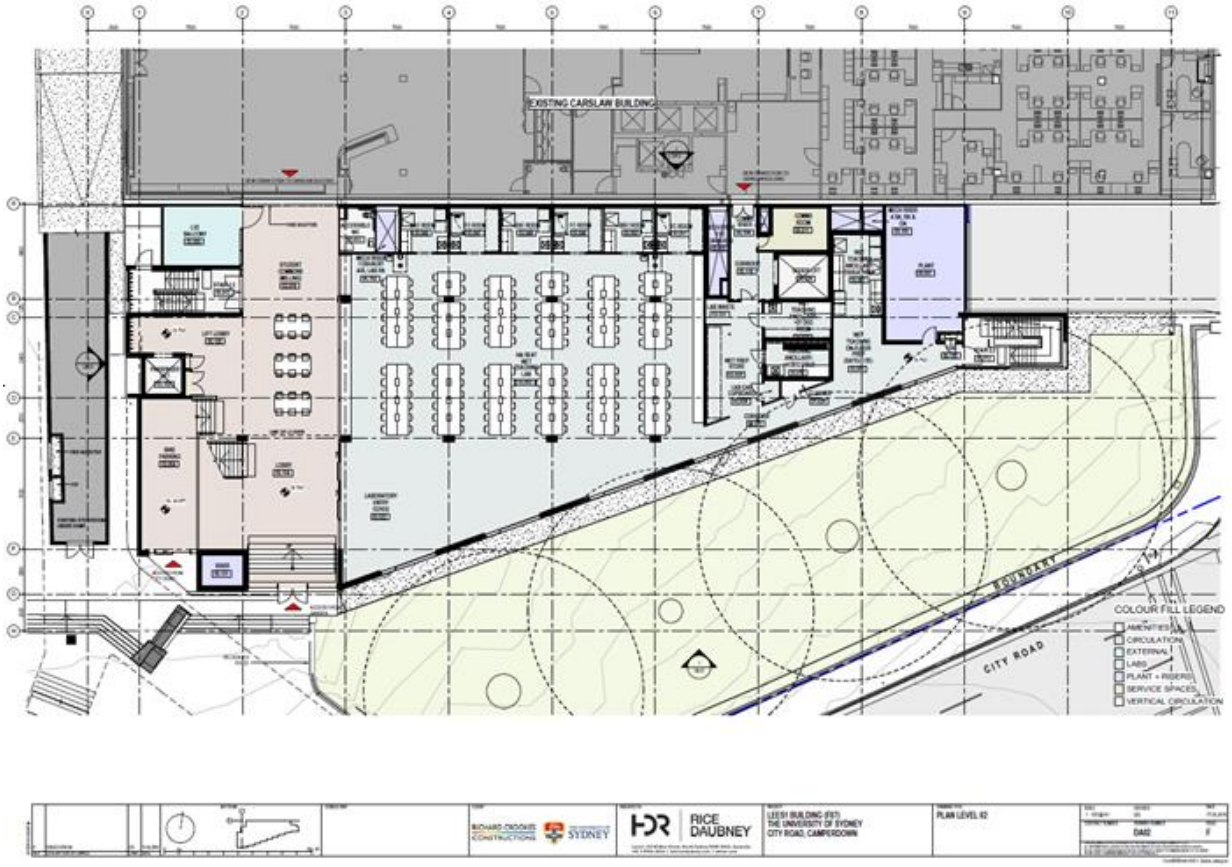
Level 1 constitutes the building basement and will accommodate bathroom facilities, laboratories, plants in addition to secure areas for chemical storage and waste storage. An internal link to the Carslaw building is provided on Level 1. It is proposed to increase the capacity of the existing loading dock serving the Carslaw building so that it can accommodate a Small Rigid Vehicle and Heavy Rigid Vehicle at the same time. Currently it can only accommodate a Heavy Rigid Vehicle. The proposed layout of Level 1 is indicated below at **Figure 13**.

FIGURE 13 – LEVEL 1 PLAN

3.2.5 TEACHING SPACE AT LEVELS 2, 3 AND 4

Access to the development is proposed to be provided at Level 2 from a set of stairs and ramp along Eastern Avenue and via an extension to existing footbridge crossing City Road. The primary entrance to the building will open into an atrium space, which will be used as a common study area, with bike and locker storage areas. Large open plan teaching laboratories and associated storage areas will occupy the majority of Levels 2, 3 and 4. An internal link to the Carslaw building is provided on Level 2. Levels 3 and 4 have the ability to facilitate future internal connections to the Carslaw Building. The proposed layout of Level 2 (which is largely indicative of Levels 3 and 4) is provided below at **Figure 14.**

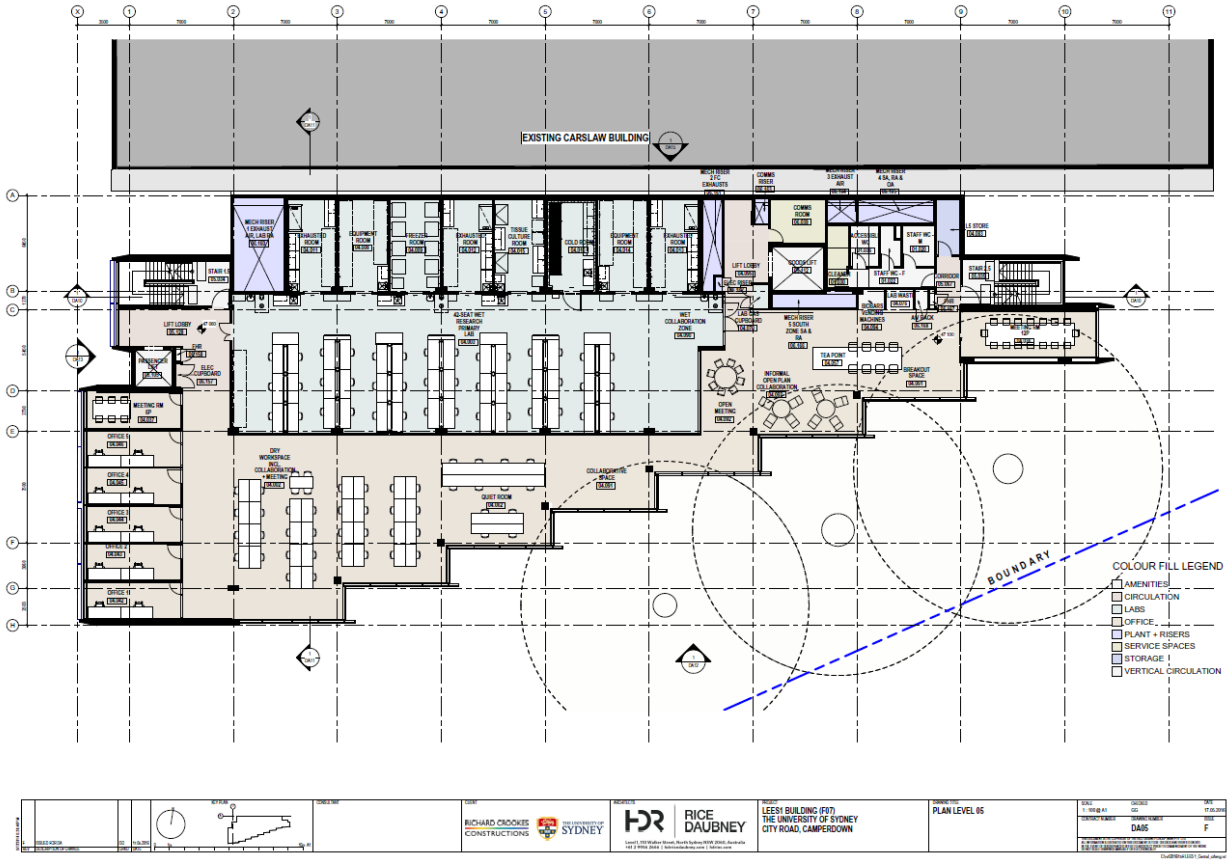
FIGURE 14 – LEVEL 2 PLAN



3.2.6 RESEARCH FACILITIES AT LEVELS 5, 6 AND 7

Levels 5, 6 and 7 will be slightly cantilevered over the atrium common space and primary entrance below. The larger floor plates of Levels 5-7 will accommodate the co-location of dry work spaces, office and meeting rooms, wet research labs and laboratory storage rooms. The proposed layout of Level 5 (which is largely indicative of Levels 6 and 7) is provided below at **Figure 15.**

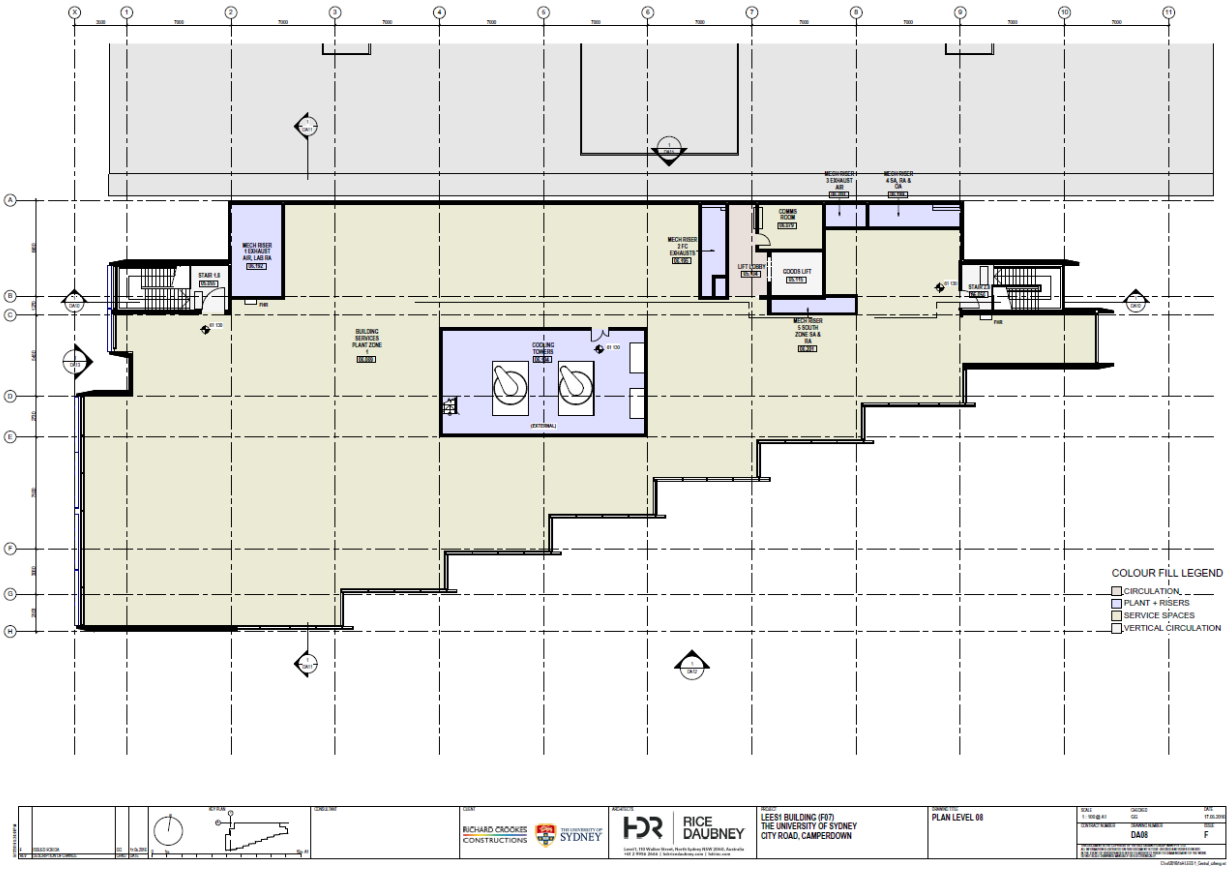
FIGURE 15 – LEVEL 5 PLAN



3.2.7 BUILDING PLANT AT LEVEL 8

Laboratory uses by their very nature require large plant areas and exhaust. The building plant is proposed to be accommodated within Level 8 of the development. Louvers and grilles for air intakes have been located to minimise visual prominence. The Level 8 layout is indicated below at **Figure16.**

FIGURE 16 – LEVEL 8 PLAN



3.2.8 MATERIALS AND FINISHES

A simple material palette of terracotta, off-form concrete and clear glazing is proposed. The materials, colours and finishes have been chosen to express a contemporary addition to the Camperdown Campus, which will complement the proposed F23 building and proposed new contemporary buildings on the opposite side of City Road in the Darlington Campus. The materials and colours are included in the Architectural Design Report in **Appendix E.**

3.3 SIGNAGE

A 'University of Sydney' building identification sign is proposed on the terracotta panels on its southern façade to mark this important entry to the University Campus. This sign is integrated into the building form and serves to identify the building and site to motorists and pedestrians. The proposed signage is considered to be generally in accordance with Clause 8 of SEPP 64, the display of signage is consistent with objectives set out in clause 3(1) (a) and Schedule 1 of the Policy.

3.4 TREES AND LANDSCAPING

3.4.1 TREE REMOVAL AND TREE PROTECTION MEASURES

The development requires the removal of several trees of various sizes within or adjacent to the site that require removal as they lie within the footprint of the new building, including a Chinese Hackberry (which has been given a high landscape significance), three Brush boxes (moderate significance), two Spotted Gum (low significance), one Magenta Brush Cherry (low significance) and a Moreton Bay Fig Tree (Moderate Significance). Tree removal is discussed in Section 6.4 of this report and **Appendix I**.

The most significant of trees adjacent to the site, being the row of Moreton Bay Figs along the City Road frontage, which have been given a Very High Landscape Significance, will all be retained and protected during construction.

3.4.2 LANDSCAPING WORKS

The proposed landscaping works have been designed having regard to a number of key documents including:

- The University of Sydney Landscape Master Plan (1993);
- Sydney University Concept Landscape Plan (2014);
- Campus Grounds Conservation Plan (2013);
- University of Sydney Campus Improvement Plan (SSD 13_6123);
- University of Sydney Wingara Mura Strategy (2012);
- University of Sydney Lighting Master Plan; and
- CIS Landscape Standards (2013).

The primary area for new planting will be between the new development and City Road, underneath the existing Fig Trees. Proposed new planting in this area will consist of low groundcover existing planting of shade tolerant species. A new gravel maintenance path is proposed with a secondary entry to the level 2 entry provided via stairs under the existing footbridge. Barf Road will be maintained as a vehicle access area. All proposed hard landscape areas and furniture elements (such as bins, bollards, etc) will follow the CIP Standard to carefully, integrate with the overall public domain. Opportunities for new furniture around the site are limited. Proposed new planting will also follow the CIP Standard.

3.5 CIVIL WORKS

Civil works include a minor regrading of hard and soft landscapes associated with Eastern Avenue. All works will occur on University land.

3.5.1 LIGHTING

Public domain lighting will be designed to comply with the relevant Australian Standards and the University of Sydney Lighting Master Plan. Overall lighting will be provided to external areas for public safety along with select feature lighting to elements such as feature trees.

3.6 SUSTAINABILITY

The University has developed a number of sustainability strategies to improve the built environment and campus liveability. These strategies deal with:

- Using natural resources efficiently in buildings, especially energy and water;
- Reducing carbon emissions by using more renewable energy and alternative energy sources with fewer carbon emissions;

- Enhancing more sustainable and healthier modes of transport; and

- Engaging the University's communities to advance and promote sustainability initiatives.

The University recognises that leading teaching, learning and intensive research facilities all impact on the environment whilst contributing to knowledge and solutions that will benefit future generations. In managing this challenge, the LEES1 development pursues high quality, durable and resource-efficient multifunctional building design and materials that are fit-for-purpose and will have lower whole-of-life environmental impacts. Further discussion on sustainability is provided in Section 6.6 and with **Appendix O**.

3.7 ACTIVE TRANSPORT

Six external bike racks are proposed to the south west of the building under the existing footbridge. Internal vertical bike storage areas are provided on level 2 and bicycle lockers are provided on levels 2-4 in conjunction with the common facilities.

We also note that in 2014 the University has a adopted a Sustainable Transport and Mobility Plan (STAMP). This seeks to increase the uptake of active and public transport options by the University's students and staff of the Camperdown and Darlington campuses. The STAMP complements the CIP which aims to improve Campus liveability, accessibility and connectivity by providing students and staff with economic choices and incentives to adopt more sustainable travel modes. It is also consistent with the University's 2015 Environmental Sustainability Policy's objective to promote sustainable transport.

3.8 TRAFFIC, ACCESS AND PARKING

It is proposed to increase the capacity of the existing loading dock serving the Carslaw building so that it can accommodate a Small Rigid Vehicle (6.4m long) at the same time as a Heavy Rigid Vehicle (12.5m long). Currently it can only accommodate Heavy Rigid Vehicle. The loading dock is currently accessed from Barff Road at the rear of the development. This access will be retained. The loading dock will be used for deliveries in addition to collection of hazardous and non-hazardous waste.

As per the existing Carslaw building and in consideration of the sites close proximity to public transport, no car parking is proposed as part of the development. Further commentary on these matters is provided with **Appendix N.**

3.9 STORMWATER MANAGEMENT AND DRAINAGE

The proposed stormwater management strategy is to involve the following:

- Capture and discharge roof stormwater runoff with a series of gutters and downpipes to discharge into the surface stormwater drainage network;

- Capture surface runoff via series of surface inlet pits; and

- Modify existing surface levels as required in order to provide overland flow paths to safe points of discharge.

It is proposed to connect the site stormwater drainage network into the existing University of Sydney system in Barff Road.

A new stormwater junction pit is to be constructed over the existing stormwater drainage line to allow discharge of the development site into the existing system. An additional stormwater pit and associated pipe work in Barff Road are to be constructed to facilitate the connection.

As part of a broader Precinct stormwater drainage strategy, the University of Sydney has provided on-site detention (OSD) and Water Sensitive Urban Design (WSUD) treatment measures for the campus area. It is proposed to discharge directly into the existing University of Sydney stormwater drainage network. These Precinct wide provisions cater for the OSD and WSUD of the proposed development site.

4 Strategic Justification of the Proposal

"A Plan for Growing Sydney" recognises that the education sector is a significant contributor to the State's economy. Maximising the economic activity and the level of services which the education sector can deliver to NSW requires Government to support the growth of tertiary education activities within strategic centres.

The University of Sydney Camperdown and Darlington Campus is identified within "*A Plan for Growing Sydney*" as being a key component of the specialised Education and Health Precinct within the strategic global centre of Sydney. The proposed new purpose built research and education facility will strengthen the University of Sydney's role in contributing to the growth of the Sydney Education and Health Precinct within the Central Sydney Subregion and more broadly the NSW economy.

4.1 ALTERNATIVES CONSIDERED AND CONSEQUENCES OF NOT CARRYING OUT THE DEVELOPMENT

The University of Sydney has identified three options in respect to the identified need for the development. These options include a 'business as usual' option, inclusion in the broader CIP and the development of the LEES 1 Building.

4.1.1 OPTION 1 – BASE CASE 'BUSINESS AND USUAL'

This option involves continuing with the current business approach for the existing teaching and research facilities for science across the University campus. The existing buildings do not provide sufficient space for innovative research and teaching initiative and are in fragmented buildings across the campus. In the base case, all these issues remain unresolved. The consolidation will allow for improved operating efficiencies across the Science Schools and reduce fragmentation of learning and research spaces, while also delivering upgrade facilities to support the Sydney University's aim of research and educational excellence.

4.1.2 OPTION 2 - INCLUSION IN THE BROADER CIP

Inclusion in the broader CIP is not suitable, as the site of the future LEES 1 building was already identified as part of the CIP process as being suitable for standalone development, due to its predominantly unimproved status and fragmentation from adjacent precincts.

Notwithstanding this, the relevant built form aspects of the CIP have been considered in the design development of the project to ensure an integrated and complimentary design and planning approach. The works will not compromise the delivery of the CIP and are not inconsistent with the terms of the Concept Approval.

4.1.3 OPTION 3 – THE PROPOSAL

Option 3 involves undertaking the proposed development as outlined in this SSDA. This option provides many advantages and extensive site planning and design review has been undertaken to ensure site constraints are overcome and an appropriate urban form and design is achieved. The proposed development has balanced the preservation of significant fig trees, existing heritage vistas, views to the city of obtained across the site and suitable compatibility with the future urban context and form as reflected in the adopted CIP. Therefore this is the preferred option. The advantages of this option include:

- The consolidation of science research and education to allow greater collaboration and growth in these areas.
- Development of a state of the art education and research facility to support the delivery of educational excellence.
- Improvements to the legibility of the campus, through the reinforcement of precinct planning, and collocation of educational disciplines, fostering positive and improved efficiencies for the University that may contribute to reduce running costs.

- Delivery of an improved urban address that integrates the City Road pedestrian bridge into the building form, which also reduces the visual impact of the bridge on the main boulevard entrance to the site, along Eastern Avenue.

- Utilisation of existing vehicle access, servicing and parking from the rear of the site.

- An opportunity to define this important entrance to the University and frame the Eastern Avenue Boulevard.

- An adaptable design that will facilitate future integration with the adjacent Carslaw Building to ensure that the University can continue to support the growth of tertiary education facilities within the strategic CBD centre of Sydney.

5 Statutory and Strategic Framework

5.1 STATUTORY PLANNING FRAMEWORK AND CONTEXT

Various local and state wide statutory planning instruments apply to the development and are required to be considered. The SEARS refers to the following State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs) applicable to the project application:

- SEPP (State & Regional Development) 2011;
- SEPP (Infrastructure) 2007;
- SEPP No.33 – Hazardous and Offensive Development;
- SEPP No.55 – Remediation of Land; and
- Sydney LEP 2012.

The above EPI's are outlined in the following sections together with the relevant and associated legislation, development controls plans and other guidelines and policies adopted as a guide to the application of the statutory instruments.

5.2 LEGISLATION

5.2.1.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

As outlined in Section 1.3.1of this EIS the University prepared and received approval from the DPE for the CIP in February 2015 that adopted a whole of campus approach to planning for future growth and upgrades of the University.

The SEARs require consideration and demonstration of consistency with the provisions of section 83D (2) of the EP&A Act 1979, in relation to the approved scope of the CIP and the proposed development. Section 83D (2) of the EP&A Act 1979 states the following

83D Status of staged development applications and consents

> *(2)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.*

As shown in **Figure 1** in section 1.3.1 of this EIS, the proposed LEES 1 Building (Carslaw Extension) did not form part of the CIP Stage 1 SSDA, as it comprises an individual development site not requiring a "Precinct" building envelope approach. The decision to treat and lodge this proposed site development as an individual SSDA was discussed and agreed in discussions with DPE as part of the approval of the CIP Stage 1 DA.

Furthermore the Minister's approval of the CIP SSD13_6123 includes the following condition:

> *"A4. This approval does not preclude additional development sites outside the identified Campus Improvement Program precincts, subject to future approval (where required) and the demonstration of satisfactory environmental impacts."*

The proposed SSD DA does not contravene section 83D (2) or the conditions Minister Project Approval for the CIP and may be considered for approval.

5.2.2 THREATENED SPECIES CONSERVATION ACT 1995

The objects of the *Threatened Species Conservation 1995* (NSW) (TSC Act) include:

- To conserve biological diversity and promote ecologically sustainable development;

- Prevent the extinction and promote the recovery of threatened species, populations and ecological communities;

- To protect the critical habitat of those threatened species, populations and ecological communities that are endangered; and

- To ensure that the impact of any action affecting threatened species, populations and ecological preventing the extinction and promoting the recovery of threatened species, populations and ecological communities is properly assessed.

The TSC Act provides the procedure for the listing of threatened species, populations and ecological communities and key threatening processes in NSW and the preparation and implementation of recovery plans and threat abatement plans. As well as establishing a mechanism whereby a licence may be granted to impact on any matters listed for protection.

A Biodiversity Assessment of the site in relation to the proposed development has been undertaken by Australian Museum Consulting. This report concludes that the development site is small, highly disturbed and contains no native plant communities. The vegetation that is present consists of planted trees and shrubs, most of which are not native to the area, a low hedge, an ivy-covered garden bed and a lawn. The surrounding area is highly urbanised and there is very little vegetation that has not been mapped by the Office of Environment and Heritage (OEH) as "Urban Exotic/Native". The Bio Banking Credit Calculator generated a landscape value of zero for the Preliminary Biodiversity Assessment in relation to Carslaw Building Extension development site. Due to the size and nature of the site it is not recommended that the Credit Calculator be applied any further.

Whilst, the development site is likely to be of limited value for most native fauna, the site does contain some trees that are likely to provide a foraging resource for the Grey-headed Flying-fox and two hollow-bearing trees are located within the development area. The Grey-headed Flying-fox has been listed as vulnerable under the Threatened Species Conservation Act 1995 (New South Wales). As stated above, if there is a requirement to prepare an impact assessment and/or an offset strategy for this Project, then it is recommended that a more suitable assessment mechanism than the BBAM be utilised, such as the Transport for NSW tree offset calculator.

5.2.3 HERITAGE ACT 1977

The *Heritage Act 1977* regulates development/activities in relation to non-indigenous heritage, including the Section 170 register a mandatory list of heritage items contained on Government-owned land.

A search of the NSW Heritage database was conducted. The database contains records of all heritage items listed under the Act and relevant Environmental Planning Instrument (where Council has provided the information to OEH). The search confirms that the University's Camperdown Campus is listed on the Section 170 Register. Section 6.7 of this report details all relevant local listings and discussion and consideration of the development and potential for impact on these items.

5.3 STATE ENVIRONMENTAL PLANNING INSTRUMENTS

5.3.1 STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD) was gazetted on 1 October 2011, identifying various types of development and particular sites upon which certain development is defined as Stage Significant Development (SSD).

The LEES1 project has been confirmed by the NSW State Government as SSD under the SEPP SRD. The proposal is SSD because it is development for the purposes of educational establishment (including associated research facilities) for a University and will have a capital investment value in excess of $30 million pursuant to clause 15 of Schedule 1 of the SEPP SRD.

5.3.2 STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) came into force in December 2007 and aims to facilitate the effective delivery of infrastructure across the State. The SEPP identifies matters for consideration in the assessment of development adjacent particular types of infrastructure development, including all new development that generates large amounts of traffic in a local area.

The development site is located immediately adjacent to immediately adjacent to City Road, a classified road with an annual average daily traffic volume of more than 40,000 vehicles (RMS, Traffic Volume Data 2002). In this regard the development is required to consider the following matters:

- Provision of vehicular access off a non-classified road if practicable.

- The impacts from road related noise or vibration requires consideration in respect to future sensitive land uses proposed along these busy roads. The SEPP refers to guidelines issued by the Director General and provision of satisfactory internal noise levels for residential uses.

5.3.2.1 PROVISION OF ACCESS

The development is accessible to vehicles via an existing street connection via Barf Avenue. This access arrangement is not proposed to be altered. Developments listed under Schedule 3 which require referral to the Roads and Maritime Services (RMS) include Educational Establishments with 50 or more students with access to a classified road require referral to the RMS.

Given, no additional students or car parking is proposed on site and the Traffic and Parking assessment undertaken by GTA concludes that increasing the loading docks capacity from 1 truck to 1 truck and 1 van will not contribute significantly to an increase in traffic on the local network, a RMS referral may not be considered necessary.

5.3.2.2 ROAD TRAFFIC IMPACTS

Detailed consideration to the NSW Government "*Development Near Rail Corridors and Busy Roads – Interim Guideline*" have been applied during the detailed design and reviewed by an acoustic and vibration consultant to ensure suitable internal noise amenity.

The acoustic assessment report prepared by Acoustic Studio includes an assessment of the impact of road traffic noise under the provisions of Clause 102 of the Infrastructure SEPP. Noise from City Road traffic will be the key noise source, since traffic noise levels around the site are dominated by constant traffic along City Road.

The façade comprises a combination of glazed curtain walling, solid cladding panels and aluminium cladding. A minimum Sound Reduction assessment has been undertaken. This assessment has assumed the traffic noise levels noted above, the recommended background noise levels and reverberation times within the spaces, areas of façade for each space and distance to City Road.

In conclusion in order to achieve the total internal noise levels proposed for each space in **Table 4** of the Acoustic Report, the façade, other external building elements and ventilation openings will need to be designed to provide the following external-to-internal sound insulation performance.

5.3.3 STATE ENVIRONMENTAL PLANNING POLICY NO. 33 HAZARDOUS AND OFFENSIVE DEVELOPMENT

Development proposals for potentially hazardous and offensive industry or storage require assessment under *State Environmental Planning Policy No.33 – Hazardous and Offensive Development* (SEPP 33) and include the preparation of a preliminary hazard analysis (PHA) for the potentially hazardous development.

The LEES 1 building is intended for use as a scientific teaching, learning and research facility that will involve the storage and use of chemicals, in various forms. The development would therefore be defined as a "potentially hazardous development".

In accordance with clause 12 and Part 3 of the SEPP 33 a preliminary hazard analysis has been prepared by CETEC and is included at Appendix W, including potential hazards and appropriate safeguards.

The main hazard associated with the proposed project is associated with the production and handling of biological material. A number of hazards will always be present onsite due to the nature of work which will be conducted within this building. Although its impact to the internal and external environments will be dependent on volumes present and staff training, the impact from any incident onsite can be further reduced through the implementation of construction requirements as detailed within various Australian Standards, the Building Code of Australia and other Local Government construction requirements.

There are a number of risk scenarios which have been found to be Moderate to Extreme in this assessment. Assuming no engineering controls are implemented it would be expected that the impact to the external environment would be minor given that chemical volumes onsite would be relatively small. Furthermore, impacts to the local environment, building occupants and building structure can be further reduced by the implementation of appropriate design requirements as detailed in **Table 4** of the preliminary hazard analysis.

However the most likely impact from an incident on-site would be an injury to staff and/or student within the classrooms or laboratories. Therefore as part of the future design of this building a detailed risk assessment would need to be conducted to ensure appropriate engineering controls for the building are adopted to minimise the risk of human error resulting in a hazardous scenario.

Given the early stages of this project, appropriate engineering controls have not yet been developed or considered. However these risks can and will be further reduced through the implementation of construction requirements for laboratory spaces and chemical storage locations as detailed in relevant Australian Standards. Risks can also be mitigated through a future detailed risk assessment which will identify localised risks within each laboratory will be required in the future to elucidate all engineering controls that will be required to mitigate the risks of fire, asphyxiation, contamination spread, etc. Items to be addressed / assessed within the detailed risk assessment will be:

- Chemical storage (all classes used by the users).
- Laboratory design (the laboratories will need to comply with Australian standards).
- Bulk chemical stores (all classes used by users).
- Hazard zones and hazardous atmospheres.
- Contaminant dispersion from stacks.

Therefore a full risk assessment report will be generated for the University of Sydney and designers which during the design development process:

- Identify laboratory spaces and confirm design and construction requirements for compliance to AS 2982 and AS 2243.3.
- Review user requirements for the laboratory spaces.
- Identify procedures and protocols which will be implemented within each laboratory.
- Identify laboratories which will use dangerous goods.
- Identify chemical classes which will be required within each laboratory space based on user needs.
- Review chemical requirements and elucidate maximum allowable chemical storage for compliance to AS 2243.10.
- Review gas requirements and elucidate if risk mitigating gas sensors or increased ventilation is required.

- Review flammable goods which will be used onsite and identify hazard zones associated with such usage.

5.3.4 STATE ENVIRONMENTAL PLANNING POLICY NO. 55 REMEDIATION OF LAND

SEPP No.55 relates to use and development of potentially contaminated land. The policy provides a consistent policy approach to the consideration of potential contamination and remediation to reduce the risk for harm to human health.

Douglas Partners previously prepared a preliminary Site Investigation (PSI) for the Sydney University Site that included the current investigation area, report *Preliminary Site Investigation, Proposed Campus Improvement Program, Camperdown and Darlington Campus, University of Sydney, Prepared for University of Sydney – Campus Infrastructure and Services, Project 73716.00 dated November 2013 (DP 2013)*. This is included within **Appendix Q** of this EIS, together with further geotechnical assessment prepared by Golders Associates.

Overall, based on the historical review, it was apparent that the Camperdown Campus has been used as a University prior to the 1930s (land titles indicate since 1912), whilst the Darlington Campus comprised a large number of residential and commercial (retail) properties at least until the 1970s, from which gradual acquisition by the University appears to have taken place, culminating in the consolidation of individual lots in 1991. Site history also indicates that a large part of the Camperdown campus was previously used for farming.

Based on the site history and an inspection of then current operations, the areas of environmental concern identified were as follows:

- The University of Sydney holds chemical licenses for the storage and use of a variety of chemical, for experimental purposes. The Work cover records did not indicate that any of these chemical stores are present in the current investigation area and therefore there is a low potential for chemicals that the Site is impacted by these chemicals;

- The extent of fill across the site used for formation processes and levelling appears to be extensive. Previous investigation has identified the presence of fill across much of the site, to depths of up to 9m building. The fill has been found to be variable in depth and composition (including some areas containing asbestos, slag and ash);

- There is a potential for asbestos to be present in near surface soils as a result of the demolition of former structures;

- The hazardous materials registers have identified hazardous building materials (including asbestos and lead based paint) in many of the older buildings within the university grounds;

- A significant portion of the campus was previously used for farming. It is therefore possible that residual contamination from the use of pesticides and fertilisers could remain on the site; and

- The site was acquired by the University of Sydney in 1912 and has been operated as a University grounds since that time.

Based on the outcomes of this PSI, the identified contamination risks were not considered to pose a restriction on the future developments proposed by the University, subject to implementing of a number of recommendations been adopted as development occurs across the University in accordance with the CIP.

In regards to the proposed development, Douglas Partners conducted a PSI and reported with reference to the National Environment Protection Council (NEPC) National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013) [NEPC, 2013] and included a review of available site history (from previous reports), a site walkover, and soil analysis from samples collected from 5 boreholes (Bores 5-9) during the geotechnical investigation. The bores were advanced to approximately 8 m depth using core drilling equipment. Boreholes samples collected were assessed against the relevant site assessment criteria (commercial/industrial exposure setting).

No asbestos was detected in the soil samples and no significant building rubble was observed in the test bores. It is noted however that there are limitations to the test bore method with regards to detecting asbestos and therefore it is possible that asbestos may be present in the fill material.

In summary, it is considered that the site can be made suitable for the proposed development subject to the remediation (excavation and disposal) of the total recoverable hydrocarbons (TRH) and polycyclic aromatic hydrocarbons (PAH) contamination hotspots detected at Bore Hole 6. It is noted that the proposed development includes a basement excavation that would be expected to extend below the impacted fill detected in Bore Hole 6. In this regard it is likely that the impacted soil will be removed as a result of the site redevelopment works, thereby rendering the site suitable subject to the following recommendations being adopted:

- Additional investigation is recommended in the vicinity of BH6 to confirm the waste classification, delineate the extent of the PAH and TRH hotspot and determine if an RAP is warranted. It is recommended that test pits, rather than test bores be adopted for the additional investigation;
- Following the delineation of the TRH and PAH hotspot at BH6 the impacted soils should be excavated, disposed and validated following removal;
- Given the limited number of samples analysed, further in situ or ex situ testing should be carried out to confirm the preliminary waste classification assigned herein;
- Once the waste classification is confirmed, the fill should be excavated and appropriately disposed off site under the assigned waste classification;
- An unexpected finds protocol should be prepared for bulk excavation and construction works to manage unexpected contamination finds; and
- Following the excavation of fill soils for the basement levels the underlying natural soil should be inspected and validated to determine if the underlying natural soil can be classified as virgin excavated natural material (VENM).

We note that since the draft version of this EIS was submitted to the DPE for its 'test of adequacy', a further Phase 2 Contamination Investigation, together with a Remediation Action Plan, has been prepared by Douglas Partners. These additional reports together with a letter of clarification prepared by Douglas Partners are included within **Appendix Q** at the back of the Phase 1 information. This information concludes that the proposed development is suitable for the site and can be approved.

5.4 LOCAL ENVIRONMENTAL PLANNING INSTRUMENTS

5.4.1 SYDNEY LOCAL ENVIRONMENTAL PLAN 2012

Sydney Local Environmental Plan 2012 (SLEP 2012) provides the local statutory planning provisions and controls for the site. The relevant SLEP 2012 provisions applicable to the SSD are reviewed in **Table 3** below. The proposal is consistent with the relevant objectives and provision of SLEP 2012.

TABLE 3 – SYDNEY LOCAL ENVIRONMENTAL PLAN 2012

PROVISION	RESPONSE
Zoning and Land Use (Clause 2.3)	The site is zoned SP2 Infrastructure and is identified on the zoning maps as "Educational Establishment" under SLEP 2012. The only uses permissible on the site with development consent is Horticulture; Roads; Water storage facilities; Water treatment facilities and the purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose. Under SLEP 2012:

PROVISION	RESPONSE
	***"educational establishment** means a building or place used for education (including teaching), being:* *(a) a school, or* *(b) a tertiary institution, including a university or a TAFE establishment, that provides formal education and is constituted by or under an Act".* ▪ The proposed development is entirely consistent with the definition of "*educational establishment*" in SLEP 2012 and is therefore permissible with development consent.
Building Height (clause 4.3)	▪ No maximum building height applies to the site.
Floor Space Ration (Clause 4.4)	▪ No maximum floor space ratio applies to the site.
Preservation of Tree or Vegetation (Clause 5.9)	Clause 5.9 aims to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation. A detailed Arboricultural investigation has been undertaken to inform site layout and planning aimed at retaining and protecting the significant Moreton Bay Fig trees along the City Road frontage to the immediate south of the site.
Heritage Conservation (Clause 5.10)	Clause 5.10 aims to conserve environment heritage, heritage items, conservation areas, archaeological sites and places of significance. ▪ The Camperdown Campus contains 18 individually listed items of heritage significance and is located within its own Conservation Area C5: University of Sydney. These items include: – St Paul's College group, University of Sydney buildings and their interiors, quadrangles, oval and scoreboard, cricket pavilion and grounds (Item 152). Located on Camperdown Campus, City Road, South West of the development site. – Gatekeeper's Lodge, University of Sydney including interior (Item 153). Located on Camperdown Campus, City Road, South West of the development site – Site landscaping, University of Sydney perimeter fencing and gates (Item 172). Located on Camperdown Campus, Parramatta Road, north west of the site within the CIP approved Cultural Precinct. ▪ The development site is also located within proximity to a further two (2) heritage items located on adjacent land and within the visual curtilage of the development site, including: – Victoria Park, Gardener's Lodge and its interior, entry gates and piers, park layout, paths and plantings (Items 139). Located immediately to the east of the site on the opposite side of Barff Road. – James Spring drinking fountain and horse trough (Item 1522). Located at 96–148 City Road, Darlington, southwest of the site on the opposite side of City Road.

PROVISION	RESPONSE
	– Former NSW Institute for the Deaf, Dumb and Blind Group, University of Sydney including interiors (Items 1523). Located at 96–148 City Road, Darlington, southwest of the site on the opposite side of City Road. Conservation Area C5: University of Sydney The University of Sydney, Camperdown Campus forms a standalone Conservation Area listed under the LEP and recognised for the following: ▪ As a heritage cultural landscape containing buildings of exceptional individual value set within a designed landscape with large areas enclosed by a historic fence; ▪ Social significance as the site of the first University in Australia established in 1850, operating continuously at Camperdown since 1858. ▪ Historic significance for its continuing association with the development of tertiary education in Australia. Incorporating Prince Alfred Hospital and various residential colleges, the Area represents the establishment and continued expansion of institutional uses on Grose Farm. ▪ High aesthetic significance for its collection of fine buildings and public spaces dating from the 1850s, and has association with several prominent architects including Blacket, Vernon and Wilkinson. ▪ The continuing function of the institution as a University is also of exceptional cultural significance. An important Sydney landmark, containing what is probably the most significant group of Gothic Revival buildings in the country. Detailed heritage assessment of the proposal in relation to its context has been undertaken by Ian Kelly Heritage Consultant. Consideration of the findings and recommendations of this report are provided in Section 6.7 of the EIS.
Clause 6.21 Design Excellence	Clause. 6.21 states that development consent is not to be granted unless the consent authority considers the development exhibits design excellence. In accordance with clause 6.21, a design competition process is required for the proposed building as the building will exceed a height of 25 metres above ground level. The University of Sydney has its own design excellence process which is summarised In **Appendix D** and accordingly the need to undertake a competition under clause 6.21 was waived in the issuing of the SEARs. The University's competition was applied to firstly seek a reference scheme, and then ultimately to arrive at the scheme that forms part of this SSDA. The HDR Rice Daubney scheme is essentially an elevated and evolved scheme that is consistent with the design of the Warren Mahoney "reference scheme", addresses the urban design principles established by Gehl Architects in the winning International Ideas and Design Competition; addresses matters raised by the Heritage Office; and also satisfies the University's buildabliity criteria. The proposal demonstrates design excellence and has been designed with a high standard of architectural design, materials and detailing appropriate to an educational establishment building that frames an important entry into a University. The building has an elongated form that has been designed to respond to the site's constraints and opportunities, wrapping around the

PROVISION	RESPONSE
	existing Moreton Bay Fig tree line and integrating seamlessly with the City Road pedestrian overpass, providing a distinct and contemporary building form that along with the proposed new F23 Building will frame this important entry to University. The LEES 1 building has been sensitively designed to mark the juncture between the older and newer part of the campus. Together with the proposed F23 building, located on the opposite corner of Eastern Avenue and create a new urban square, the two new buildings will provide a strong definition to the City Road end of Eastern Avenue. The contemporary design of the LEES 1 Building responds to the existing older part of the campus, which is largely defined by horizontal mass buildings that express vertical façade proportions through modulation and openings. Building design is enhanced and articulated through effective use of materials, and strong vertical lines to break up the horizontal mass. The architecture of the Carslaw Building extension and campus domain connection will complement the architecture of the proposed new F23 Building, whilst expressing its individual identity in response to its future functional use and constrained site context. Further, the building has been designed with respect to the existing Eastern Avenue view corridor, maintaining views along its central alignment.
Other land uses (car parking) (Clause 7.9)	The provisions of Part 7 Division 1 seek to implement maximum parking provisions, aimed at limiting the number of car spaces as a means of reducing vehicular traffic. Pursuant to clause 7.9(3) the maximum number of space for a building for the purposes of an education facility is 1 space for every 200sqm. No car parking is provided as part of the existing Carslaw building. It is not intended to increase in student or staff capacity on the site. Therefore it is not proposed to provide any car parking on site. It is noted that the City of Sydney's parking requirements are maximum and not minimum provisions and the provision of no parking on the site, which is in close proximity to public transport is consistent with promoting the use of public and alternative modes of transport.
Acid Sulphate Soils (Clause 7.14)	The site is identified on the Acid Sulphate Soils planning maps as containing class 5 soils. Class 5 soils reflect a low risk of potential acid sulphate disturbance. Excavation of the site will occur to accommodate new basement level. As the site is not located within 500 metres of Class 2 or 3 soils, a detailed ASS management plan is not required.
Flood planning (clause 7.15)	Clause 7.15 aims to minimise the flood risk to life and property, allow development compatible with a flood hazard and avoid significant impacts on flood behaviour and the environment. The proposed site is located within the Blackwattle Bay drainage catchment, an area of which forms the subject are of a flood modelling assessment completed by WMA Water on behalf of City of Sydney Council. The associated report, Blackwattle Bay Catchment Floodplain Risk Management, Draft Report, September 2014, identifies an area of localised ponding within the Eastern Avenue pedestrian corridor to the west of the proposed site in the 1% AEP event. The depth of ponding as per Figure 2 in the Floodplain Risk Management Report is approximately 0.25m. The flood level on the western side of the site is therefore 35.20mAHD. Finished floor levels and building entries along the western side of the proposed building are to be 500mm above the 1% AEP flood level as per Council and the NSW Floodplain Development Manual requirements. No significant level of ponding is expected on the eastern side of the site in Barff Road (Note –

PROVISION	RESPONSE
	flood depths modelled less than 0.1m are not displayed). As no significant ponding is expected along the eastern boundary of the site, proposed floor levels are to be set at minimum 31.80mAHD, 0.5m above the highest existing road level in Barff Road adjacent to the proposed eastern building entry.
Airspace Operations (Clause 7.16)	The site is located on land identified on the Sydney Airport Prescribed Obstacle Limitation Surfaces Drawing No FSS6934 Revision 1, Declared by the Commonwealth Department of Infrastructure and Regional Development on 20 March 2015 as being located between horizontal surface limits of 90 - 100 metres (AHD). The proposal will have a maximum height of building RL69.13 metres (AHD) for the cooling towers and is therefore acceptable.

5.5 DEVELOPMENT CONTROL PLANS

Clause 11 of SEPP (State and Regional Development) 2011 excludes the application of development control plans to SSD projects. Notwithstanding, consideration has been given to the relevant key development controls in *Sydney Development Control Plan* 2012 (DCP 2012).

TABLE 4 – SYDNEY DEVELOPMENT CONTROL PLAN 2012

PROVISION	RESPONSE
Locality Statement	The Sydney University, Camperdown Campus is identified in **Figure 2**.1 *City Locality Area maps,* as being within area 2.3 "*Chippendale, Camperdown, Darlington"* subsection 2.3.5 identified as covering the *University of Sydney/Royal Prince Alfred Hospital* locality. The proposed development within the University lands demonstrates that effective urban infill and orderly and economic use of land that is considered to align with Council's outcomes expressed in the character statement and supporting principles as follows: ▪ The development will not adversely impact on any listed heritage items ▪ Detailed site planning has been undertaken to ensure the preservation and retention of existing and established street tree planting along the City Road frontage. ▪ Retains and enhances the significant role of the University in the city as a specialised centre for education, research and health. ▪ Will not impact on existing or planned bicycle and pedestrian connections with the site surrounds or legibility and ease of access. ▪ The development redefines the Universities City Road entry and creates a new urban space (in conjunction with the F23 Building) that is sheltered from road traffic noise. The siting and layout of the two (2) complementary buildings retains and reinforces the entry vista along Eastern Avenue. ▪ The proposed development will effectively activate an otherwise underutilised space improving streetscape amenity and connectivity. ▪ The building siting, scale and mass has been designed to respond to the existing built form and character of the Camperdown Campus and the likely future character and form of the Darlington Campus as dictated by the approved CIP.

PROVISION	RESPONSE
GENERAL PROVISIONS The relevant sections of the SDCP 2004 are considered are below.	
3.1 Defining the public domain	The LEES 1 Building has been designed to make a positive contribution to the public domain through detailed planning of the campus interface with the site surroundings. In particular care has been taken to integrate existing infrastructure such as the pedestrian overpass into the building, as well as providing for an enhanced street level connection between pedestrians and the university site.
3.2.7 Reflectivity	Wind Tech have prepared a solar light reflectivity report for the proposed development **(Appendix R).** With the incorporation of the recommendations in this report in relation to the reflectivity of glazing, the proposed development will not cause adverse solar glare to pedestrians and motorists in the surrounding area, or to occupants of neighbouring buildings, and will comply with the planning controls regarding reflectivity for the City of Sydney Development Control Plan 2012.
3.2.8. External Lighting	JHA have advised the University on external lighting and recommend that all external/outdoor lighting components, shall be designed in a manner that is bound by the relevant standards, specifically: ▪ AS 1158.3.1 Part 3.1: Pedestrian Area (Category P) Lighting – Performance and Design Requirements ▪ AS 4282 – Control of the Obtrusive Effects of Outdoor Lighting Further, all luminaries used within the external/outdoor lighting portion shall be designed such that any light spill is highly controlled, particularly in an upward direction. This will be achieved through features designed into the luminaries, or through additional measures as required.
3.3 Design Excellence	A Competitive Development and Design Process was undertaken by Sydney University, as detailed earlier. The process is similar to that adopted by the City of Sydney and the requirement to undertake a further design excellence process has been waived by the Department of Planning and Environment in issuing the SEARs in recognition of the rigour of Sydney University's internal process.
3.5 Urban Ecology	The retention of the significant fig trees along City Road and comprehensive landscape planning for the site will contribute positively towards the urban ecology.
3.6 Ecological Sustainable development	The DCP seeks to implement the principles of ecologically sustainable development (ESD) within future development through various design and construction measures. The University aims to ensure a built environment that is energy efficient, cost-effective to operate and provides improved environmental, economic and social benefits to its student, staff and surrounding communities. This will be achieved by embedding sustainability initiatives into the planning, design, procurement, construction and commissioning process of future campus development. Further discussion on the University's Sustainability Framework is discussed in **Section O.**
3.7 Water and Flood Management	▪ The proposal is not affected by flooding or any significant ponding. ▪ Refer to **Appendix P** for details on stormwater and flood management.

PROVISION	RESPONSE
3.9 Heritage	▪ A detailed heritage impacts assessment has been prepared by Ian Kelly Heritage Consultant is provided at **Attachment K.**
3.11 Transport and Parking	▪ A Traffic and Parking Impact Statement has been prepared by GTA and is provided at **Attachment N.**
3.12 Accessible Design	▪ The proposed development is capable of complying with the provisions of the Access to Premises Standards of the *Disability Discrimination Act 1992* and the Building Code of Australia.
3.13 CPTED	▪ The design and layout of the building is considered to generally align with the broad principles of Crime Prevention through Environmental Design, including: – **Territorial Reinforcement:** The proposal provides for well-designed publicly accessible spaces, including the provision of high quality landscaping. The development of the site will clearly delineating the public and private domains that currently blend into one another with the existing unimproved open space area adjacent to City Road. – **Surveillance:** Natural surveillance from the large windows in the building over City Road, Victoria Park and Eastern Avenue will be achieved. CCTV will also be installed to monitor entries and internal areas of the building throughout the day and evening. – **Access Control:** The building itself will be regulated by electronic security systems to ensure safety. The western alignment of the building will act to define pedestrian entry points and direct them into the site. – **Space/Activity Management:** The development site has a direct road frontage to City Road and is immediately adjacent to the main entry and bus stop servicing the site. The site, as part of a broader University campus, is actively used throughout day and early evening. The University grounds are also managed in terms of grounds keeping and security that maintain the appearance of the site.
3.16 Signage	Only one building identification sign is proposed on the southern façade fronting City Road. The building identification sign will state “The University of Sydney” and will include the University’s emblem. It will be located near roof level and has been incorporated as a feature into the architectural design as a signifier of the Eastern Avenue entry to the University.
3.14 Waste	A Construction Management Plan (CMP) has been prepared by Richard Crookes Construction to support the application and is provided at Appendix U. The CMP deals with construction waste management. Richard Crookes Construction has in place waste management procedures; including strategies, reporting and monitoring protocols for the management of waste materials generated through construction processes including demolition, earthworks, construction and through to completion and operational maintenance. Richard Crookes Construction have established a goal of at least 80% of materials generated to be reused or recycled, with project specific waste management plans being implemented on each project. A dedicated waste room is provided in the basement of the building that is adequate to support the needs of the staff and students. Hazardous waste storage will be locked and collection will be arranged on an as need basis, by a registered waste operator.

PROVISION	RESPONSE
3.17 Contamination	Consideration of the SEPP 55 is provided in section 5.3.4of the EIS and supported by a preliminary site investigation undertaken by Douglas Partners and Golder Associates and provided at **Appendix Q**, together with the additional Phase 2 reporting and Remediation Action Plan- both prepared by Douglas Partners and also included within **Appendix Q**.

5.6 OTHER PLANS AND POLICIES

5.6.1 CITY OF SYDNEY SECTION 94 CONTRIBUTIONS PLAN 2006 (WESTERN PRECINCT)

The Contributions Plan relates to all new development that contributes to an increase in residents, visitors or staff. Section 2.13 of plan states that development by the Crown will be subject to the provisions of the plan unless granted a merit in line with matters outlined in Section 2.14.

The University intends on seeking an exemption from the collection of contributions, this is discussed detail in Section 7.

5.6.2 CAMPUS IMPROVEMENT PROGRAM (CIP)

As outlined in Section 1.3.1 a Campus -wide CIP has been developed by the University and approved by the Minister. While the development site is not located within an approved precinct, it is located within the vicinity of two (2) of the precincts included in the CIP, including:

- Precinct A: Merewether (Darlington Campus) to the south west; and
- Precinct B: City Road (Darlington Campus) to the south.

Consequently the likely future character of the area and the immediate context of the site will be influenced by these transformation projects that will substantially redefine the built form environment and character of City Road.

Precincts A and B will be redeveloped to achieve the following:

- A mix of land uses including learning and teaching spaces and faculty space. Potential student accommodation, and retail and support services;
- Create an active city edge which contributes to the streetscape, urban fabric and wider community;
- Deliver function and well-designed spaces that meet the University's need, while preserving important historical features of the site; and
- Deliver an iconic gateway entry to the Darlington campus and improve permeability and legibility of the site.

The general building alignment and future building footprints are shown in **Figures 17 and 18.**

FIGURE 17 – MEREWETHER PRECINCT ENVELOPE PLAN

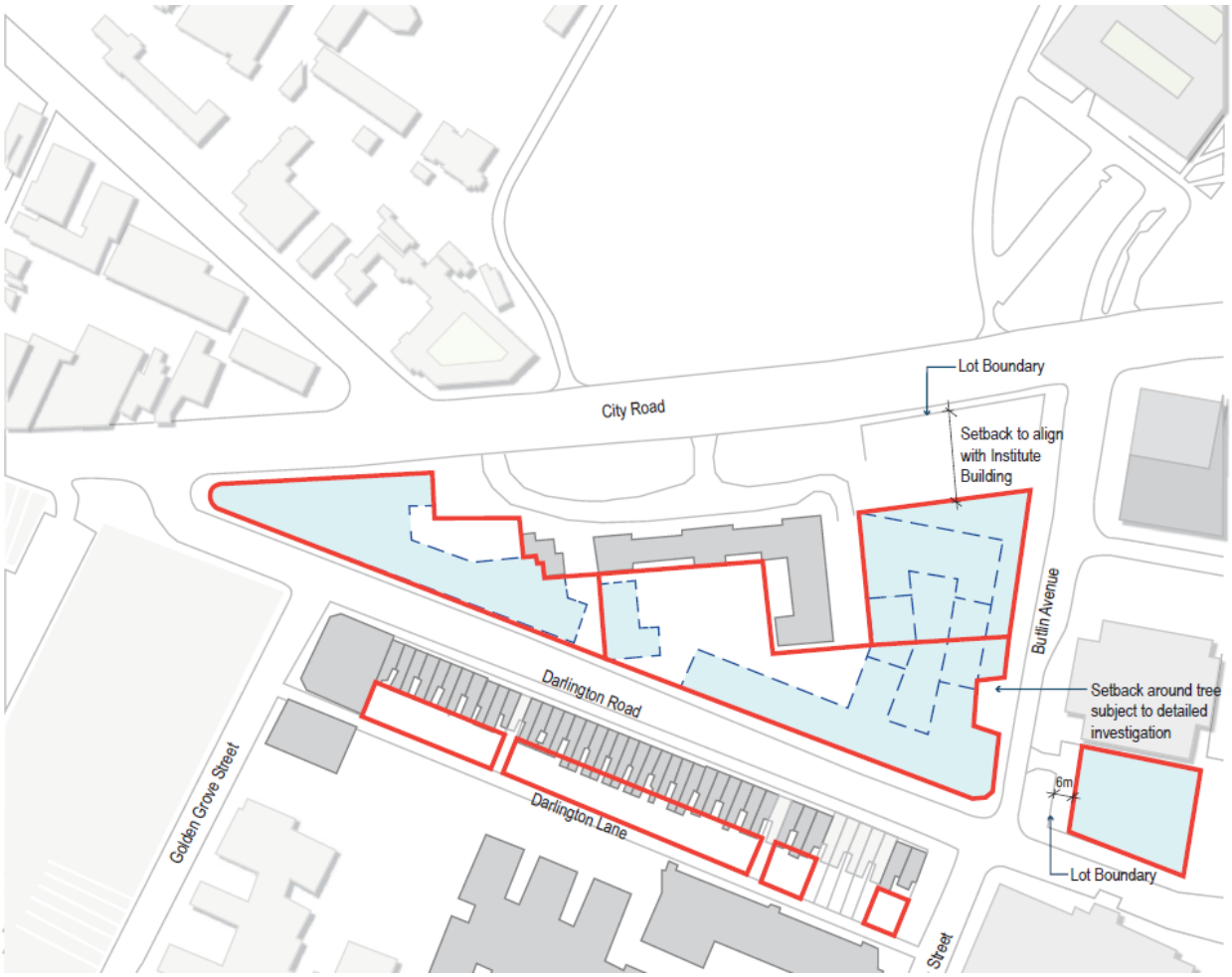
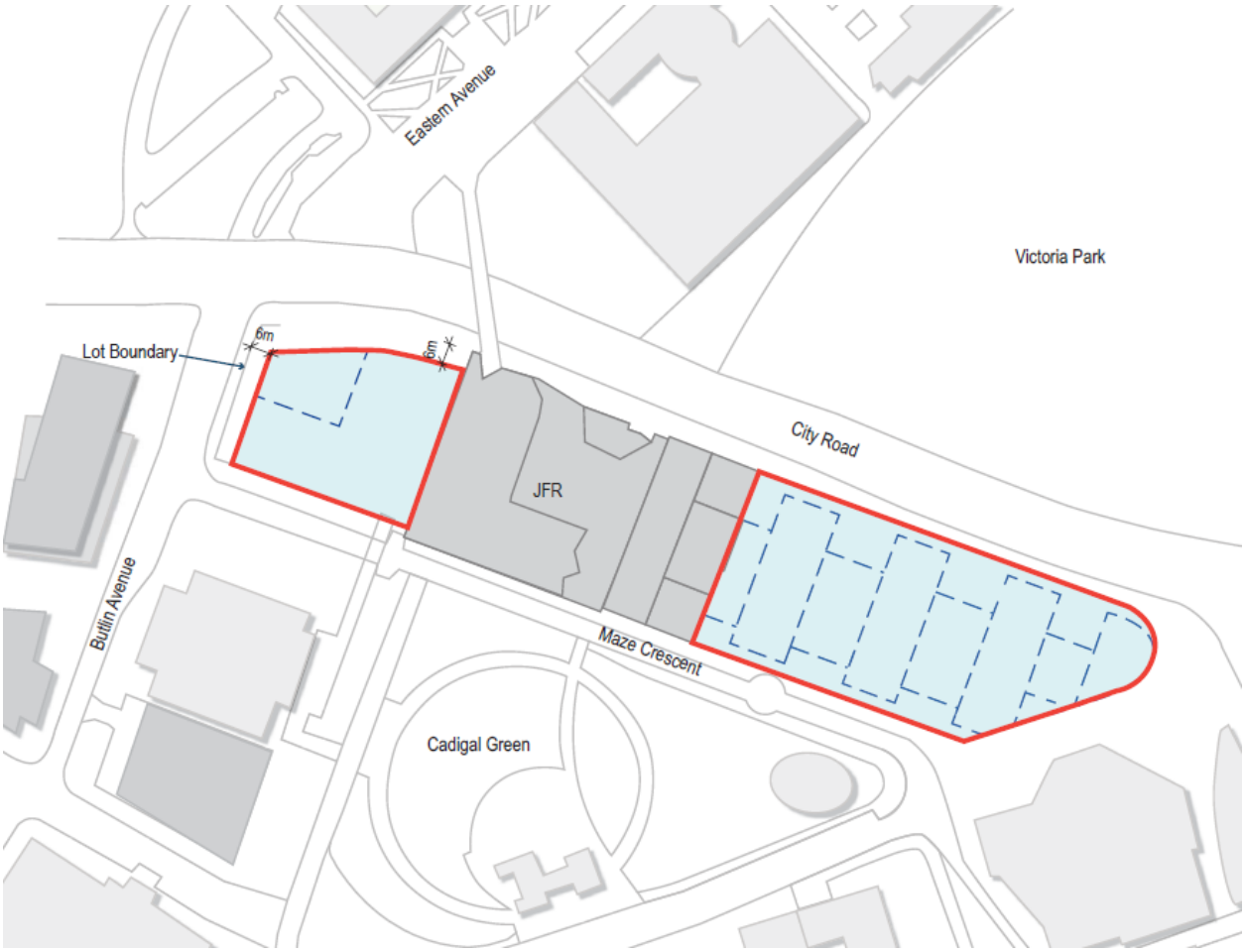


TABLE 5 – COMPARISON OF CIP AND LEES1 DEVELOPMENT STATISTICS

BUILDING STATISTICS	PRECINCT A- MEREWHETHER	PRECINCT B- CITY ROAD	LEES1
Gross Floor Area	76,400 m^2	93,300 m^2	9,800m^2
Height (metres)	RL 83.10 (48.8 metres at City Road)	RL 83.10 - 84.60 Wentworth building – 48.6m	RL69.13 (35m)
Front setback	Aligns with the Institute building to the west.	International House: Nil Wentworth Building: 6m	10m from City Road

FIGURE 18 – CITY ROAD PRECINCT ENVELOPE PLAN



5.7 STRATEGIC POLICIES

The following strategic planning policies and guidelines have been considered in the assessment of this proposal:

- NSW 2021.
- A Plan for Growing Sydney.
- Rebuilding NSW – State Infrastructure Strategy 2014.
- NSW Long Term Transport Master Plan 2012.
- Sydney's Cycling Future 2013.
- Sydney's Walking Future 2013.
- Healthy Urban Development Checklist (NSW Health)

5.7.1 NSW 2021

'NSW 2021 A Plan to Make NSW Number One' is a 10 year plan to rebuild the economy, return quality services, renovate infrastructure, restore accountability to government, and strengthen our local environment and communities. In summary, the key objectives of the Plan are to:

- Increase use of walking and cycling.
- Increase the number of jobs closer to home and increase the percentage of the population living within 30 minutes by public transport of a city or major centre in Metropolitan Sydney.

- Grow cities and centres as functional and attractive places to live, work and visit.

The proposed development will contribute to achieving the objectives of NSW 2021. The site is already well serviced by public transport, with Redfern Railway Station only a 10 minute walk away and bus stops (with regular bus services) located along City Road in close proximity to the project site. Furthermore, the proposal will enhance the offering of a major University in Sydney, helping make the University and more broadly Sydney an attractive place to visit, work and study.

5.7.2 METROPOLITAN PLAN: "A PLAN FOR GROWING SYDNEY

"*A Plan for Growing Sydney*" was published in December 2014 and replaced the previous Metropolitan Plan 2031 as the key growth strategy to guide development across the Sydney Metropolitan Region. It sets out the State Government's plan for Sydney's future over the next two decades.

As with previous strategic growth plans, "*A Plan for Growing Sydney*" is based on centres based planning model, and adopts a series of Key Directions and Actions around four (4) principle goals of growth. These four (4) goals include:

- **Goal 1:** A competitive economy with world class services and transport;
- **Goal 2:** A City of housing choice, with homes that meet our needs and lifestyles;
- **Goal 3:** A great place to live with communities that are strong, healthy and well connected; and
- **Goal 4:** A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources.

The proposed development is entirely consistent with and supports the relevant Key Directions and Actions of "*A Plan for Growing Sydney*" in that:

- **Direction 1.6: Expand the Global Economic Corridor**: Ongoing upgrade of the University's facilities at its established institution in Camperdown ensures the University of Sydney retains and reinforces its position as a prominent and respected member of the "Group of Eight" tertiary education institutions in Australia. The University is a significant generator of employment both directly and indirectly and has ties with other specialised and priority industries, which together make a significant contribution on the local and regional economy.
- **Direction 1.7: Grow Strategic Centres – providing more jobs closer to home:** The University is located in one of the most densely developed areas of the Metropolitan region and is well connected to areas such as Sydney Inner West by public transport. The development will provide for short term employment opportunities through construction and will promote continued operation of the University further supporting its growth in education and research, attracting foreign and domestic investment.
- **Direction 1.9: Support priority economic sectors**: International education and research is identified as a "priority industry" in the plan. This is reflected in the establishment or recognition under the plan in the establishment of the "*Broadway and Camperdown Health and Education Precinct*", the plan encourages the adoption of "*appropriate*" planning controls as a means of creating conditions that foster and encourage growth within specialise and priority industries as key to strengthening the economic role of the City.

Further, we note:

- Detailed design and site investigation phases of the project established suitable GFA and building heights that respond to the sites, vegetative, heritage and urban form constraints. While maximising the use of the land, achieving economic and orderly use of the land and delivering functional world class facilities in-line with the University of Sydney's international reputation and standards.
- Developments, like the proposed LEES 1 Building, will contribute to the market growth of the University that attracts substantial national and international research and student funding per year. This has flow-on effects to the broader economy.

- The well-established ties between the University and Royal Prince Alfred Hospital ensures that the proposed science teaching and research facility will strengthen the role and prominence of these two important institutions and the role they play in local and regional development.

5.7.3 REBUILDING NSW – STATE INFRASTRUCTURE STRATEGY 2014

Rebuilding NSW, A State Infrastructure Policy 2014 was published in November 2014 and is a $20 million strategic infrastructure funding program that seeks to reinvigorate and secure the State's long term economic future.

Budgetary allocations are focused around seven (7) sectors with an allowance for discretionary projects.

- Urban Public Transport
- Urban Roads
- Regional Transport
- Water Security
- Education
- Health
- Culture and Sport
- Other Opportunities

The program has not directly allocate funding to develop the State's Universities, in this regard effects of the policy on the development and the long term future of the University are likely to be indirect and to relate to improved accessibility arising from programs such as the Rapid Transit and improved Urban Roads. In particular the potential delivery of a new rapid transit stop at Central will improve accessibility of the City and the University.

The proposed development is not inconsistent with the goals of the Strategy and would not compromise attainment of those goals.

5.7.4 NSW LONG TERM TRANSPORT MASTER PLAN 2012

The NSW Government *Long Term Transport Master Plan* 2012 (LTTMP 2012) sets out a framework for the delivery of an integrated, modern transport system. The LTTMP 2012 is underpinned by a range of short to long term actions to guide the transformation of the NSW transport system

A long term plan associated with the LTTMP 2012 is to increase the capacity of Sydney's rail network and update existing infrastructure facilities. These plans will enhance public transport accessibility and contribute towards increased visitation to the site by public transport. This is a positive approach towards accessibility to the University.

5.7.5 SYDNEY'S CYCLING FUTURE 2013

Sydney Cycling Future was released by NSW Government in December 2013 to facilitate improved bicycle networks as an integrated component when planning for new transport and infrastructure projects.

Whilst the proposal has sought to promote the use of active modes of transport through the provision of suitably integrated bicycle rack parking and journey to work facilities, including showers and lockers to support the use of cycling as an alternative and active mode of transport, it is expected than any increased usage would be modest and is unlikely to result in any additional stress on the existing cycling network in the area. Further consideration to enhance any existing cycling infrastructure surrounding the site is therefore not warranted.

5.7.6 SYDNEY'S WALKING FUTURE 2013

The Sydney Walking Future 2013 was released by NSW Government in December 2013. It seeks to create culture of walking for transport by promoting walking as a viable and attractive transport choice. The Strategy aims to focus infrastructure investment on completing connections within two kilometres of centres and public transport interchanges. In addition to this, the Strategy aims to link walking to urban growth and to prioritise the needs of pedestrians in the planning, design and construction of new transport and urban development projects.

The site is generally well connected by suitable public and private domain spaces that encourage pedestrian comfort and safety. The site is located within close proximity to north and south bound bus stops and an existing pedestrian bridge over City Road provides easy access to southern campus facilities and south bound bus stops. It is anticipated that the proposed development will not significantly impact on existing walking trips and is unlikely to result in any additional capacity stress on the current pedestrian network. Further consideration to enhance any existing pedestrian infrastructure surrounding the site is therefore not warranted.

5.7.7 HEALTHY URBAN DEVELOPMENT CHECKLIST (NSW HEALTH)

The purpose of the checklist is to assist health professionals to provide advice on urban development policies, plans and proposals. It is intended to ensure that the advice provided is both comprehensive and consistent. The checklist is principally about helping to answer the questions:

- What are the health effects of the urban development policy, plan or proposal?
- Can it be improved to provide better health outcomes?

The principal users of the checklist are intended to be Area Health Service Workers and are designed to apply over large regions, whole LGAs and large precincts. In particular the policy indicates that its application to plans and proposals relates to developments of the following kind:

- Master plans;
- Town Centre Plans; and
- Development applications for projects involving large housing developments, shopping centres and community and health facilities.

The subject application is for a relatively small, stand alone, urban infill site within a broader land use and single holding. The principles adopted by the plan are fundamental planning principles that are reflected in key planning controls. While the application of this policy is not necessarily related to the scale of the development proposed, the proposal is not considered to be inconsistent with principles for healthy urban development, in that:

- The development has access to green space and natural areas. The University grounds provide a range of open space and recreational facilities, ranging from informal "break out" spaces to formal recreation options such as gyms and swimming pools. Victoria Park is located immediately to the east of the site.
- The Campus layout encourages incidental activity of staff and students due to its expansive layout and defined "faculty based" precincts. Students and staff can readily walk between teaching and learning facilities, libraries, recreation facilities, administration areas and support services such as cafes and retail services.
- The proposal provides end of journey facilities including bicycle parking racks and showers.
- The site is located within the CBD of Sydney with superior public transport access to bus and rail, which reduces car dependency.

6 Environmental Assessment

This section contains an assessment of the key issues identified in the SEARs.

6.1 BUILT FORM AND URBAN DESIGN

The subject site is not part of the CIP, however significant background analysis has been carried out by the University in informing appropriate development of the site. An Urban Design Analysis has prepared by University of Sydney and provided in **Appendix D** which:

- Identifies the proposed building footprint, public domain areas and pedestrian/cycle linkages
- Forms the basis of the proposed building mass and heights
- Informs the basis for resolving this important entry point to the Camperdown Campus and its relationship with City Road and Eastern Avenue

The proposed development involves the construction of a new 8 storey education and research building for students in the field of science. The new building will physically connect to the existing Carslaw Building at the lowest four levels, with internal links provided between the two buildings at the two lowest levels. The southern windows on levels 5-8 in the existing Carslaw building will still obtain natural light through the setback created between the two buildings. HDR Rice Daubney has provided an Architectural Design Report (**Appendix E**) that provides the background and rationale to the design of the proposal.

The LEES 1 Building and F23 Building Sites are located on City Road at the boundary of the two campuses (Camperdown Campus and Darlington Campus). This provides a unique opportunity to create a new framed entry and urban square to further link the two campuses so that they appear as one single connected campus. The LEES 1 building has been sensitively designed to mark the juncture between the older and newer part of the campus. Together with the proposed F23 building, located on the opposite corner of Eastern Avenue, the two new buildings will provide a strong definition to the City Road end of Eastern Avenue.

The contemporary design of the LEES 1 Building responds to the existing older part of the campus, which is largely defined by horizontal mass buildings that express vertical façade proportions through modulation and openings. The building will provide a transparent façade to City Road, clearly displaying the importance that the University of Sydney places on investment in research and teaching excellence. The proposed building design and facade is enhanced and articulated through effective use of finishes, materials, articulation and strong vertical lines to break up the horizontal mass (refer to **Figures 19** and **Figure 20**).

Together with the proposed F23 building, the two new buildings will provide a strong definition to this important University entry at a scale and height which is sympathetic with existing surrounding buildings and consistent with building envelopes for nearby precincts approved under the CIP. The height and scale of the proposed building form (RL 65.68 to the top of the building) responds to the proposed F23 building (RL 70.24) on the opposite corner of Eastern Avenue and together they will create a new entry statement to the University. The LEES 1 Building will creates an appropriate transition in height between the existing 7 storey Carslaw building (RL 60.6) and the future height of the proposed Wentworth building (RL 83.10 as per the building envelope approved under the CIP) located on the opposite side of City Road.

The LEES 1 building has been designed to respond to the geometry of the site and the functional requirements of the learning and research spaces. The functional planning for the different teaching and research spaces is quite distinct, and the building reflects this in the proposed mass and articulation, with larger floor plates required for the upper research spaces. This has resulted in a minor cantilevered extension of the upper floors (levels 5-8), but which is contained within the extent of the footprint of the footbridge below.

The minor extension and its potential visual impact on the alignment of built form along Eastern Avenue has been carefully considered and is discussed in Section 6.2 below. Rather than representing a

negative impact, the cantilevered form assists in framing Eastern Avenue view and its scale and proportion assists in 'grounding' the building providing a strong visual marker at this intersection.

Setbacks on the site have been driven by the safeguarding of the 4 mature Moreton Bay Fig Trees along City Road, which have been identified as having high landscape significance. The proposed development has been designed to maintain and have minimal physical impact on the row of Moreton Bay Fig Trees, which are located between the development site and City Road. The proposed building is setback a minimum of 10 metres from the boundary to retain and protect existing trees. The 10 metres front setback combined with the significant width of the adjacent street and verge will balance the overall built form, bulk and scale.

It is also proposed to provide a limited 2m overhang above the front setback at Levels 5-8 to ensure that the proposed works will not significantly impact on the health or useful life expectancy of the four significant fig trees. The Arboriculture Impact Assessment concludes that the proposed works will not significantly impact on the health or useful life expectancy of the four significant fig trees. The proposed rear setback allows for maintenance and access driveway and has been carefully planned to allow for future integration with the adjacent Carslaw Building

FIGURE 19 – VISUAL IMAGERY OF THE ARTICULATED FAÇADE OF THE LEES 1 BUILDING AS VIEWED FROM CITY ROAD

6.2 VISUAL AND VIEW IMPACTS

Eastern Avenue is identified in the University of Sydney Grounds Conservation Management Plan 215 as one of several significant view corridors within the university grounds. Whilst the upper levels involve a minor cantilever beyond the alignment of existing built form along the eastern side of Eastern Avenue, it is important to note that a significant view corridor will be preserved. Furthermore, appreciation of the full width of the Eastern Avenue corridor cannot be visualised at the pedestrian scale and only from an aerial view.

Further, it is noted the edge conditions of Eastern Avenue was not intended to have a hard continuous edge. An analysis of the edge conditions of Eastern Avenue reveals that only the three buildings on the south east edge of Eastern Avenue hint at the formation of a continuous edge and two of these buildings are recent additions to the University (having been developed in the last decade). Prior to this no

indication of “edge continuity” existed, with the existing Chemistry building (which has high historical significance) and Marsden Building (which has moderate historical significance) both interrupting and extending into the implied principal building edge line of Eastern Avenue. There is in fact a strong argument that this recent continuous edge is inconsistent with the overall structure of the campus and its history of development, which was based on buildings being located within a landscape frame, where alignments are established by axis in the public realm rather than being ordered by continuous built edges. Further buildings are off-set to emphasise the importance of corners.

In addition, the framing of the southern end of Eastern Avenue is currently skewed by the existing City Road pedestrian bridge and ramp, as well as the bend in City Road. Further, the north-south view line does not continue through to the Darlington Campus due to the shift in alignment of Butlin Avenue.

Furthermore the impact of the proposed new building on the heritage significance of the adjacent locally listed heritage items, including City Road palisade boundary fence; Victoria Park; City Road Vehicular Gates; the former Gatekeeper’s Lodge and Gates; St Paul’s College Oval and the Madsen Building under *City of Sydney Local Environmental Plan* 2012, is acceptable. The proposal achieves an appropriate balance between cultural heritage, the constraints of the site, the functional requirements of the scientific research spaces and enhancing the University’s reputation as a world class leader in research and education.

Laboratory buildings by their functional nature require large plant areas and exhausts. Given the prominent location of the LEES 1 building on City Road and framing the entry to Eastern Avenue, care has been taken to minimise the visual impact of plant and exhausts. The plant room at Level 8 is hidden behind the high quality facade. Most plant and utility spaces not incorporated into the Level 8 plant room are contained on Level 1 and clustered around the loading bay. Cooling towers and exhausts are setback on the roof to minimise visual impact. Louvre and grilles for air intakes are carefully located to minimise visual prominence. The glazed stair from Levels 2 - 4 on the east of the building is designed to partially screen the loading bay from direct City Road views.

FIGURE 20 – VISUAL IMAGE OF LEES 1 BUILDING AND F23 BUILDING FRAMING EASTERN AVENUE

6.3 ENVIRONMENTAL AMENITY

The development site does not adjoin any residential zoned land with the nearest resident located over 250 metres to the east of the site beyond the intersection of City Road and Cleveland Street on the southern side of City Road.

Taking into account the spatial separation of the site from any residential property the potential for adverse impact on residential amenity is considered limited. In particular the proposed development is considered highly unlikely to have a direct or immediate impact on any residential premises with respect to the following:

- Solar access or overshadowing;
- Noise and Vibration;
- Visual Privacy;
- View Loss; and
- Light overspill; and/or wind.

In any case they are considered below.

6.3.1 OVERSHADOWING

Shadow diagrams have been prepared by HDR Rice Daubney which clearly shows during midwinter the proposal will not have any shadow impacts on any residential properties or zoned land. The majority of shadow cast by the proposal will fall over City Road and existing pedestrian bridge across City Road to the south.

6.3.2 NOISE AND VIBRATION

A Noise and Vibration Assessment has been prepared by Acoustic Studio and is included at **Appendix T**. In accordance with the SEARs, noise and vibration generated by the development is addressed in this report according to the following guidelines:

- EPA/OEH NSW Industrial Noise Policy 2000 (INP)
- DECCW Interim Construction Noise Guideline 2009 (ICNG)
- DECC Assessing Vibration: A Technical Guideline 2006

In addition, this report includes an assessment of the impact of road traffic noise under the provisions of *Clause 102 of State Environmental Planning Policy (Infrastructure) 2007*.

The existing noise environment has been established based on long-term and short-term monitoring data. Appropriate criteria for both noise and vibration have been discussed and set according to established guidelines and standards as per the SEARs. A summary of the outcomes and recommendations of the noise and vibration assessment are as follows:

6.3.2.1 MECHANICAL SERVICES NOISE

The mechanical plant associated with the proposal will be operational 24 hours a day, 7 days a week. At this stage the plant selections have not been made; therefore a detailed assessment has not been able to be carried out. A preliminary review has been carried out for the plant rooms, and based on the location and the most restrictive criteria, noise emissions from the plant rooms shall be limited to 67 dB(A) SPL at 1 metre of the plant rooms boundaries.

Noise controls will be incorporated within the design of the mechanical plants as outlined in the Noise and Vibration Assessment prepared by Acoustic Studio to ensure that the cumulative noise output from plant at the nearest affected receivers is within the allowable limits. General design consideration and controls implemented will typically include strategic selection and location of the plant and/or acoustic noise control measures such as enclosures, barriers, acoustic louvers, silencers and sound absorptive panels.

6.3.2.2 TRAFFIC NOISE ASSESSMENT

The façade comprises a combination of glazed curtain walling plus solid cladding panels and aluminium cladding. A minimum Sound Reduction assessment has been undertaken. This assessment has assumed the traffic noise levels from City Road, the recommended background noise levels and reverberation times within the spaces, areas of façade for each space and distance to City Road.

Based on the above, the minimum overall sound reduction rating for the façade system in order to achieve the design noise levels within the affected spaces, shall achieve R_w 41 dB.

6.3.2.3 VISUAL PRIVACY AND VIEW LOSS

The proposal will not result in any adverse privacy impacts or view loss from any residential properties or residential zoned land.

The proposed floors have been arranged to maximise views from the office and lab spaces over Victoria Park. The primary feature that creates this opportunity is the 'tessellated facade', which opens view up along the diminishing edge of the City Road boundary. Office views will also be available up Eastern Avenue and the large glazed eastern stair provides views out from the main lab corridor, as well as encouraging inter-floor circulation.

6.3.3 WIND

A Wind Report has been prepared by Wind Tech in relation to the proposed LEES 1 building. It presents an opinion on the likely impact of the proposed design on the local wind environment to the critical outdoor areas within and around the subject development. The effect of wind activity is examined for the three predominant wind directions for the Sydney region; namely north-easterly, southerly and westerly winds. The analysis of the wind effects relating to the proposed development was carried out in the context of the local wind climate, building morphology and land topography.

No wind tunnel testing has been undertaken for the subject development, and hence this report addresses only the general wind effects and any localised effects that are identifiable by visual inspection. Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects.

The results of this assessment indicate that the subject development benefits from shielding provided by the existing densely foliating trees along the subject developments southern boundary. It is therefore recommended that the existing trees are retained in the final development landscape design.

Subject to the adoption of recommendations made within this report into the final design, it is expected that suitable wind conditions can be achieved for all critical outdoor areas within and around the subject development. Wind tunnel testing is recommended to quantify the wind conditions throughout the development and the recommended treatment strategies.

6.4 BIODIVERSITY AND TREES

Matters relating to impacts of biodiversity and ecological values of the site have been considered by Australian Museum Consulting in **Appendix H** of this report. This report concludes:

> *The development site for this Project is small, highly disturbed and contains no native plant communities. The vegetation that is present consists of planted trees and shrubs, most of which are not native to the area, a low hedge, an ivy-covered garden bed and a lawn. The surrounding area is highly urbanised and there is very little vegetation that has not been mapped by OEH as "Urban Exotic/Native". The Bio Banking Credit Calculator generated a landscape value of zero for the development site. Due to the size and nature of the site it is not recommended that the Credit Calculator be applied any further.*
>
> *The development site is likely to be of limited value for most native fauna. However, the site does contain some trees that are likely to provide a foraging resource for the Grey-headed Flying-fox and there were two hollow-bearing trees located within the development area.*
>
> *If there is a requirement to prepare an impact assessment and/or an offset strategy for this Project, then it is recommended that a more suitable assessment mechanism than the BBAM be utilised; for example, the Transport for NSW tree offset calculator.*

The development requires the removal of several trees of various sizes within or adjacent to the site that require removal as they lie within the footprint of the new building, including a Chinese Hackberry (which has been given a high landscape significance), three Brush boxes (moderate significance), two Spotted Gum (low significance), one Magenta Brush Cherry (low significance) and a Moreton Bay Fig Tree (Moderate Significance).

The most significant of trees adjacent to the site, being the row of Moreton Bay Figs along the City Road frontage, which have been given a Very High Landscape Significance, will all be retained. An

Arboricultural Impact Assessment has been provided by Tree IQ which is contained within **Appendix I** of this report

6.5 TRANSPORT AND ACCESSIBILITY

As part of this EIS, a Transport and Accessibility Assessment has been prepared by GTA which has had regard to the SEARs. In summary, it is concluded that the proposed LEES 1 building will not adversely affect the existing traffic, transport, pedestrian and cycling facilities and services surrounding the University and the LEES 1 building site.

6.5.1 PUBLIC TRANSPORT

The University and the LEES 1 building site are well connected with existing public transport. Redfern Railway Station is located a 10-minute walk (1km) south-east of the subject site. The station is serviced by all suburban train lines that operate from the Sydney CBD as well as the intercity lines to Central Coast, Newcastle, Blue Mountains and South Coast.

Sydney Buses operate nine services along City Road, including six regular services, two limited stops services and one metro service. Bus stops located on City Road between the Fisher Road and Barff Road intersections.

The services link the site with the Inner South-East, Inner Western, South-Western Sydney suburbs as well as the Sydney CBD. A further 12 services are available along Parramatta Road linking the site with the Inner West, South-West, Eastern Suburbs and Sydney CBD.

The existing bus stops along City Road will be retained as part of the project.

6.5.2 ACTIVE TRANSPORT

Pedestrian and cycle activity is primarily focused on the Eastern Avenue frontage of the site. Pedestrian and cycle flows along Barff Road and past the loading dock are very low (insignificant) and thus unaffected by the proposal.

Internal vertical bike storage areas are provided on level 2 and bicycle lockers are provided on levels 2-4 in conjunction with the common facilities.

We also note that in 2014 the University has a adopted a Sustainable Transport and Mobility Plan (STAMP). This seeks to increase the uptake of active and public transport options by the University's students and staff of the Camperdown and Darlington campuses. The STAMP complements the CIP which aims to improve Campus liveability, accessibility and connectivity by providing students and staff with economic choices and incentives to adopt more sustainable travel modes. It is also consistent with the University's 2015 Environmental Sustainability Policy's objective to promote sustainable transport.

6.5.3 TRAFFIC IMPACTS

The proposed development will not alter the existing provision of on-site parking nor the traffic generated by the University overall.

There may be a very small increase in traffic using the loading dock (perhaps 1/2 per hour) but this will be sufficiently small as to be imperceptible in terms of traffic capacity and operation.

Furthermore the proposal will facilitate a relocation of existing University populations to a central location, namely the LEES 1 Building, and as such not change existing travel demands of the University.

Therefore the existing operation of the surrounding road network, public transport services and pedestrian / cycle linkages will remain unchanged by the proposed project.

6.5.4 PARKING

Car parking is not proposed as part of the proposal. As described throughout this EIS, no parking is currently provided as part of the Carslaw Building nor is there intended to be any increase in student or staff capacity.

It should also be noted that City of Sydney's parking requirements are a maximum not a minimum provision and that the provision of no parking on site, particularly as the site is within close proximity to public transport connections. This is consistent with promoting the use of public and alternative modes of transport.

6.5.5 SERVICING

The existing Carslaw Building loading dock was surveyed to determine the type and frequency of vehicles accessing the loading dock. Typically duration of stay varied between 5 – 15 minutes.

The frequency of deliveries and the type of delivery movements is not expected to change significantly as a result of the proposed development.

Notwithstanding the above, the provision of a second loading dock bay as proposed will allow two vehicles to park simultaneously should there be a need and thereby minimise the potential implications to traffic flows (albeit low) along Barff Road.

The provision of second loading bay is so as to provide better operation of the loading dock but it is not anticipated that the number of vehicles would increase significantly.

Any small increase in traffic volumes using the loading dock (perhaps 1/2 vehicles per hour) will be sufficiently small as to be imperceptible in terms of traffic capacity and operation.

The swept path of the larger service vehicle (i.e. the HRV) entering the loading dock, manoeuvring and then leaving is shown at Appendix A of the Traffic Report and is considered to be acceptable.

6.6 ECOLOGICAL SUSTAINABLE DEVELOPMENT

The SEARS stipulate that the EIS must detail how Ecologically Sustainable Development (ESD) principles defined in Clause 7(4) of Schedule 2 of the *Environmental Planning and Assessment Regulation* 2000 (EPAR 2000) will be incorporated in the design, future construction and ongoing operation of the University.

An ESD Report has been prepared by JHA Consulting Engineers (refer **Appendix O**) to identify and summarise the proposed Ecologically Sustainable Development (ESD) initiatives which have been incorporated into the design of the proposed LEES1 development at the University of Sydney.

The ESD report demonstrates compliance with the SEARS, which apply to the project and has been prepared to accompany this SSDA. The building has been rated against the University of Sydney's Sustainability Framework (Version 2). This report should be read in conjunction with the Architectural design drawings and other consultant design reports submitted as part of the application. The University proposes a number of ESD initiatives include (amongst others) water efficient services and investigation into water harvesting, energy efficiency measures such as incorporation of a solar PV system on the roof, promotion of active transport and public transport usage, discouraging the use of cars, passive design principles to create a more energy efficient building, use of recycled materials and incorporation of a number of design features to create a healthy and comforting environment to work, learn and connect.

6.6.1 THE PRECAUTIONARY PRINCIPLE

This project is being designed and rated under the University of Sydney's proprietary Sustainable Design Framework rather than pursuing a Green Star rating. The University's ESD commitments are embodied in its Sustainability Framework and University Design Standards, which include environmental performance requirements that will apply to the development. The University of Sydney Sustainable Design Framework is a holistic rating scheme looking at a wide range of environmental, social and operational values. It has many similarities to the widely adopted industry standard Green Star rating scheme, but tailored specifically to suit the requirements of new University developments

The aim of the framework is to encourage a balanced approach to designing new university projects; to be resource efficient, cost-effective in construction and operation, and deliver enhanced sustainability benefits with respect to impact on the environment, the health and well-being of students, staff and visitors whilst providing the best possible facilities for a constructive learning experience.

The framework assesses the sustainability initiatives of each project against criteria in the following categories:

- Leadership and Communication
- Resource Efficiency
- Healthy Environment
- Materials
- Climate Change, Landscape and Infrastructure
- Sustainable Transport

The project team has a developed a design which is capable of achieving a Silver rating under this framework. The project team believes this target provides a cost-effective building solution with high quality sustainability outcomes, resulting in value for money for the University of Sydney.

The ESD Report summarises the sustainability initiatives selected for LEES1 in each of the above framework categories and outline how they have been implemented. A list of all the framework initiatives targeted is also included in Appendix A of the ESD Report. JHA Consulting Engineers have also prepared a table which outlines where the sustainability initiatives which have been incorporated into this project are recognised by the Green Star Design and As-Built V1.1 tool.

6.6.2 CONSERVATION OF BIOLOGICAL DIVERSITY AND ECOLOGICAL INTEGRITY

This development is proposed on vacant area of land adjacent a main road, in an urban environment at the front entrance to the University Campus. It currently consists of a grassed area and a row of established mature fig trees lining City Road. These fig trees are to remain as part of the development and will not be harmed. The design of the new building will be aesthetically pleasing and will provide a new and attractive gateway to the campus from the City Road entrance. This is a substantial improvement to the amenity and appearance of the site, and with minimal biological and ecological impacts other than the loss of a small area of grass.

6.6.3 INTER GENERATIONAL EQUITY

This development will not cause any significant impact on the health, diversity and productivity of the environment and will provide benefits for future generations through the provision of a state of the art teaching and research laboratory facility for the life, environment and earth sciences disciplines.

6.6.4 IMPROVED VALUATION, PRICING AND INCENTIVE MECHANISMS

The design of this development has employed lifecycle costing to determine the optimum strategy with regards to major items of plant, with decisions being made based on whole of life costs rather than capital expenditure only.

The cost of infrastructure and measures to ensure an appropriate level of environmental performance on the site has been incorporated into the cost of development. These measures have been incorporated into the cost of the development detailed in the Quantity Surveyors estimate of CIV at **Appendix M**.

6.7 HERITAGE

The University of Sydney is well recognised as place of heritage significance and has been subject to a number of heritage and archaeological studies. The University of Sydney Grounds Conservation Management Plan (CMP 2015) is the key document that guides the future management of heritage resources within the University grounds. As part of this EIS, a Heritage Impact Statement (HIS) has been prepared by Ian Kelly Heritage Consultant, which has regard to the CMP 2015 and other associated heritage documents.

The University of Sydney site contains several locally listed heritage items identified in SLEP 2012. In accordance with the SEARs, the HIS has specifically considered the accumulative material effect of the proposed development (with the proposed F23 building) on the significance of the University of Sydney and its conservation area (C8), St Paul's College (I52) and Victoria Park (I39). The impacts on each of these locally listed heritage items are discussed in detail below:

- **Victoria Park** (Item 139 under SLEP 2012: This listing also covers Gardener's Lodge and its interior, entry gates and piers, park layout, paths and plantings). Victoria Park is located immediately to the east of the site on the opposite side of Barff Road and has been attributed high significance in the HIS. The HIS concludes that the proposed new building will have a minimal physical and visual impact on the overall heritage significance of Victoria Park.

- **St Paul's College and Oval** (Item 152 under SLEP 2012): This item is located on Camperdown Campus, City Road, south west of the development site and has been attributed high significance in the HIS. The row of mature, heritage listed, trees along the Fisher Road boundary and the proposed Administrative Building (F23) will screen all views of the proposed new LEES 1 building from St Paul's College. There are therefore no adverse heritage impacts on this item.

- The development site is also located within proximity to **Gatekeepers Lodge** (Heritage Item 153 under SLEP 2012. This listing covers all the nineteenth century sandstone and iron palisade fencing and gates on the western side of City Road between Victoria Park and Moore College). The Gatekeepers Lodge is located on adjacent land and within the visual curtilage of the development site and has been attributed high significance in the HIS. Due to the distance between the Gatekeeper's Lodge and Gates and the proposed development, the new LEES 1 Building will have a minimal physical and visual impact on the heritage significance of the Gatekeeper's Lodge and Gates. Further the HIS concludes that the proposed development will not have any adverse impact on the heritage significance of this section of the City Road palisade boundary fence.

- **Significant Landscape**: The University Grounds Conservation Management Plan (2015) identified the Significant Trees and Types of Open Spaces and Landscapes across the University campus. The row of Ficus macrophylla (Moreton Bay Fig) trees along the City Road boundary are ranked as having High significance. As stated throughout this EIS, the proposed development has been designed to have minimal physical impact on these four trees and the Arboricultural Impact Assessment prepared by Tree IQ concludes the proposed works will not impact the health or Useful Life Expectancy of the trees. The SEARs also requires reference to the Sydney University Concept Landscape Plan. At the time the Clouston Landscape Concept Plan (2014) was prepared the University did not contemplate the proposed site as being a "development site" and therefore the landscape plan proposed to retain the existing use of the site as an "expansive public domain". Whilst the proposed development and its associated landscaping reflects a shift from the Clouston Landscape Concept Plan (2014), this space is rarely used by staff and students and has not functioned as genuine public domain space.

- **Eastern Avenue View Corridor**: The HIS concludes that the visual impact of the projection of Levels 5, 6, 7 & 8 into the southern Eastern Avenue view corridor is relatively minor and can be approved. This is discussed in further detail in Sections 6.1 and 6.2 above.

The conclusion of this HIS is as follows:

> With reference to the issued identified in the SEARS the HIS concludes the following:
>
> <u>i) Adjacent heritage items:</u>
>
> *The impact of the proposed Carslaw Building Extension (F07)* (ie the LEES 1 building) *on the cultural significance of the adjacent heritage items, including City Road palisade boundary fence; Victoria Park; City Road Vehicular Gates; former Gatekeeper's Lodge and Gates; St Paul's College Oval; Madsen Building; and Carslaw Building is generally acceptable.*
>
> <u>ii) Cultural landscape of the University campus, St Paul's College and Victoria Park:</u>
>
> *The impact of the proposed Carslaw Building Extension (F07)* (ie the LEES 1 building) *on the cultural landscape of the University campus, St Paul's College and Victoria Park is generally acceptable.*

iii) Potential archaeological relics and Aboriginal cultural heritage values:

The likely impact of the proposed Carslaw Building Extension (F07) (ie the LEES 1 building) *on potential archaeological relics is low and the identified Aboriginal cultural heritage values are not associated with the subject site (refer to p.51, University of Sydney Buildings Aboriginal Heritage Due Diligence Report, prepared by GML Heritage (September 2015).*

iv) Significant view corridors:

Taking into account the position of the F07 building (ie the LEES 1 building) *anchoring the City Road end of Eastern Avenue; the width of Eastern Avenue; and the continuation of the view corridor across City Road to the Darlington campus buildings, the visual impact of the projection of Levels 5, 6, 7 & 8 into the southern Eastern Avenue view corridor is considered to be relatively minor and. therefore, acceptable.*

The subsequent recommendation of the HIS was as follows:

The proposed Carslaw Building Extension (F07) (ie the LEES 1 building) *has a minimal impact on the overall heritage significance of the University of Sydney campus and, therefore, could be approved.*

As part of ongoing consultation on this issue, further specialist advice and design input has been sought from Howard Tanner, Specialist Heritage Consultant. Mr Tanner's assessment has identified that a design that involves a straight edge on Eastern Avenue is potentially dull, and a well-designed upper level projection may prove contributory.

6.8 ABORIGINAL HERITAGE

The land on which the University of Sydney is located within the traditional land of the Cadigal people. There are no detailed descriptions of the vegetation and animal communities that inhabited this district, nor has any archaeological evidence relating to pre-colonial Aboriginal occupation or use of the area been found within the University grounds.

A desktop search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 10 July 2015.The search adopted a 50 metre buffer to identify:

- information about Aboriginal objects that have been reported to the Director General, Department of Premier and Cabinet;
- information about Aboriginal Places which have been declared by the Minister for the Environment to have special significance with respect to Aboriginal culture; and
- archaeological reports.

The AHIM report was obtained that indicates there are no registrations or known artefacts or objects on the site. Refer to Appendix C for a copy of the AHIMS report.

There are no statutory heritage listings that identify any indigenous archaeological relics or archaeological sites within the University of Sydney campus. Furthermore, Aboriginal heritage assessments prepared over the past decade for the university campus in general and for specific work sites, have concluded that no archaeological sites or artefacts relating to Aboriginal occupation have been found within the University grounds.

The Aboriginal Heritage Due Diligence Report (AHDDR), prepared by GML Heritage (September 2015), concludes:

"As all three precincts (A02, F07 and F23) are identified as having very low to no potential to retain Aboriginal archaeological deposits and/or objects, it is the finding of this assessment that Aboriginal objects are unlikely to be present and thus would not be impacted by the proposed work." (AHDDR, p.43.)

The AHDDR also reports:

> *"No specific [cultural heritage] values were identified that were associated with the study area." (AHDDR Appendix A, p.9.)*

6.8.1 ABORIGINAL AND NON-ABORIGINAL ARCHAEOLOGY

Over the past decade a number of archaeological reports have also been prepared for the University campus, both in general and for specific work sites. Based on these previous reports, and given the amount of development that has occurred at the place, the University of Sydney Grounds Conservation Management Plan (GCMP, 2015), and additional material prepared by Circle Square Design concluded "*the potential for archaeology, either Aboriginal or European, is considered to be low*." (GCMP, p.120)

However, there a number of areas within the University grounds which, because they have remained generally undisturbed, are regarded as being archaeologically sensitive. These areas are primarily ovals and playing fields, none of which are impacted by the proposed development.

6.8.2 ABORIGINAL CULTURAL HERITAGE VALUES

An Aboriginal Heritage Impact Assessment Report (AHIA) prepared by Archaeological & Heritage Management Solutions (AHMS) in February 2016, and is also included within the suite of reports in Appendix K, addresses the requirements to identify any known items and places of Aboriginal cultural heritage value within the University of Sydney, the likelihood of unknown Aboriginal objects being present and areas of key risk. The primary focus of the report is the six CIP precincts, but noted in the Executive Summary it also considers the wider Camperdown and Darlington campuses, especially in relation to the identification of cultural values through discussions with the Aboriginal stakeholders.

The report documents the results of the cultural values identified through liaison with Registered Aboriginal Parties (RAPs) and the local Aboriginal community as follows:

> *"consultation with the Aboriginal community identified six (6) places retaining cultural values with the subject area. These include the Macleay Museum, Shellshear Museum (in the Anderson Stewart building), Mackie Building, the Quad, the Koori Centre, the Sports Ovals and the University entrances." (AHIA, p.7.)*

With regard to potential Aboriginal heritage impact, the AHIA concludes no areas identified as having cultural values would be directly or indirectly affected by the proposed development." (AHIA, p.7.)

6.9 EXCAVATION AND GEOTECHNICAL IMPACTS

Geotechnical Report has been prepared by Douglas Partners and holders included at **Appendix Q**. The project involves the construction of an 8-level building extension with excavation to create one basement level on the southern side of the existing Carslaw Building. The basement level at RL 30.71 will be located approximately 1.5 m below Carslaw Building level 1. Geotechnical investigation was undertaken to provide information on the subsurface conditions on the site and included the drilling of boreholes, laboratory testing and engineering analysis. The report found that:

- The site is underlain by Ashfield Shale of the Wianamatta Group which typically comprises black to dark grey shale and laminate.
- The subsurface conditions encountered in the boreholes can be summarised as:
  - FILLING – silty clay with some gravel to depths of between 0.4 and 1.3 m. Bores 7 and 9 also had a foot path over the top of the filling;
  - SILTY CLAY / SHALY CLAY – generally stiff silty to very stiff clay to depths of between 2.0m and 4.0 m;
  - ROCK – initially extremely low and very low strength laminate or shale. The rock strength increased with depth with medium or high strength rock encountered at depths of between 4.1 m and 7.0 m.

- Free groundwater was not observed in any of the bores while augering. The use of drilling fluid prevented groundwater observations during rotary wash-boring and coring.

The report concludes that the geotechnical issues that may be relevant to the proposed development include excavation, excavation support, groundwater, foundations and Seismic Design.

The report provides recommendations on construction methodology to enable the required excavation and fill to support the proposed structures. This information has informed the design and construction proposed on the site as part of this proposal.

6.10 CONSTRUCTION IMPACTS

A Construction Management Plan (CMP) has been prepared by Richard Crookes Constructions and is included at **Appendix U**. Demolition and construction will be undertaken in manner to minimise. Mitigating measures will include:

- Site hoardings and temporary fences placement around the site to minimise dust pollution;
- Installation of a catch desk above the existing walkway bridge over City Road where it will be impacted by construction to provide overhead protection
- Providing notice to University stakeholders (students and staff) and any applicable neighbouring residents of scheduled noisy activities or activity that may impact their operations;
- Compile Dilapidation Reports of all adjoining facilities.
- Monitor Noise, Dust and Vibration impacts during construction in accordance with the Construction Noise and Vibration Management Plan prepared by Acoustic Studio and implement management strategies to remove risk if it arises.
- Dust will be controlled through water suppression and through compliance with the Construction Noise and Vibration Management Plan prepared by Acoustic Studio.
- If any hazardous material is encountered on site, undertake a hazardous material assessment to define removal and disposal methods.
- Management of waste materials granted throughout the entire construction process in accordance with a Waste Management Plan.
- Implementation of a soil and erosion control measures in accordance with Concept Sediment and Erosion Control Plan prepared by Northrop;
- Construction routes will be regularly cleaned and hosed down to reduce impact of dust from demolition and construction work;
- Safe public access routes will be maintained for pedestrian.

The CMP also details the proposed management of traffic during the construction phases, including the type of constructing vehicles, crane and hoisting handling, material handling, access arrangements and traffic control.

Parking demand associated with construction workers will be managed though the promotion of public transport usage, encouragement of carpooling and provision of a temporary material drop off work area.

6.10.1 CONSTRUCTION NOISE AND VIBRATION

The Construction Management Plan is accompanied by a Construction Noise and Vibration Report prepared by Acoustic Studio included at **Appendix T** Continuous construction noise and vibration associated with earthworks, excavation and new-build works shall comply with stated criteria for nearest residential and educational receivers. However, there will be times/situations when works are likely to exceed the stated criteria, particularly when works occur in the areas closer to sensitive receivers or with direct view between receivers and the works.

If, during construction works, an item of equipment exceeds the stated airborne noise and/or vibration criteria at any sensitive location, the additional noise/vibration control measures presented in Section 8.3 of the Acoustic Report, together with construction best practices, shall be considered to minimise noise and vibration impacts on the sensitive receivers.

6.11 UTILITIES

6.11.1 WATER, GAS AND SEWER

Once the SSD application is made an application will be made to Sydney Water requesting their assessments on the infrastructure and whether a new connection may be made.

Interim, the building will connect to existing Sydney university infrastructure, Water and Gas services connection along Eastern Ave and Sewer connection along Barff Road.

6.11.2 POWER

A new surface chamber substation is proposed to be developed immediately adjacent to the proposed LEES1 development in the basement level of the existing Carslaw Building along Barff Road. This will provide electrical power to the LEES1 precinct, as well as surrounding structures, including buildings F07 (Carslaw Building), F09, F19, and F23.

The overall electrical supply capacity of this new substation shall be 4.5MVA (6000A). The electrical maximum demand for the LEES1 facility as is presently predicted will be 2500A. This value is expected to reduce as the electrical design is further refined.

An application for connection to the Ausgrid network has been submitted, and receipt of a design information package is pending. The expected lead time of the completion of the substation design is approximately six (6) months from the time of writing.

6.12 BUILDING CODE OF AUSTRALIA AND STRUCTURAL DESIGN

An assessment of the proposed works relative to the Deemed-to-Satisfy provisions of the BCA and the Accessibility standards have been undertaken by Blackett and Maguire Goldsmith can be provided if necessary

The BCA Report concludes that the development is capable of compliance with the relevant performance standards of the BCA. Further any matters that require amendments for BCA compliance can be adequately addressed in the preparation of the Crown Certification documentation without giving rise to any inconsistencies with the approved plans.

Northrop has been engaged as structural engineer for the LEES1 building and has provided a structural report of **Appendix V**. With Richard Crookes and the design team, Northrop has provided structural advice to allow the development of the scheme which is reflected in architectural DA documentation. In summary, Northrop confirm that the building shown in SSD application documentation prepared by HDR Rice Daubney, incorporates Northrop's structural requirements and a scheme compliant with the BCA and relevant referenced documents can be developed from this scheme.

7 Contributions

The University are seeking an exemption under section 2.14 of the Sydney Contributions Plan 2006 provisions from the collection of section 94 contributions in relation to the project. The University's position in relation to the payment of contributions has been made clear in previous submissions, being that no contributions should be paid having regard to the following reasons:

Clause 226(1) of the *Environmental Planning & Assessment Act Regulation 2000* (the Regulations) provides that a development carried out by an Australian University (under the meaning of the *Higher Education Act 2001*) is a Crown development. The University is listed as an Australian University under Schedule 1 of the *Higher Education Act 2001*. Consequently this DA is a Crown development for the purposes of Division 4 of the *Environmental Planning & Assessment Act* 1979 (the Act).

The Development Contribution Plan 2006

The City of Sydney adopted the *City of Sydney Development Contribution Plan 2006* (DC Plan) in 2007, and which was updated on 7 June 2009, as the basis for levying contributions on development under Section 94 of the Act. The DC Plan applies to areas surrounding the Sydney CBD, and contains work programs and contribution rates for three Precincts. The Sydney University Campus falls in the Western Precinct of the City of Sydney DC Plan.

The contribution rates for components of the levy in the Western Precinct are given in the following table. These figures are subject to indexation.

Western Precinct Summary Contributions Rates (from 7 June 2009)

Contribution Type	Per Resident	Per Worker	Bedsits and One Bedroom dwellings	Two Bedroom Dwellings	Three or more Bedroom Dwellings	Residents of a Non-Private Dwelling*
Community Facilities	$ 388.18	$ 77.64	$ 504.63	$ 737.54	$ 1,009.26	$ 138.69
Public Domain	$ 748.45	$149.69	$ 972.98	$ 1,422.05	$ 1,945.96	$ 748.45
New Open Space	$ 6,144.52	$ 1,228.90	$7,987.88	$ 11,674.60	$ 15,975.76	$ 6,144.52
Accessibility	$ 61.43	$ 12.29	$ 79.86	$ 116.72	$ 159.72	$ 61.43
Management	$ 66.42	$ 13.28	$ 86.35	$ 126.20	$ 172.69	$ 66.42
Total	$ 7,409.00	$ 1,481.80	$ 9,631.70	$ 14,077.11	$ 19,263.39	$ 7,159.51

*Residents of a Non-Private Dwelling are not charged for Childcare.

Sections 2.8 – 2.14 of the DC Plan deals with issues associated with exemptions from development contributions. Council's intention is to levy, by a condition of development consent, all development in the area covered by the plan "*which creates the potential for a nett increase in the population and, therefore, the potential demand for the use of the amenities, facilities and services, which Council provides".* The contribution rates are based on the number of 'equivalent' residents and workers created by development.

Section 2.13 deals with the policy on development contributions by the Crown. The DC Plan explicitly provides that development contributions can be waived for Crown and private development based on a merit assessment. The types of developments that may be considered for an exemption include:

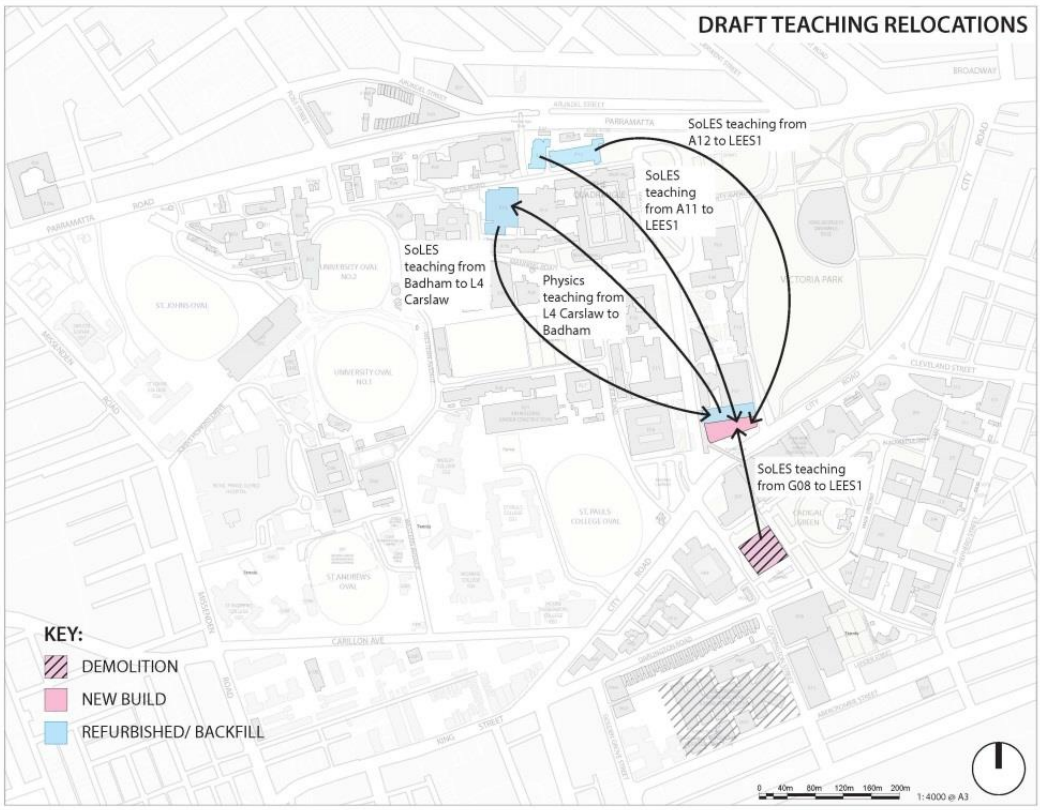
- Developments which provide a distinct community benefit on a not-for-profit basis;
- Development by or for non-profit organisations which provide a distinct community development;
- Alterations and additions to an existing residential development;
- Residential development on vacant land where the immediate prior use of the land had not been for non-residential purposes; and
- Conversion of a "dwelling" type of building to residential from a commercial use.

Given the proposed development by the University constitutes development by a non-profit organisation which provides a distinct community benefit through *educational establishment* facilities and services, the proposed development therefore qualifies for exemption from the DC Plan.

University consolidation strategy:

The DC Plan applies to the impact of additional residents and workers, but makes no reference to students. No nexus has been sought or established for any demand for community facilities required by students. Furthermore, the proposed building does not contain any residential component. Accordingly, a contribution per resident is not applicable. The proposed development will utilise and relocate existing University administrative staff and students within the Camperdown-Darlington campus to this new consolidated building.

FIGURE 21 – LEES – RELOCATION WITHIN CAMPUS



Exemption from contributions is also supported by Planning Circular (Circular D6) relating to Crown Development Applications. The Circular (from 1995) is referenced in the Department's draft Development Contributions Guidelines 2009 as providing the 'current limitations on the imposition of development contributions on public sector developments'. The Circular provides a guide to Councils and Crown agencies as to which categories of section 94 contributions are applicable to Crown Developments stating that:

> *"Crown activities providing a public service of facility lead to significant benefits for the public in terms of essential community services and employment opportunities. Therefore, it is important that these essential community services are not delayed by unnecessary disputes over conditions of consent. These activities are not likely to require the provision of public services and amenities in the same way as developments undertaken with a commercial objective"*

The project involves the delivery of public infrastructure by the Crown. Such development is one of the express exemptions under both the Contributions Plans identified (i.e.*'…other public infrastructure approved by the Minister*');

The University has a public character and is open to the public as a non-gated, accessible and permeable precinct which presently provides a number of material public benefits such as sports facilities (e.g. pools), open space, libraries, cultural spaces and venues, and retail outlets;

The University is not a developer and is a not-for-profit public institution which relies on significant grants, donations, and external funding to provide new facilities for both the University community, and the wider community at large;

The levying of contributions on projects that are funded by external sources including Commonwealth Government grants is simply diverting a portion of funds for an educational purpose to local services without any direct nexus to the development; and

It is unreasonable to require the University to pay development contributions which will have the effect of directly reducing the amount that the University can spend on public infrastructure and facilities;

The University provides a wide range of social, cultural, and recreational public benefits and contributions to LGA and its resident and worker population, in addition to the subject development.

Importantly, the project does not increase the capacity of the site or its ongoing use. The development seeks to consolidate existing activities spread out across the Camperdown Campus, resulting in a no population “nett increase” to warrant the collection of section 94 contributions to offset increased demand of local services or infrastructure.

The University of Sydney, along with other Universities across NSW, have taken up this matter at a broader and strategic level through the NSW Vice Chancellors’ Committee given this issue is common across many University jurisdictions. This has resulted in the drafting of a sector-wide position paper which has recently been issued to the Minister for Planning and DPE’s Infrastructure Taskforce.

8 Consultation

Consultation was undertaken throughout the design development process. In particular the University sought to consult with the immediately surrounding landowners, local community groups, relevant agencies and internal user-groups and stakeholders. A consultation strategy was developed to support the proposal and responded to the requirements of the SEARs.

8.1 COMMUNITY CONSULTATION AND ENGAGEMENT

The LEES 1 development site is located within and surrounded by landholding held in the ownership of the University of Sydney. As there are no immediately adjacent sensitive receivers likely to be directly affected by the construction process or ongoing operation the University nevertheless adopted a targeted community engagement program identifying and approaching key local community groups and government authorities and agencies.

8.1.1 INVITATION AND PROMOTION OF EVENT

The University held a community information session on Tuesday 8 December , 2015 at 6pm to provide local community members and organisations with the opportunity to find out about the University's vision for both the F23 Administration Building and the LEES 1 Carslaw Building Extension projects, as the University considered that due to the close proximity of these buildings in such a high profile location it needed to demonstrate how the buildings would relate to each other and the surrounding environment.

Invitations to attend the meeting were emailed on the 30 November, 2015 to the following community groups;

- Residents Acting in Defence of Darlington (RAIDD)
- REDWatch
- Chippendale Residents Action Group
- Coalition of Glebe Groups
- East Chippendale Community Group
- Forest Lodge and Glebe Coordination Group
- Glebe Community Action Group
- The Glebe Society Inc.

8.1.2 INFORMATION SESSION ATTENDANCE AND AGENDA

Three (3) representatives attended the Community Information Session. This included a representative from REDWatch, The Glebe Society Inc. and a local resident.

The University's project team in attendance included the University's Director of Planning (Mr. Stephane Kerr), LEES 1 Project Director (Mr. Glen Nicolson) Senior Project Manager (Mr. Drew Bagnall) and Community Engagement Manager (Ms. Julie Parsons).

A PowerPoint presentation was prepared and displayed that provided, context and details of the project known to date and a Question and Answer session also formed part of this agenda.

8.1.3 LETTERBOX DROP

On 1 December 2015 a letter box drop was conducted by the University to all residents and businesses (occupants and land-owners) along Abercrombie and Darlington Streets.

8.1.4 DISCUSSION POINTS

The response to this early consultation event from the participants revealed that there was general interest and in-principle support for the projects and that they would like to be kept informed of progress. The University has received no further enquiries regarding these projects.

8.2 AUTHORITY CONSULATION AND ENGAGEMENT

The SEARs required for consultation to occur with various parties during the preparation of the EIS and the development of the scheme.

- City of Sydney Council;
- Transport for NSW
- Roads and Maritime Services (RMS); and
- Heritage Council.

Following the original design competition (awarded to Warren and Mahoney Architects), this 'reference scheme' which involved proposals for both the F23 and LEES 1 sites was discussed and presented to various parties through mid-2015 and 2016 including the Heritage Council, the City of Sydney Council and the Department of Planning and Environment. This included the application for SEARs.

Further analysis was then conducted by the University in respect of an overall urban design solution for the City Road gateway to the Campus. This is further discussed in the Urban Design Report contained within **Appendix D** of this Report. This analysis allowed further design-development, including design amendments sought by Government agencies, and improvement of the reference scheme. This ultimately resulted in awarding HDR Rice Daubney the project. Over the past 4 months, authorities have been consulted on the refined scheme and the design-development process has continued over this time.

The following table provides a summary of the key issues raised throughout the consultation to date, and how the proposal has responded and evolved to address these issues.

ISSUE	RESPONSE
The Heritage Office raised concerns about an initial proposal for a proposed footbridge spanning across Eastern Avenue.	This footbridge has been removed from the scheme.
While initially identifying the encroachment of the western elevation of the LEES 1 building (into the Eastern Avenue alignment established by the Carslaw Building to the north), later and more recent consultations with the Heritage Office have identified an acceptance in principle of the cantilever design solution. The more recent comment on this matter is the proportion of such a cantilever design (ie is it appropriate as is, or should it be more than 3 floors)	The cantilever solution and the appropriate proportion of the cantilever has recently been independently reviewed by Specialist Heritage Consultant Howard Tanner. Mr Tanner's assessment has identified that a design that involves a straight edge on Eastern Avenue is potentially dull, and a well-designed upper level projection may prove contributory. Further design perspectives and analysis has been included with this EIS (refer to the Architectural Design Report within **Appendix E** to address this). It is considered the proportion of the cantilever provides a strong and appropriate emphasis to the building, inclusive of its roles as defining this campus entrance point and framing Eastern Avenue.

	In addition, design-development consultation has been agreed between the University and the Heritage Office during the formal application assessment process.
Questions were raised by the Heritage Office in relation to materials and finishes of the building.	Further information in relation to materials and finishes has now been included within the Architectural Design Report (**Appendix E**) accompanying this application.
City Council complemented the further resolution of the architectural design of both proposed buildings (F23 and LEES 1) and their presentation to City Road.	Further design information, perspectives and materials selection have been included with Architectural Design Report (**Appendix E**) forming part of this EIS showing the full resolution of these buildings.
City Council requested exploration of whether the building could be 'pushed' toward the east to allow complete alignment with the existing Carslaw alignment on Eastern Avenue.	This matter has been considered and given functional issues such as the internal spatial requirements of the building, the need to retain the existing loading dock areas and allow appropriate spacing for the sub-station, it is not possible to re-design this building in the manner suggested. The issue of potential impacts on views along Eastern Avenue, of the historical alignment of this Avenue and also of impacts on heritage buildings within the vicinity have all been carefully considered. On balance (and recognising that this is not just confined to a heritage issue), it is considered the proposed design solution is acceptable. Further, the proposed design solution assists in defining the urban square within the forecourt of the City Road entrance to the Campus and (along with the proposed F23 building) frames the Eastern Avenue view.
City Council enquired about the possible use of sandstone material as part of the scheme.	This matter was clarified as part of the relevant meeting with the City Council. There has been a clear intention to provide a contemporary finish to this building. Details of finishes and materials are contained within the Architectural Design Report (**Appendix E**).
No substantive issues were raised by the RMS as part of consultation with them.	Information regarding managing internal traffic, access to the building are included within this EIS for the information of the RMS.

8.3 INTERNAL STAKEHOLDER CONSULTATION

In addition to the above, the University has also conducted presentations and workshops across the relevant University faculties and schools that are primarily affected by the proposed projects including:

- Faculty of Sciences and Associated Schools

Feedback from these parties has been developed into the project brief, and all relevant parties have formed part of the University's project control group, which has helped refine the design and spatial development with the selected architect.

8.4 PUBLIC EXHIBITION

In accordance with the EPAR 2000, the EIS will be placed on formal public exhibition and following this exhibition period, the applicant will provide a response to all the matters raised.

9 Section 79C Assessment

The proposed development has been assessed in accordance with the matters of consideration listed in Section 79C of the *Environmental Planning and Assessment Act 1979* as outlined below:

TABLE 6 – SECTION 79C ASSESSMENT

CONSIDERATION	COMMENT
Environmental Planning Instrument	State and Local Environmental Planning Instruments have been assessed in Section 5.
Draft Environmental Planning Instruments	There are no relevant Draft Environmental Planning Instruments applicable to this application.
Development Control Plans	The proposed development has been assessed against the Sydney Development Control Plan 2012 in Section 5..
Any Matters Prescribed by the Regulations	This EIS has been prepared in accordance with Sections 6 and 7 of Part 3 of the *Environmental Planning and Assessment Regulation 2000*.
Likely Impacts of the Development	An impact and risk assessment has been provided in Section 6 of this report. Mitigation measures to the risks and impacts identified within Section 5 and the relevant Appendices are summarised in Section 10.
Suitability of the Site	The existing University site is entirely suitable for the development of an new science education and research facility as development that is ordinarily incidental or ancillary to an educational establishment as outlined in Section 5
Any Submission made in accordance with this Act or the Regulations	Submissions will be considered following exhibition of the application.
The Public Interest	The development is compliant with the relevant planning instruments and controls. The proposal will not create any adverse significant social, economic or amenity impacts. This project represents a significant opportunity to promote and enhance the University of Sydney as an important place of education and research within the Global Corridor of Metropolitan Sydney.

10 Proposed Mitigating Measures

TABLE 7 – PROPOSED MITIGATING MEASURES

ITEM	MITIGATION MEASURES
Visual impact management	▪ Frame Eastern Avenue with a cantilever at the upper levels to provide a strong design response to this important University entry. ▪ Set back the lower levels of the building (levels 1-4) adjacent to City Road so that they align with the existing Carslaw building to the north (ie fronting Eastern Avenue) to maintain a wider visual opening to the Eastern Avenue view corridor beyond the cantilever element. ▪ Given the prominent location of the LEES1 building on City Road and framing the entry to Eastern Avenue, care has been taken to minimise the visual impact of plant and exhausts. Louvre and grilles for air intakes are carefully located to minimise visual prominence. High quality facade materials are positioned to present to the street and campus views where ever possible. ▪ Site the development below the approved maximum building envelope height of the Wentworth building (under the CIP) so that building heights step down from the newer part of the Campus, across City Road and into the older part of the Campus. ▪ Use a tessellated façade design, with a solid screen edge to provide architectural interest from City Road. ▪ Maintain significant fig trees along City Road to soften and reduce the visual impact of the proposed building.
Heritage management	▪ Siting of the proposed development away from significant fig trees (as proposed) along City Road and other heritage listed building elements.
Tree removal, retention and transplanting	▪ The proposal has been designed to reduce impact on significant vegetation. Notably the proposed building has been setback from City Road to avoid the 4 significant fig trees. ▪ The proposal includes a landscaping strategy which will mitigate the required vegetation loss. ▪ Protective measures will be adopted to ensure that construction work and pruning of canopies of the 4 Fig trees will be done in accordance with the recommendations of the Arborist Report (**Appendix I**).
Traffic and Parking Management	No mitigation measures are required to accommodate traffic generation from the site.
Management of Hazardous and Offensive Goods	▪ Undertake a full risk assessment report within the design development process:

ITEM	MITIGATION MEASURES
	▪ Identify laboratory spaces and confirm design and construction requirements for compliance to AS 2982 and AS 2243.3. ▪ Review user requirements for the laboratory spaces. ▪ Identify procedures and protocols which will be implemented within each laboratory. ▪ Identify laboratories which will use dangerous goods. ▪ Identify chemical classes which will be required within each laboratory space based on user needs. ▪ Review chemical requirements and elucidate maximum allowable chemical storage for compliance to AS 2243.10. ▪ Review gas requirements and elucidate if risk mitigating gas sensors or increased ventilation is required. ▪ Review flammable goods which will be used onsite and identify hazard zones associated with such usage.
Management of Noise impacts	▪ Noise controls will be incorporated within the design of the mechanical plants as outlined in the Noise and Vibration Assessment prepared by Acoustic Studio to ensure that the cumulative noise output from plant at the nearest affected receivers is within the allowable limits. ▪ General design consideration and controls implemented will typically include strategic selection and location of the plant and/or acoustic noise control measures such as enclosures, barriers, acoustic louvers, silencers and sound absorptive panels.
Land contamination management	▪ Implement the Remediation Action Plan at **Appendix Q**
Geotechnical management	▪ The Geotechnical Report at **Appendix Q** makes several recommendations for construction methodology to ensure that the proposal is constructed appropriately for the extent of excavation proposed. The excavation will require the construction of shoring and retaining structures to the west and south.
Construction management	▪ Construction management will be undertaken in accordance with the recommendations of the Construction Management Plan at **Appendix U.** Mitigating measures will include: ▪ Site hoardings and temporary fences placement around the site to minimise dust pollution; ▪ Installation of a catch desk above the existing walkway bridge over City Road where it will be impacted by construction to provide overhead protection ▪ Providing notice to University stakeholders (students and staff) and any applicable neighbouring residents of scheduled noisy activities or activity that may impact their operations; ▪ Compile Dilapidation Reports of all adjoining facilities.

ITEM	MITIGATION MEASURES
	▪ Monitor Noise, Dust and Vibration impacts during construction in accordance with the Construction Noise and Vibration Management Plan prepared by Acoustic Studio and implement management strategies to remove risk if it arises. ▪ Dust will be controlled through water suppression and through compliance with the Construction Noise and Vibration Management Plan prepared by Acoustic Studio. ▪ If any hazardous material is encountered on site, undertake a hazardous material assessment to define removal and disposal methods. ▪ Management of waste materials granted throughout the entire construction process in accordance with a Waste Management Plan. ▪ Implementation of a soil and erosion control measures in accordance with Concept Sediment and Erosion Control Plan prepared by Northrop; ▪ Construction routes will be regularly cleaned and hosed down to reduce impact of dust from demolition and construction work; ▪ Safe public access routes will be maintained for pedestrian. ▪ The CMP also details the proposed management of traffic during the construction phases, including the type of constructing vehicles, crane and hoisting handling, material handling, access arrangements and traffic control.
General Waste and Waste Water Management	▪ Waste will be continued to be managed on site in an environmentally responsible manner and in accordance with legislative requirements and minimising environmental impact. ▪ Centralised waste and recycling bin systems shall be provided and a dedicated storage area for the separation and collection of recyclable waste in accordance University Waste Management Design Standard. These measures shall promote and simplify resource recovery and recycling in the LEES 1 building. ▪ The ESD Report prepared by JHA Consulting Engineers includes an Integrated Water Management Plan. Water consumption shall be reduced by incorporating water efficient fixtures and fittings in accordance with the University Hydraulic Design Standard, minimising water consumption from laboratory equipment and a system for reuse of fire sprinkler system test water. A whole of life/life cycle costing analysis shall been undertaken to assess rainwater harvesting and reuse within the building. ▪ Laboratory equipment water use shall be minimised and water supplies to lab equipment controlled to allow water flow only when equipment is in use. ▪ Lab equipment shall be investigated for recirculating water and savings in cooling and supply flow rates.

ITEM	MITIGATION MEASURES
	▪ As part of a broader Precinct stormwater drainage strategy, the University of Sydney has provided on-site detention (OSD) and Water Sensitive Urban Design (WSUD) treatment measures for the campus area. It is proposed to discharge directly into the existing University of Sydney stormwater drainage network. These Precinct wide provisions cater for the OSD and WSUD of the proposed development site.
Lighting	All external/outdoor lighting components, shall be designed in a manner that is bound by the relevant standards, specifically: ▪ AS 1158.3.1 Part 3.1: Pedestrian Area (Category P) Lighting – Performance and Design Requirements ▪ AS 4282 – Control of the Obtrusive Effects of Outdoor Lighting All luminaries used within the external/outdoor lighting portion shall be designed such that any light spill is highly controlled, particularly in an upward direction. This will be achieved through features designed into the luminaries, or through additional measures as required.
Reflectivity	▪ All glazing used on the southern façade of Levels 5 and above should have a maximum normal specular reflectance of visible light of 11%. ▪ All other glazing used on the external façade of the development should have a maximum normal specular reflectance of visible light of 20%.

11 Conclusion and Justification for the Development

The University of Sydney has a world class reputation in education and research. The new scientific research and teaching facility seeks to build upon the University's objective to upgrade and modernise teaching and research facilities to support the delivery of world class education standards. The building will place "science on display" at the University's front door through a highly transparent façade to City Road. This responds to the University's strategy to engage with the broader community and to attract the best research and industry partners.

The LEES 1 building has been designed to respond to the geometry of the site and the functional requirements of the learning and research spaces. The functional planning for the different teaching and research spaces is quite distinct, and the building reflects this in the proposed mass and articulation, with larger floor plates required for the upper research spaces.

The proposal has been assessed under the relevant statutory planning and policy provisions and the issues identified within the SEARs for this SSDA. It is concluded that the proposal demonstrates that all on-site and off-site impacts have been carefully considered and addressed and is therefore warranted for approval. In particular, the assessment relating to key environmental considerations demonstrate:

- The LEES 1 building has been sensitively designed to mark the juncture between the older and newer part of the campus. Together with the proposed F23 building, located on the opposite corner of Eastern Avenue, the two new buildings will provide a strong definition to the City Road end of Eastern Avenue and will further link the two University campuses (Camperdown Campus and Darlington Campus) so that they appear as one single connected campus.

- The contemporary design of the LEES 1 Building responds to the existing older part of the campus, which is largely defined by horizontal mass buildings that express vertical façade proportions through modulation and openings. Further the building siting, height, scale and mass has been designed to respond to the existing built form and character of the Camperdown Campus and the likely future character and form of the Darlington Campus as dictated by the approved CIP.

- Whilst the upper levels provide a minor cantilever beyond the alignment of existing Carslaw building to the north (fronting Eastern Avenue), the expansive Eastern Avenue view corridor will be preserved. We note that the existing eastern built form alignment on Eastern Avenue was not intended to have a hard continuous edge. This design solution is supported within the HIS (at Appendix K) prepared by Ian Kelly Heritage Consultant, and has been further reviewed and supported by Howard Tanner, Specialist heritage Consultant.

- In particular, a broader analysis needs to be taken Based upon heritage considerations, as well as broader matters of Campus evolution, urban design and urban amenity, it is considered the proposal has minimal impact on the overall heritage significance of the University of Sydney campus and provides a suitable and appropriate design solution for this important entrance location. The proposal assists in framing the Eastern Avenue view-line and defines a new urban square at this important City Road entrance to the Campus.

- On balance, the heritage significance of the broader University of Sydney campus will be maintained along with enhancing the University's heritage as an important place of education and research.

- The proposed development has been designed to maintain and have minimal physical impact on the health or life expectancy of the row of Moreton Bay Fig Trees located along City Road.

- The proposal will not result in any increase in staff numbers or students and will consequently not result in any additional parking requirements. The operations of the existing road network will satisfactorily accommodate expected traffic generation associated with the slight increase in the servicing of the site.

- Potential environmental and amenity impacts are able to be managed through construction, noise, vibration, lighting and wind mitigation management measures.

- ESD principles have been incorporated into the design and the proposal is capable of achieving a silver rating under the University of Sydney's proprietary Sustainable Design Framework.

- This proposal accords with the State, Regional and Local strategic initiatives to promote and enhance education in Sydney and NSW.

Having considered all the relevant matters, we conclude that the proposal will facilitate a sound development outcome that upholds the NSW Government's vision for the site, and is well-worthy of a favourable assessment by the DPE.

Disclaimer

This report is dated May 2016 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltdd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Sydney University (**Instructing Party**) for the purpose of Environmental Impact Statement (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

Appendix A SEARs

Appendix B Site Survey

Appendix C Architectural Plans

Appendix D Urban Design Report

Appendix E

Architectural Design Report (Including Design Refinement Summary)

Appendix F Shadow Diagrams

Appendix G Schedule of Materials and Colours

Appendix H Ecology Report

Appendix I Arboriculture Report

Appendix J Landscape Design Plans and Report

Appendix K Heritage and Archaeology Reports (Aboriginal and Non-Aboriginal)

Appendix L Utilities and Water Management Statement

Appendix M CIV Report

Appendix N Traffic and Transport Impact Statement

Appendix O Ecological Sustainable Development Report

Appendix P Stormwater Management Report and Plans

Appendix Q Geotechnical and Contamination Reports (Including Remediation Action Plan)

Appendix R Wind Report

Appendix S Solar Reflectivity Report

Appendix T Acoustic Report

Appendix U Construction Management Plan

Appendix V Structural Report

Appendix W Preliminary Hazard Analysis

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