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UNSW SYDNEY

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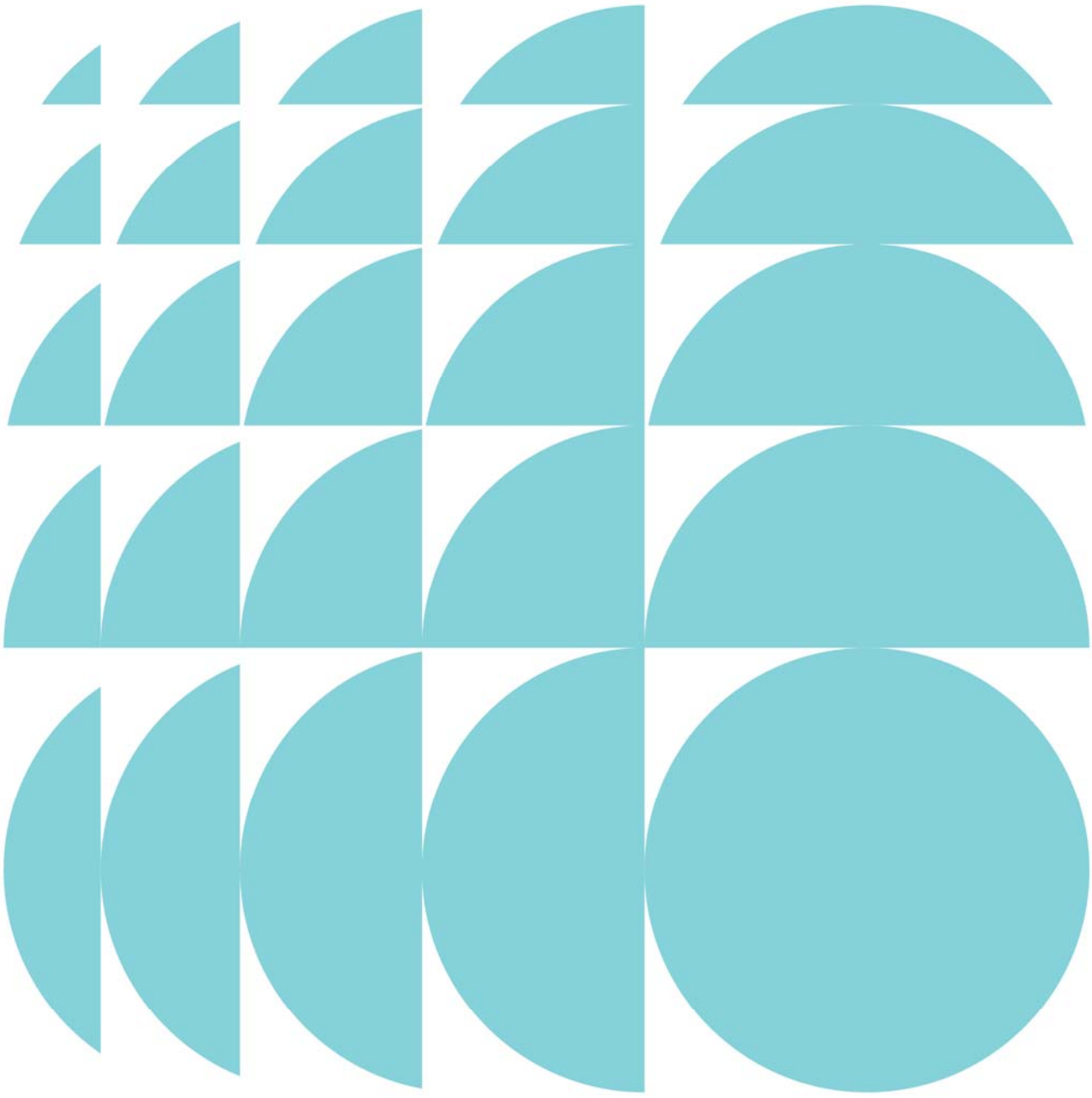
Environmental Impact Statement

UNSW D14 Academic Building, Kensington Campus
State Significant Development (SSD 9606)

Submitted to Department of Planning and Environment
On behalf of The University of New South Wales, Sydney

6 December 2018 | 218568



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Statement of Validity

Development Application Details	
Applicant name	The University of New South Wales
Applicant address	UNSW, Sydney, NSW 2052, Australia
Land to be developed	Building D14, UNSW Kensington Campus
Proposed development	New 8 storey multi-purpose university building, known as the new D14 Academic Building
Prepared by	
Name	Daniel Howard
Qualifications	BPlan (Hons)
Address	173 Sussex Street, Sydney
In respect of	State Significant Development - Development Application
Certification	
	I certify that I have prepared the content of this EIS and to the best of my knowledge: it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000; all available information that is relevant to the environmental assessment of the development to which the statement relates; and the information contained in the statement is neither false nor misleading.
Signature	
Name	Daniel Howard
Date	6 December 2018

Executive Summary

Purpose of this Report

This submission to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to the construction of a new eight storey multi-purpose campus building referred to as the new D14 Building within The University of New South Wales, Sydney (herby referred to as UNSW).

Campus masterplan works such as services upgrade works, tree removal as well as demolition of the existing UNSW Hall Building are to be carried out separately by way of a Review of Environmental Factors (REF) made pursuant to Part 5 of the EP&A Act.

This application relates specifically to the construction of a new eight storey multi-purpose building that can accommodate a variety of uses including student led learning spaces, faculty office spaces and retail tenancies at ground level. The application is based on the Architectural Plans prepared by Tzannes Architects (**Appendix A**) and the technical consultant reports outlined at the **Table of Contents**.

Development of the new multi-purpose building is identified as a State Significant Site in Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). Development for the purposes of a tertiary institution with a capital investment value of more than $30 million is State Significant Development (SSD) for the purposes of the EP&A Act. As the proposed development will have a capital investment value of $117.5 million, it is considered SSD.

A request for the issue of Secretary's Environmental Assessment Requirements (SEARs) was sought on 6 September 2018. Accordingly, the SEARs were issued on 27 September 2018, with a copy provided at **Appendix B**. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs.

Overview of the Project

The Development Application (DA) seeks approval for construction of the new multipurpose university building referred to as the new D14 Building. Specifically, the proposal seeks approval for the following:

- Construction of an 8 storey multi-purpose building comprising of 15,010m^2 of Gross Floor Area (GFA);
- Excavation to accommodate the structural footings and foundations of the building;
- Removal of one (1) tree;
- Landscaping and public domain works;
- Category 1 remediation works;
- Building identification signage zones; and
- Augmentation and connection of services and utilities infrastructure.

The Site

The site is located at the UNSW Kensington campus which is situated within the Randwick Local Government Area (LGA). The UNSW Kensington campus lies to the south of the Royal Randwick Racecourse, to the west of the Prince of Wales Hospital Campus / Randwick Health Precinct, and between the Kensington and Kingsford town centres on Anzac Parade. The campus is located 8km south of the Sydney CBD and about 6km north-east of Sydney Airport.

Within the campus, the site is located centrally between Alumni Park (west), the Fig Tree Theatre (north), the UNSW Quadrangle (south) and Fig Tree Lane and Goldstein Hall (east). The site for the proposed SSDA, in its entirety, is situated within Lot 3 in Deposited Plan 1104617. The primary site has a total area of approximately 4,291m^2 while the broader project site area comprising the construction work site and temporary rectification / make good areas (as discussed in **Section 3.9** of this report) has an area of 5,229m^2.

Background

Campus masterplan works as outlined separately under this EIS, are to be carried out under Part 5 of the EP&A Act 1979 by way of a Review of Environmental Factors (REF) process. Activities undertaken by way of the Part 5 REF include demolition of existing UNSW Hall structures, removal of trees in proximity to demolition works, diversion, installation and/or upgrade of utilities and services facilities and minor regrading/resurfacing to selected access pathways, College Walk and landscaped areas within the site.

The new D14 Academic Building forms a part of UNSW's new ongoing master planning process of the broader campus area and is located within a part of the lower campus section of UNSW Kensington campus.

The existing student residents of the UNSW Hall will be relocated within campus to UNSW Village (located immediately to the north of the site) prior to commencement of any demolition or construction work. UNSW Sydney in collaboration with UNSW Village management will provide alternate affordable student accommodation to house the existing UNSW Hall resident population.

Planning Context

The EIS considers all applicable legislation in detail. The proposal is also consistent with the requirements of all relevant SEPPs. The site is zoned SP2 'Educational Establishment'. The proposal is therefore permissible with consent and meets the objectives of the subject zone. No maximum building height or floor space ratio control applies to the site under the site's principal planning instrument being the Randwick Local Environmental Plan 2012.

Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the project in accordance with the SEARs and sets out the undertakings made by UNSW to manage and minimise potential impacts arising from the development.

Conclusion and Justification

The EIS addresses the requirements of the SEARs. The proposal delivers a new multipurpose building with contemporary facilities and modular spaces that will introduce a mix of uses (student led learning spaces, faculty office spaces, retail, meeting spaces and an end-of-trip facility) within the campus. The development is permissible with consent under the land use zone and complies with all relevant planning policies (refer to **Section 4.0**). As discussed in **Section 8.0**, the development is justified on the basis that it will offer numerous positive social and economic benefits while providing an improved architectural and urban design response to the site's immediate setting and context.

As outlined under **Section 5.0,** all anticipated impacts arising from the development have also been considered and the potential impacts of the development are either acceptable or can be managed in accordance with the mitigation measures identified under **Section 6.0** and **Section 7.0**. Given the overall merits of this proposal, the proposed development warrants approval by the Minister for Planning and Infrastructure or delegate.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for State Significant Development (SSD).

Development for the purposes of a tertiary education with a capital investment value of more than $30 million is identified in Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD) and is therefore declared to be SSD for the purposes of the EP&A Act.

The report has been prepared by Ethos Urban on behalf of The University of New South Wales (UNSW), and is based on the Architectural Plans provided by Tzannes Architects (see **Appendix A**) and other supporting technical information appended to the report (see **Table of Contents**).

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

1.1 Overview of Proposed Development

This application seeks approval for the new D14 Building within the lower part of the UNSW Kensington campus. The proposed development includes the following elements:

- Construction of an 8 storey multi-purpose building comprising of 15,010m^2 of Gross Floor Area (GFA);
- Excavation to accommodate the structural footings and foundations of the building;
- Removal of one (1) tree;
- Landscaping and public domain works;
- Category 1 remediation works;
- Building identification signage zones; and
- Augmentation and connection of services and utilities infrastructure.

1.2 Background to the Development

The building is located at coordinates D14 on the UNSW Kensington campus map, and accordingly generally referred to as the 'D14 Academic Building'.

Some campus masterplan works are proposed to be carried out separately and ahead of this SSD application, under Part 5 of the EP&A Act 1979 by way of a Review of Environmental Factors (REF) process. The activities proposed under the masterplan are to be undertaken by way of the Part 5 REF and include the following:

- Installation of site hoarding, scaffolding and temporary fencing;
- Installation of temporary site accommodation and truck loading/laydown areas;
- Demolition of the existing UNSW Hall building and associated ancillary structures, including hazmat removal;
- Removal of selected trees and vegetation;
- Removal of redundant in-ground hydraulic, stormwater and electrical services;
- Installation and/or upgrade of in-ground hydraulic, stormwater and electrical services; and
- Minor regrading/resurfacing to selected access pathways, College Walk and landscaped areas.

Accordingly, works under this EIS relate to construction of the proposed new D14 Building development as a multi-purpose university building following the completion of the above works.

Student Housing Relocation Strategy

As outlined at **Appendix X** of this application, UNSW Sydney has prepared a relocation strategy for the existing UNSW Hall student residents prior to demolition works. The existing UNSW Village building located immediately to the north of the site is undergoing refurbishment to accommodate the UNSW Hall residents. UNSW Sydney in collaboration with UNSW Village (external entity) are working to provide subsidised and affordable on campus accommodation for UNSW Hall residents. The UNSW Village refurbishment works will accommodate all the student residents of the UNSW Hall and further provide 5 additional affordable beds on campus. As such, the existing UNSW student residents on campus can appropriately be housed within campus. The refurbishment works of the UNSW Village is anticipated to be completed by February 2019 prior to commencement of any demolition works.

Objectives of the Development

The University has identified the need for additional facilities for students and faculty staff within the existing campus. As such, the project is underpinned by the desire to:

- Address the current shortfall in capacity within the existing campus by providing overflow learning spaces, teaching and office faculty spaces;
- Deliver a new development at a strategically located site in line with the current and future needs of the University campus;
- Provide ‘world class’ facilities and contemporary learning spaces at the UNSW Kensington campus in line with the UNSW 2025 Strategy;
- Deliver a building that is modular and can address both the current needs of the University as well as offer future flexibility by readily adapting to future academic needs and shortfalls within an evolving campus;
- Deliver a built form that responds to the site’s unique setting and context;
- Deliver an architecturally distinct building that will enhance the overall built environment of the campus; and
- Create a vibrant, permeable, accessible and well-connected ground plane.

1.3 Analysis of Alternatives

Strategic need for the proposal

The proposal will enable use of a strategic and central site within the Kensington campus. The proposal will deliver contemporary services, new spaces and facilities within a growing and diversifying University campus. A new multipurpose facility that accommodates a variety of uses and modular internal areas will meet short and medium term demand with the ability to adapt for future needs as well.

The proposal is consistent with the broader redevelopment plan and UNSW 2025 Strategy which encourages the necessary evolution of the campus and prioritises the need for contemporary buildings and infrastructure to support its role as a premier Australian University and ‘world class’ institution.

The proposal also provides several broader positive benefits such as improved connectivity, accessibility and permeability around the campus. It offers direct connection to Alumni Park, the Old Tote courtyard as well as College Walk, which is to transform over time to a provide a key east-west linear connection to the new light rail stop on Anzac Parade. In terms of urban design, it offers an improved built form response to its immediate context by improving legibility and visual connection within the broader campus. The building activates the ground plane and offers a sympathetic and complementary response to the sensitive heritage interface. In addition, the proposal is architecturally distinct, innovative and sustainable through the use of low carbon materials such as Cross Laminated Timber (CLT) and Glued Laminated Timber (Glulam).

Alternative Options

Option 1 – The Proposal

Option 1 involves undertaking the proposed development as outlined in this SSD Application (refer to **Section 3.0** of this report). The proposal will allow for the delivery of a well-designed, multipurpose building that can accommodate a variety of uses (learning spaces, academic spaces, faculty office space, new EOT facility and retail areas) and for future flexibility. Importantly the facility will provide additional education floor space on campus to address the immediate short – medium term demand. The floor plate of the building is designed to offer flexibility for a variety of uses.

Option 2 – Do Nothing

Under the 'Do Nothing' scenario no additional facilities or spaces are provided, and the campus operates in a business as usual scenario. This option does not provide a desirable outcome as it fails to adequately plan for future growth and opportunities of innovation/ efficiency in the University setting. It also contradicts the aims and objectives of the UNSW 2025 Strategy that seeks to provide innovative new spaces, contemporary learning environments and cutting-edge campus facilities for students and faculty. This option is also inconsistent with broader strategic planning policies including the Greater Sydney Region Plan and the Eastern City District Plan which encourages

Option 3 – Alternative Designs

The proposed design as set out under the attached Architectural Plans (**Appendix A**), prepared by Tzannes, is an outcome of robust design testing and careful consideration of the site's surrounding context. The proposal has evolved from feedback provided as to the evolution of the design as part of the SDRP process (refer to **Section 4.0** for SDRP comments). The present design offers an efficient floor plate size and flexible internal layout that caters for a diverse mix of uses. Given that the existing design exhibits high architectural and design quality, an alternative design is considered unnecessary.

1.4 Secretary's Requirements

In accordance with section 4.39 of the EP&A Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of the EIS on 27 September 2018. A copy of the Secretary's Environmental Assessment Requirements (SEARs) is included at **Appendix B**.

Table 1 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 1 Secretary's Requirements

Requirement	Location in Environmental Assessment
General	
The Environmental Impact Statement (EIS) must address the *Environmental Planning and Assessment Act 1979* and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000.	Environmental Impact Statement
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	**Section 7.0** of this report
Where relevant, the assessment of the key issues below, and any other significant issues identified in the assessment, must include: • adequate baseline data • consideration of potential cumulative impacts due to other development in the vicinity (completed, underway or proposed); and • Measures to avoid, minimise, and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment; and • The EIS must also be accompanied by a report from a qualified quantity surveyor • providing: – a detailed calculation of the capital investment value (CIV) of the development (as defined in clause 3 of the Environmental Planning and assessment	**Section 5.0** to **Section 7.0** of this Report. Refer to the Quantity Survey Report at **Appendix D** for calculation of the CIV.

Requirement	Location in Environmental Assessment
Regulation 2000), 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 development during construction and operation; and – certification that the information provided is accurate at the date of preparation	

Key Issues	Report / EIS
Statutory and Strategic Context Address the statutory provisions 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.55 – Remediation of Land; • State Environmental Planning Policy No. 64 – Advertising and Signage; • State Environmental Planning Policy No.33 – Hazardous and Offensive Development; • State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017; • Draft State Environmental Planning Policy (Remediation of Land); • Draft State Environmental Planning Policy (Environment); and • Randwick 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. Address the relevant planning provisions, goals and strategic planning objectives in the following: • NSW State Priorities; • A Metropolis of Three Cities – the Greater Sydney Region Plan; • Eastern City District Plan; • Future Transport Strategy 2056; • State Infrastructure Strategy 2018 – 2038 Building the Momentum; • Crime Prevention Through Environmental Design (CPTED) Principles; • Better Placed: An integrated design policy for the built environment of New South Wales (GANSW, 2017); and • Randwick DCP 2013.	**Section 5.0** of this report.

Key Issues	Report / EIS	Technical Study
Built Form and Urban Design • Address the height, density, bulk and scale, setbacks and interface of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces. • Address design quality and built form, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours and colours. • Provide details of any building identification signage, including size, location and finishes. • Demonstrate how high-quality design will be achieved with reference to Better Placed – An integrated design policy for the built environment of New South Wales and in accordance with a strategy developed in consultation with the Government Architect of NSW. • Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.	**Section 5.3**	**Appendix A**

Requirement	Location in Environmental Assessment	
• Provide detailed site and context analysis to justify the proposed site planning and design approach including massing options and preferred strategy for future development. • Address the proposed built form and layout in relation to: the legibility and network of connective spaces within the campus; the existing and potential view corridors into the campus from High Street; and the retention of existing trees within the campus. • Provide a detailed landscape strategy. The landscape strategy should consider security, topography, and other site conditions and be integrated with built form. Opportunities for public art should be detailed, where relevant. • Provide a visual analysis that identifies any potential impacts on the surrounding environment including views to and from the site and any adjoining heritage items or conservation area.		
Staging Provide details regarding the staging of the proposed development (if any).	**Section 3.9**	**Appendix P**
Environmental Amenity • Assess amenity impacts on the surrounding locality, including solar access, visual privacy, visual amenity, overshadowing and acoustic impacts. • Conduct a view analysis to the site from key vantage points and streetscape locations. • Include a lighting strategy and measures to reduce spill into any surrounding sensitive receivers. • Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing and wind impacts. A high level of environmental amenity for any surrounding residential colleges or areas of passive open space must be demonstrated.	**Section 5.0**	Refer to Appendix list.
Transport and Accessibility Include a transport and accessibility impact assessment, which details, but not limited to the following: • accurate details of the current daily and peak hour vehicle, existing and future public transport networks and pedestrian and cycle movement provided on the road network located adjacent to the proposed development • details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys within the local area; • the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development; • measures to integrate the development with the existing/future public transport network; • the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for, and details of, upgrades or road improvement works, if required (Traffic modelling is to be undertaken using SIDRA network modelling for current and future years); • the identification of infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections; • details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location specific sustainable travel plan (Green Travel Plan and specific Workplace travel plan) and the provision of facilities to increase the non car mode share for travel to and from the site; • the proposed walking and cycling access arrangements and connections to public transport services; • the proposed access arrangements, including car and bus pick-up/drop off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones;	**Section 5.7**	**Appendix M**

Requirement	Location in Environmental Assessment	
• proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance; and • proposed number of on-site and campus car parking spaces for staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided as part of the proposed development. • an assessment of the cumulative on-street parking impacts of cars, staff parking and any other parking demands associated with the development • an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures and personal safety in line with CPTED • emergency vehicle access, service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times) • the preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic addressing the following: – assessment of cumulative impacts associated with other construction activities (if any) – an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity – details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process – details of anticipated peak hour and daily construction vehicle movements to and from the site – details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle – details of temporary cycling and pedestrian access during construction.		
Ecologically Sustainable Development (ESD) • Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) will be incorporated in the design and ongoing operation phases of the development. • Include a framework for how the future development will be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low carbon materials, energy and water efficient design (including water sensitive urban design) and technology and use of renewable energy. • Include preliminary consideration of building performance and mitigation of climate change, including consideration of Green Star Performance. • Provide a statement regarding how the design of the future development is responsive to the CSIRO projected impacts of climate change, specifically: – hotter days and more frequent heatwave events – extended drought periods – more extreme rainfall events – gustier wind conditions – how these will inform landscape design, material selection and social equity aspects (respite/shelter areas).	**Section 5.5**	**Appendix R**
Heritage • Provide a statement of significance and an assessment of the impact on the heritage significance of any adjacent heritage items or conservation area in accordance with the guidelines in the NSW Heritage Manual. • Address any archaeological potential and significance on the site and the impacts the development may have on this significance.	**Section 5.8**	**Appendix E**

Requirement	Location in Environmental Assessment	
Aboriginal Heritage • Address Aboriginal Cultural Heritage (ACH) in accordance with the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011) and Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). • The EIS must demonstrate attempts to avoid any 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 5.9**	**Appendix F**
Noise and Vibration • Identify and provide a quantitative assessment of the main noise and vibration generating sources during demolition, site preparation, bulk excavation, construction and operation. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land.	**Section 5.15** and **Section 5.19**	**Appendix K**
Contamination and Hazardous Material • Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP 55. • Undertake a hazardous materials survey of all existing structures and infrastructure prior to any demolition or site preparation works.	**Section 5.10**	**Appendix U** and **Appendix V**
Utilities • Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure. • Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non potable water, and water sensitive urban design.	**Section 3.10** and **Section 5.5, 5.12**	**Appendix S** and **Appendix Q**
Contributions • Address Council's 'Section 94/94A Contribution Plan' and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development.	**Section 5.21**	
Drainage • Detail measures to minimise operational water quality impacts on surface waters and groundwater. • Stormwater plans detailing the proposed methods of drainage without impacting on the downstream properties.	**Section 5.12**	**Appendix Q**
Flooding • Identify flood risk on-site (detailing the most recent flood studies for the project area) and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and an increase in rainfall intensity. If there is a material flood risk, include design solutions for mitigation.	**Section 5.12**	**Appendix Q**
Biodiversity Assessment • Biodiversity impacts related to the proposed development are to be assessed in accordance with the Biodiversity Assessment Method and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must include information in the form detailed in the Biodiversity Conservation Act 2016 (s6.12), Biodiversity Conservation Regulation 2017 (s6.8) and Biodiversity Assessment Method. • The BDAR must document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the Biodiversity Assessment Method. • The BDAR must include details of the measures proposed to address the offset obligation as follows: – the total number and classes of biodiversity credits required to be retired for the development/project – the number and classes of like-for-like biodiversity credits proposed to be retired	**Section 5.13**	**Appendix Y**

Requirement	Location in Environmental Assessment	
– the number and classes of biodiversity credits proposed to be retired in accordance with the variation rules – any proposal to fund a biodiversity conservation action – any proposal to make a payment to the Biodiversity Conservation Fund. • If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits. • The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the Biodiversity Conservation Act 2016. • Where a Biodiversity Assessment Report is not required, engage a suitably qualified person to assess and document the flora and fauna impacts related to the proposal.		
Sediment, Erosion and Dust Controls • Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles.	**Section 5.11.1**	**Appendix Q**
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 3.6** and **Section 4.19.5**	**Appendix I** and **Appendix P**
Construction Hours • Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours	**Section 3.9**	**Appendix P**
Plans and Documents	Technical Study/ Documentation	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: • Architectural drawings to a usable scale at A3 (showing key dimensions, RLs, scale bar and north point), including: – plans, sections and elevations – illustrated materials schedule including physical or digital samples board with correct proportional representation of materials, nominated colours and finishes – details of proposed signage, including size, location and finishes – site plan • Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and site boundaries • Site Analysis Plan including – site and context plans that demonstrate principles for future development and expansion, built form character and open space network – active transport linkages with existing, proposed and potential footpaths and bicycle paths and public transport links – site and context plans that demonstrate principles for future network, active transport linkages with existing, proposed and potential footpaths and bicycle paths and public transport links • Sediment and Erosion Control Plan • Shadow Diagrams • View analysis, photomontages and architectural renders, including from those from public vantage points • Landscape architectural drawings showing key dimensions, RLs, scale bar and north point, including: – integrated landscape plans at appropriate scale, with detail of new and retained planting, shade structures, materials and finishes proposed	**Refer to Appendices**	

Requirement	Location in Environmental Assessment
– plan identifying significant trees, trees to be removed and trees to be retained or transplanted • Design report to demonstrate how design quality will be achieved in accordance with the above Key Issues including: – architectural design statement – diagrams, structure plan, illustrations and drawings to clarify the – design intent of the proposal – detailed site and context analysis – analysis of options considered including building envelope study to – justify the proposed site planning and design approach – visual impact assessment identifying potential impacts on the surrounding built environment and adjoining heritage items – summary of feedback provided by GANSW and NSW State Design – Review Panel (SDRP) and responses to this advice – summary report of consultation with the community and response to any feedback provided • Geotechnical and Structural Report • Accessibility Report • Arborist Report • 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, special interest groups including local Aboriginal land councils and registered Aboriginal stakeholders and affected landowners. In particular, you must consult with: • Randwick City Council • Government Architect NSW (through the NSW SDRP process) • Transport for NSW • Roads and Maritime Services.	**Section 4.0**

1.5 Crown Development

Clause 226(1) of the *Environmental Planning and Assessment Regulation 2000* provides that a development carried out by an Australian University (under the meaning of the Higher Education Act 2001) is a Crown development. UNSW is listed as an Australian University under Schedule 1 of the *Higher Education Act 2001* and as the development will occur on University land, it is a Crown development for the purposes of Division 4 of the EP&A Act.

2.0 Site Analysis

2.1 Site Location and Context

The site is located within the UNSW Kensington campus which is situated within the Randwick Local Government Area (LGA). The UNSW Kensington campus lies to the south of the Royal Randwick Racecourse, to the west of the Prince of Wales Hospital Campus / Randwick Health Precinct, and between the Kensington and Kingsford town centres on Anzac Parade. The campus is located 8km south of the Sydney CBD and about 6km north-east of Sydney Airport.

Within the campus, the site is located centrally, within an area identified as the Lower Campus area. Specifically, the site is situated between Alumni Park (west), the Fig Tree Theatre (north), the UNSW Quadrangle (south) and Fig Tree Lane and Goldstein Hall (east). A site location map identifying the site within the context of the wider campus is shown at **Figure 1**.

Figure 1 Site Location

Source: Ethos Urban and Google Maps

2.2 The Site

The site currently comprises the UNSW Hall Building (also known as the University Hall), which is one of the many student accommodation buildings on campus. In addition, the SSD site area also contains the eastern portion of Alumni Park and the southernmost section of the Old Tote and Fig Tree Theatre heritage conservation precinct. **Figure 2** provides an aerial map of the site and its immediate surrounds.

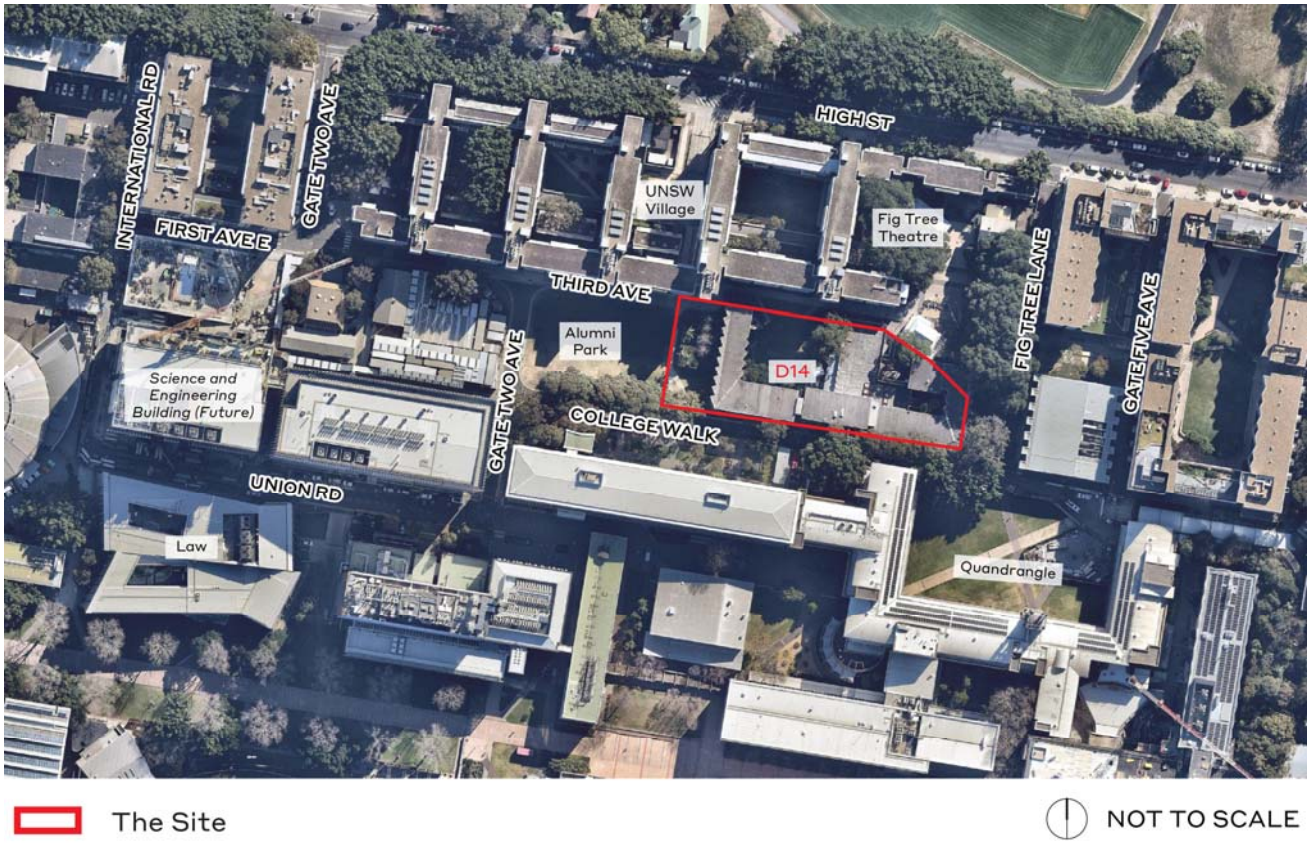


Figure 2 Aerial Map of the UNSW Hall Precinct

Source: Ethos Urban

The existing UNSW Hall Building is a part 3 and part 4 storey masonry building comprising 208 rooms with shared facilities including bathrooms and kitchen and other common areas. The built form presents a continuous edge to the south (College Walk) and a courtyard style appearance to the north with linear extensions to the west and east. An open internal courtyard space is provided to the south near Third Avenue. Photographs of the site is shown at **Figure 3** and **Figure 4**.

Note: As previously mentioned in **Section 1.2** of this report, campus masterplan works including demolition of the existing UNSW Hall Building and establishment of a work site are being carried out under Part 5 of the EP&A Act.

View looking east of existing University Hall building across Alumni Park (left image); View of the University Hall interface to Fig Tree Lane (right image).

Figure 3 Existing D14 Building site area

View of University Hall along College Walk (left image); View of the internal courtyard area of the University Hall Building with trees lining the perimeter (right image).

Figure 4 Existing D14 Building site area

Legal Description

The broader UNSW Kensington campus consists of nine separate allotments. The site, in its full extent, is situated within a single allotment legally described as Lot 3 in Deposited Plan 1104617. The site subject to the primary works proposed under this SSDA has an area of approximately 4,291m^2 within a wider area with make good provisions totalling 5,229m^2.

Topography and Vegetation

The site marginally slopes westward along the east – west with a gradient fall of approximately 4m. The site gradient is relatively level across the north-south plane (refer to **Figure 5** and the Site Survey at **Appendix C**).

The site contains a row of trees along the length of the southern site boundary fronting College Walk (refer to **Figure 4, left**). A cluster of trees is also located within the internal outdoor courtyard space (north west of the site) and to the rear of the Whitehouse (refer to **Figure 4, right**). Alumni Park does not contain any trees (besides the row of trees along its frontage to College Walk) and consists of a green lawn with some seating benches (refer to **Figure 3, left**). Removal of most trees and vegetation are proposed to be carried out under Part 5 of the EP&A Act (refer to **Section 1.2** for campus masterplan works scope).

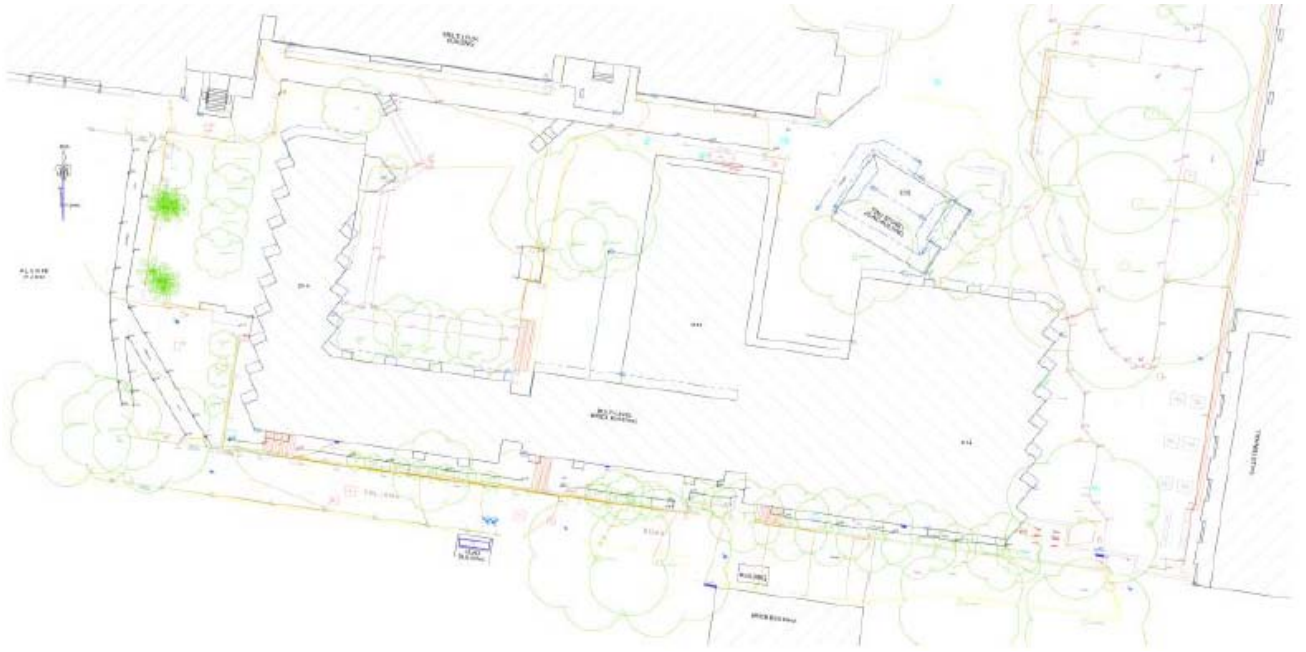


Figure 5 Extract of the existing survey of the UNSW Hall site

Source: Project Surveyor

Heritage and Archaeology

Neither the site nor UNSW Hall (existing Building D14) is heritage listed, but a part of the site (to the north) falls within the extent of the 'Old Tote and Fig Tree Theatre' Heritage Conservation Area (refer to **Figure 6**).

Figure 6 Heritage Context

The site sits on top of a natural sand layer between about 3 and 15 metres thick, under which is sandstone bedrock. This is located at the base of a high dune to the east and the swampy flats of Lachlan Stream to the west (draining into Botany Bay from the Centennial Parklands to the north). Refer to further detail provided within Aboriginal Cultural Heritage Progress Assessment provided at **Appendix F**.

Geology

The general site is located on Quaternary transgressive dunes, which typically comprise medium to fine grained, sand. The dunes sit over Hawkesbury Sandstone which typically comprises medium to coarse grained quartz sandstone with some shale bands or lenses. Refer to the Geotechnical Report at **Appendix T**.

Soils and Contamination

An investigation was undertaken with respect to soil contamination, with the following potential sources of contamination and areas of potential contamination identified:

- Filling and demolition rubble associated with site redevelopment including, metals, total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), phenols, and asbestos;
- Previous activities related to Kensington Racecourse which may include metals, TPH, PAH etc;
- Chemical Stores (particularly with former chemistry building to the south) including metals, VOC, TPH, BTEX, PAH and phenols; and
- Substations within the site including metals, asbestos, OCP and PCB.

A detailed assessment and further testing confirmed that these levels are generally below the ecological threshold thresholds. For further discussion, refer to the **Section 5.10** of this report at **Appendix U**.

2.2.1 Transport and Access

Vehicular Access and Parking

The site does not accommodate any at grade or basement vehicular car parking spaces or loading areas. Vehicular access to the site is available from College Walk and Third Avenue. Parking is available on the perimeter of the campus in the form of multi-storey parking stations, basement parking and some at-grade parking areas. The closest car parking is the basement parking located beneath the UNSW Village.

Public Transport

Bus

The site is frequently and regularly serviced by several bus routes along High Street, which connect the site to Central Station (Routes 891, 339, 372, 373 and 374), Museum Station (Route 376, 377), Bondi Junction, Eastgardens and Sydney Airport (Route 400), Leichhardt (Route 370 and M10) and Drummoyne (Metrobus M50) among others.

Train

The nearest train station to the university campus is Green Square Station (approximately 3 km west of the site). Other stations in proximity to the campus are Bondi Junction Station (approximately 3 km north of the site) and Central Station (approximately 4.7 km of the site). Several bus routes connect these stations to the UNSW Kensington Campus.

Light Rail

As part of the Sydney CBD and South East Light Rail project, the UNSW Kensington campus will be serviced by future light rail stops along High Street and Anzac Parade (refer to **Figure 7**). Construction of the light rail infrastructure is currently underway. Once complete, the light rail route will connect the site to Central Station, Town Hall, Wynyard and Circular Quay via Moore Park and Surry Hills.

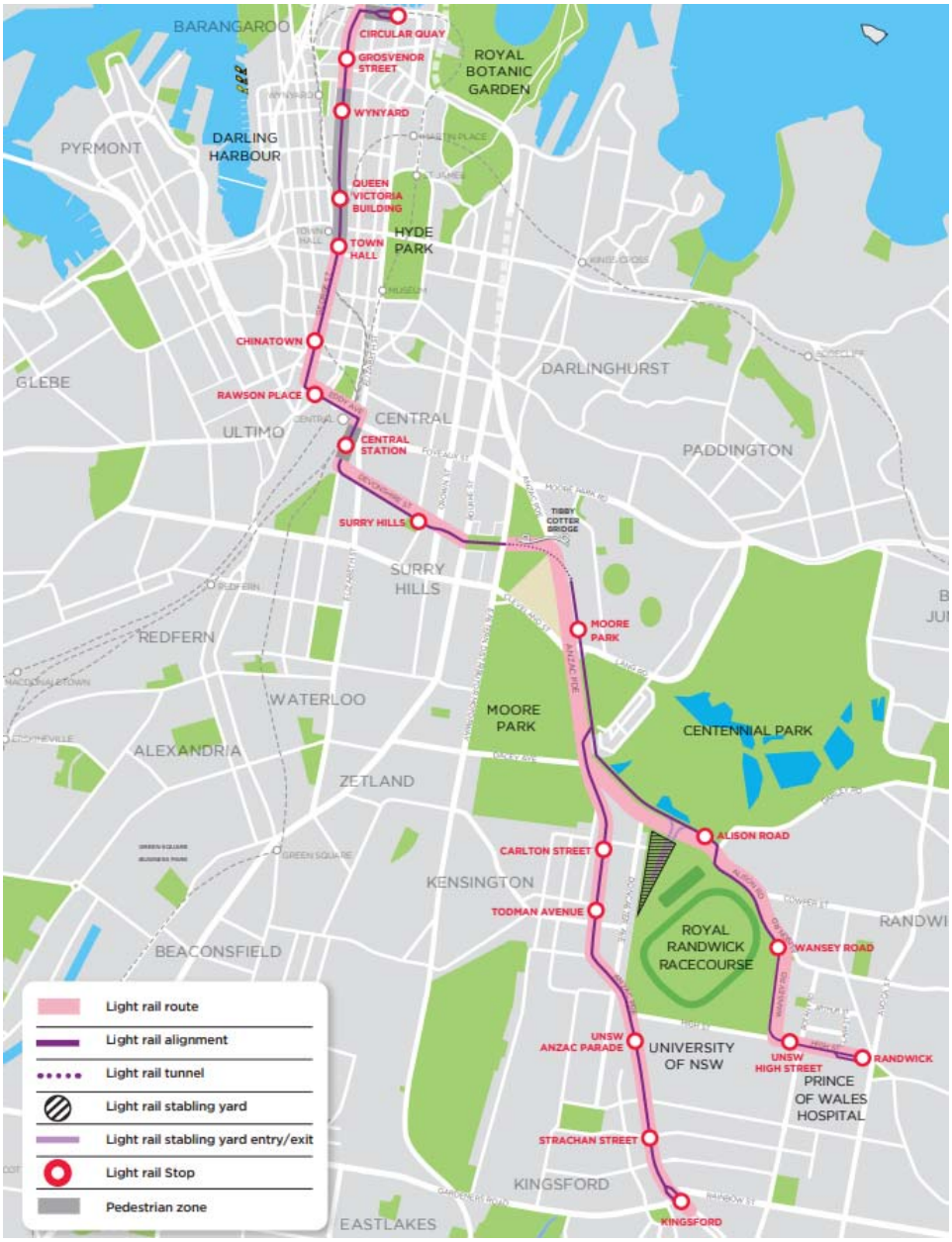


Figure 7 Sydney CBD and South East Light Rail Route

Source Transport for NSW

Cycle Network

The site is in proximity to existing bicycle paths (refer to **Figure 8**). The road shoulder on Doncaster Avenue and Houston Road provides a north-south bicycle route that connects Kingsford and Kensington to the Anzac Parade bicycle route at Centennial Park, continuing on to the Sydney CBD. The UNSW campus provide approximately 800 publicly available bicycle parking spaces and over 16 end of trip shower and change room facilities.

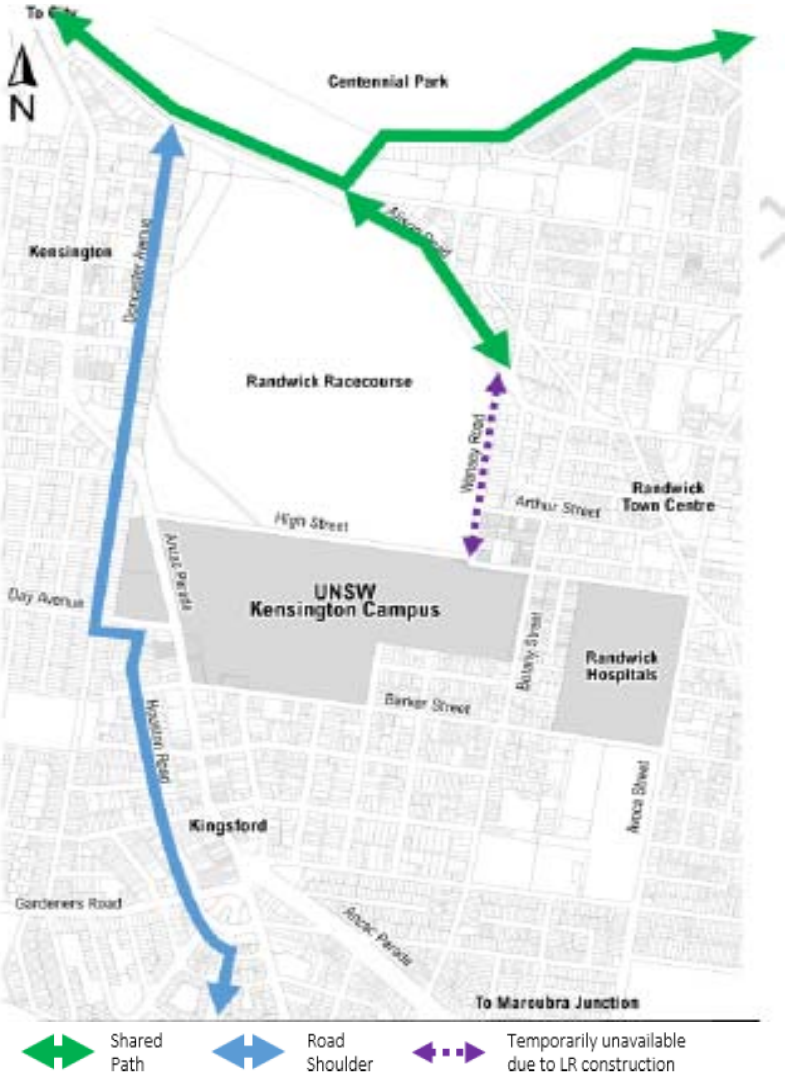


Figure 8 Existing bicycle network serving the campus

Source: Arup

2.3 Surrounding Development

As shown in **Figure 2** above, the site is bound by College Walk to the south, Alumni Park to the west, the UNSW Village to the north with the Whitehouse and Figtree Tree Theatre to the north. To the east, across Fig Tree Lane, is the Goldstein Hall. Photographs of the surrounding campus buildings are shown at **Figure 9** and **Figure 10**.

View of the two storey Whitehouse Bar building that is located immediate to the north of the site (left image); The Fig Tree theatre and heritage conservation area located to the northeast of the site (right image).

Figure 9 Surrounding development

View looking west from Third Avenue with the UNSW Village to the north (right image); View looking south of the Goldstein Hall Building and the arched wall.

Figure 10 Surrounding development

3.0 Description of the Development

This chapter of the report provides a detailed description of the proposed development. Architectural drawings and a design report prepared by Tzannes Architects are included at **Appendix A.**

This SSDA seeks approval for construction of the new D14 Academic Building within the UNSW Kensington campus, which consists of the following components:

- Construction of an 8 storey multi-purpose building comprising of 15,010m^2 of Gross Floor Area (GFA);
- Excavation to accommodate the structural footings and foundations of the building;
- Removal of one (1) tree;
- Landscaping and public domain works;
- Category 1 remediation works;
- Building Identification signage zones; and
- Augmentation and connection of services and utilities infrastructure.

The building is designed to meet the University's current needs for additional student learning spaces and faculty spaces. In this regard, the building is not considered to result in any direct increase in the current campus population but rather meet the existing shortages for these spaces within the campus.

Notwithstanding this, the building is designed as a modular building with the ability to readily adapt to the changing demands of an evolving and growing university campus. The floor plate layout allows for future flexibility and is designed to accommodate a wide range of diverse educational uses.

A photomontage of the proposed new D14 Academic Building is shown at **Figure 11**.

Figure 11 Proposed new D14 Building as viewed from College Walk

Source: Tzannes

3.1 Key Urban Design Principles

The proposed development has been informed by a contextual urban design study undertaken by Tzannes Architects. The principles elucidated from this study informed the building form and design. The key guiding principles of the development is discussed in the Design Report prepared by Tzannes Architects and is provided at **Appendix A** of this report. A summary of the key principles and project objectives adopted for the site is provided below:

- Create an accessible and well connected ground plane that improves permeability and circulation within the campus;
- Deliver a built form that responds to the site's unique, strategic and central setting within the campus;
- Create an activate and vibrant ground plane that encourages student interaction and promotes creativity and innovation;
- Provide an improved urban design and built form response to Alumni Park;
- Design an architecturally unique building commensurate to University's UNSW 2025 Strategy; and
- Design a modular and flexible building that meets the University's current learning needs while having the flexibility to adapt to future demands.

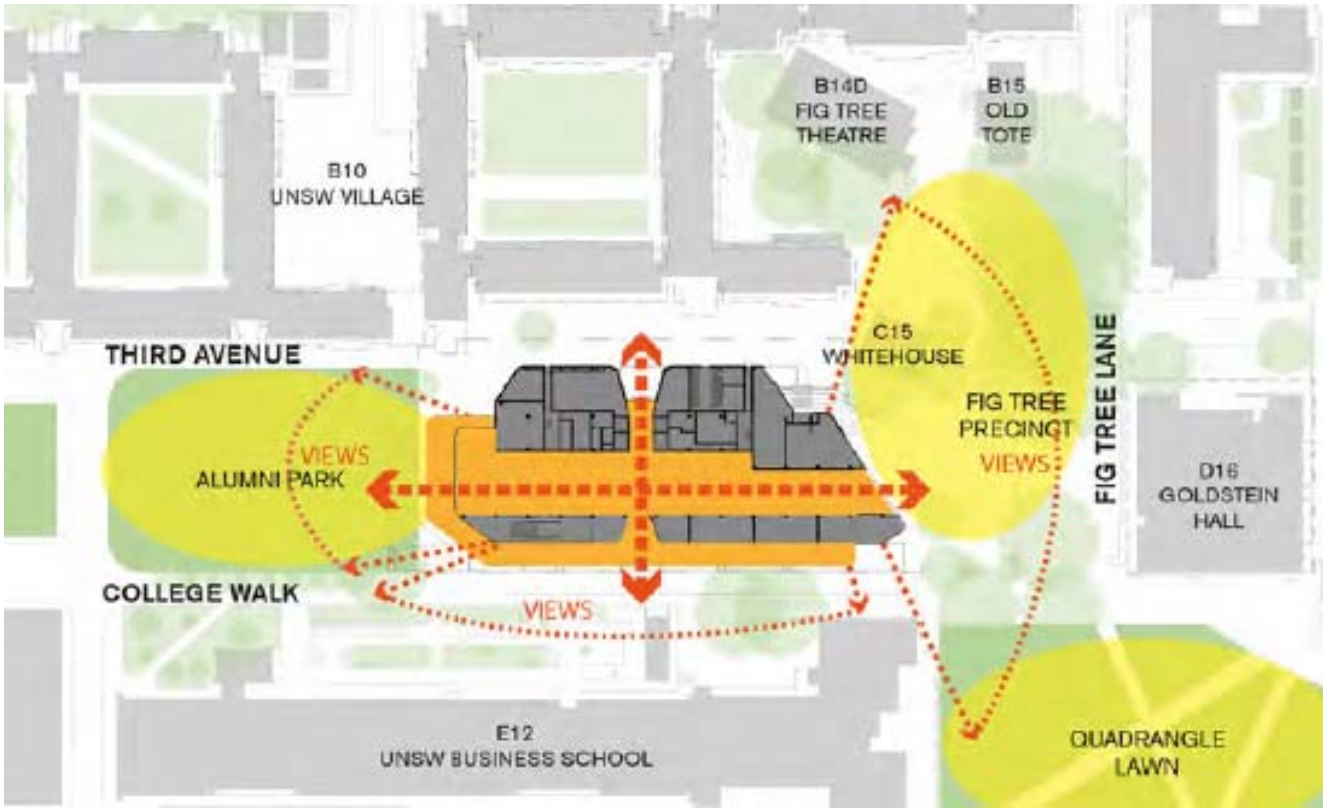


Figure 12 **Open and connected public realm**

Source: *Tzannes*

3.2 Numerical Overview

The key numeric development information is summarised in **Table 2**.

Table 2 Key development information

Component	Proposal
Site area	
Primary site area	4,291m^2
Total site including make good area	5,229m^2
Gross Floor Area (GFA)	
Ground Floor (faculty, retail, shared services and student led spaces)	• 1,858m^2
Level 1 – Student Led Space – Outdoor Terrace	• 1,012m^2 • 726m^2
Level 2 – Student Led Space	• 1,874m^2
Level 3 – Faculty Use	• 1,908m^2
Level 4 – Faculty Use	• 1,908m^2
Level 5 – Faculty Use	• 1,908m^2
Level 6 – Faculty Use	• 1,908m^2
Level 7 – Faculty Use	• 1,908m^2
Total GFA	14,288m^2 (internal) plus 726m^2 (external) Total internal and external GFA: 15,010m^2
Height of the building	
Height in storeys	8 storeys + mechanical plant
Top of allowance for flues, vent piles, exhausts, lightning rods and the link (maximum overall height)	RL 73.400m
Top of plant room	RL 72.400m
Top of building parapet	RL 67.210m
Miscellaneous	
End of Trip facilities	• 11 showers • 72 lockers • 28 secure bicycle parking

3.3 Urban Design and Built Form

3.3.1 Urban Design

The proposed scheme provides a unique built form that contextually responds to the site setting at a centrally located point within the campus. The site is defined on each side by three very distinct and vital campus gathering places surrounding the site. Refer to **Figure 13** for a three-dimension figure extract of the proposed building within the surrounding context.

Accordingly, the proposed building has been designed to respond and positively contribute to each of these unique conditions.

- Alumni Park – The western frontage interfaces directly with Alumni Park, an important open space with the ambition of becoming a destination, a place to meet, celebrate, enjoy art and host cultural events. The proposed D14 Building takes advantage of and complements this aspiration by offering a sequence of distinct yet connected outdoor and indoor spaces across the park and through the new timber building ground floors. The sequence begins with the expansive open space of the park and continues to a series of landscaped steps/ramps that rationalise the change in level on the site whilst providing a public place of diverse potential: a place to meet, sit, rest, watch, display and perform.

- College Walk – On the south, the site interfaces with College Walk, a major circulation route/promenade that is expected to cater for around 20% of visitors entering the campus. The combination of Alumni Park/College Walk frontages make the site a welcoming point to this new vibrant precinct within the campus masterplan. The building responds to this by transitioning from its dialogue with Alumni Park through a gentle turn of the corner at 45 degrees towards College Walk. This allows the outdoor/indoor threshold condition established on the west to flow and continue for the length of the southern edge of the building via a colonnade.
- Fig Tree Lane – The eastern façade which presents to Fig Tree Lane defined by a prominent entryway into the student led space which is flanked by active retail frontages and book ended on the north east by a series of external bleacher steps. These steps provide a dynamic edge condition which facilitates public gathering and creates opportunity for rest in a position with high surrounding amenity, visibility and precinct wide significance. They also provide a direct physical connection and access to a landscaped terrace at Level 1 which creates an elevated platform for seating and relaxation.
- Third Avenue – The northern façade to Third Avenue is more muted in character and is predominantly defined by service doors and a singular access point into the student led space at its centre. This creates a privacy buffer to the student accommodation immediately to the north. The articulation of the landscaping also provides additional visual and physical screening to further soften this relationship.

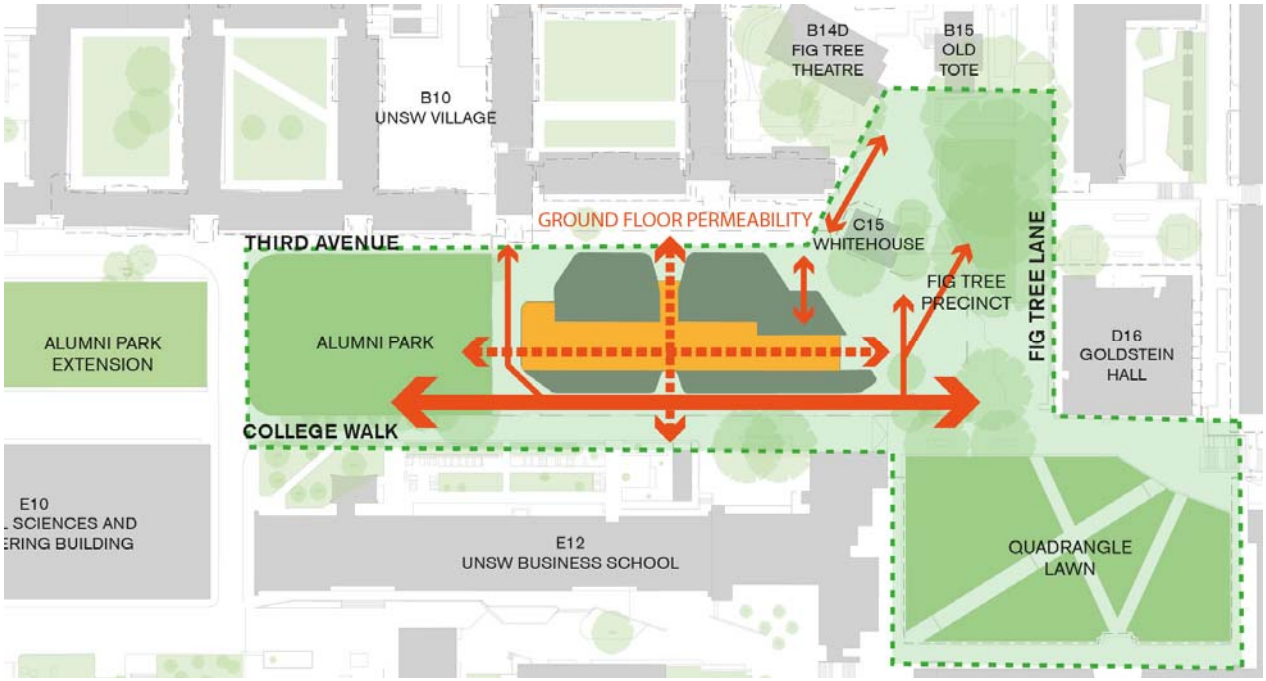


Figure 13 Open and connected public realm

Source: Tzannes

The design phase included building envelope testing to determine the most appropriate position, orientation and urban design outcome (refer to **Figure 14**). Further commentary on the proposal's response to the opportunities of the site are as follows:

- Provision of a two storey colonnade appearance to the west to provide generous proportion to act as a visual extension of Alumni Park;
- Reinforcement of the definition of College Walk with alignment of the southern façade of the proposed D14 Building with the Goldstein building and provision of a colonnade;
- Providing more generous separation and curtilage to the Whitehouse and associated Fig Tree Lane Precinct through a recessive visual form and terraced public domain; and
- Ensuring solar access to The Quadrangle is maintained through a chamfered building edge.

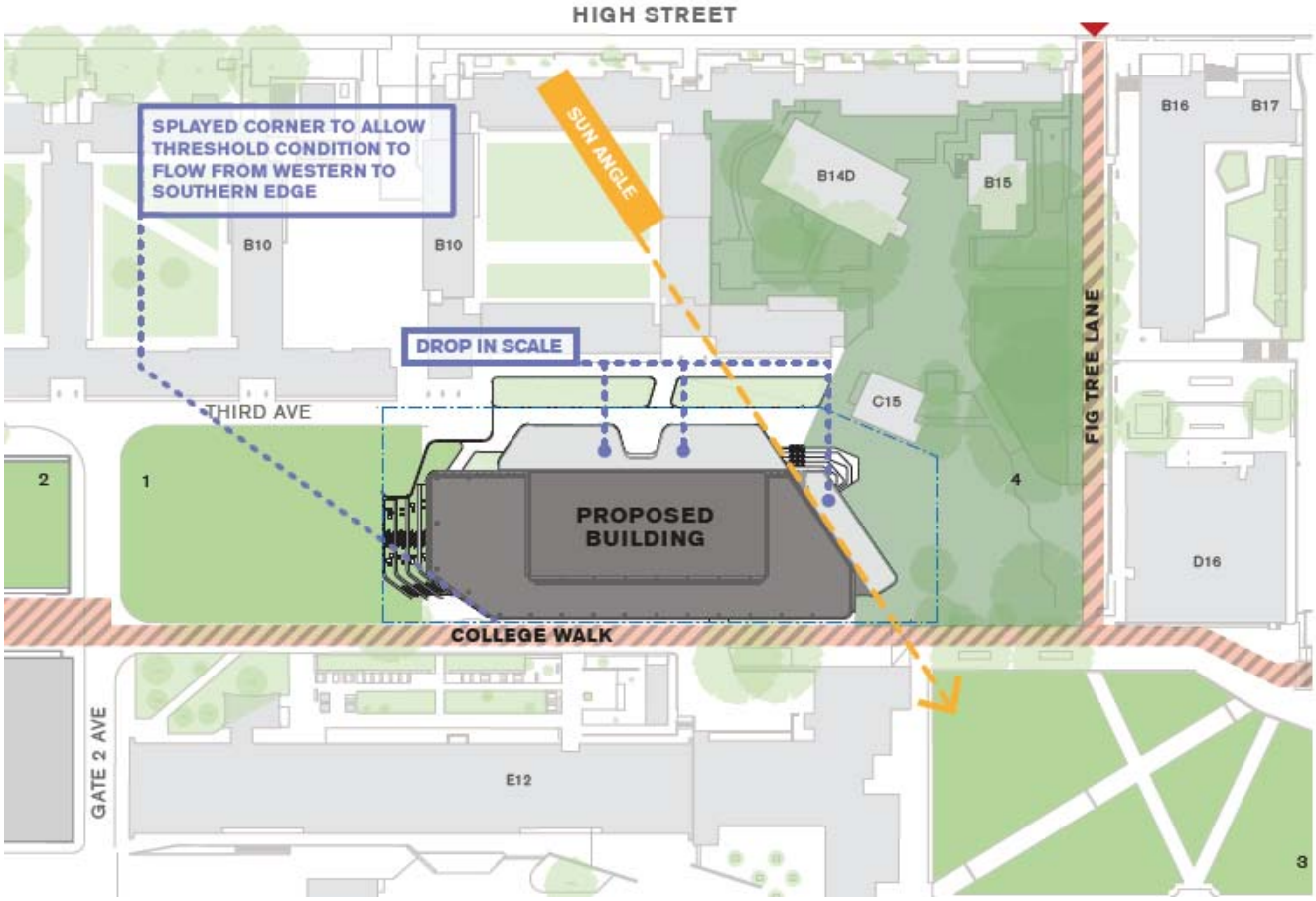


Figure 14 Building design and positioning analysis

Source: Tzannes Design Report

3.3.2 Built Form

Tzannes Architects has proposed a two part approach with regards to building form. A lower two storey ground plane element is integrated with a six storey top component to form the proposed structure.

The lower elements are about providing a transition between outside and inside which is achieved through verticality and by setting back the lower podium from the upper levels above, along the western and southern facades and by pushing the lower levels out at the more intimate frontages of the heritage precinct and the student accommodation. The definition of the base is also informed by the intention to maximise the physical and visual connection to, from and through the site.

The six storey top section is maintained as a simple glass skin wrapping around the timber structure, the articulation of which is informed by efficient implementation of its practical requirements and end uses which differ by level resulting in an interplay between solidity, partial and full transparency, balancing the requirements of amenity and solar control.

A photomontage of the proposal as viewed from Alumni Park looking east towards the proposed building depicts the above elements and is provided at **Figure 15**.

Figure 15 View of D14 Building from Alumni Park

Source: Tzannes

3.3.3 Building Height

The built form presents as an 8 storey building with a 6m high roof plant above the 8th storey. At the highest point, the building achieves a maximum height of RL 73.40m.

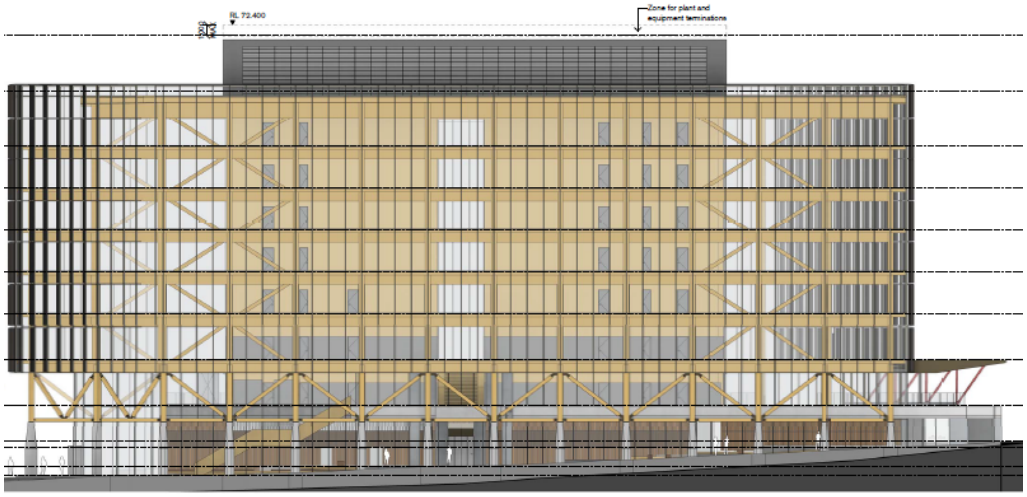


Figure 16 South elevation of proposed building fronting College Walk

Source: Tzannes

3.3.4 Ground Level Interface

The proposed building has been designed to offer a highly permeable structure offering generous openings from all four primary facades to create an inviting and welcoming space. A north-south through site link is a strong feature of the design and provides a break in the form to provide zones for services along the northern alignment.

External steps up from the Alumni Park provide the primary access point into a student led space with seating zones, workstations and meeting spaces. Vertical circulation is achieved primarily through stairs to the Level 1 teaching spaces and via a lift core to the upper level faculty spaces. Retail spaces provide activity to College Walk which wrap around to the eastern façade of the building. The eastern façade provides a staggered form providing generous activity zones and a zone for raised step/external bleachers providing direct connectivity to the Level 1 outdoor terrace area. Refer to **Figure 17** below for an extract of the ground floor plan and external public domain works proposed.

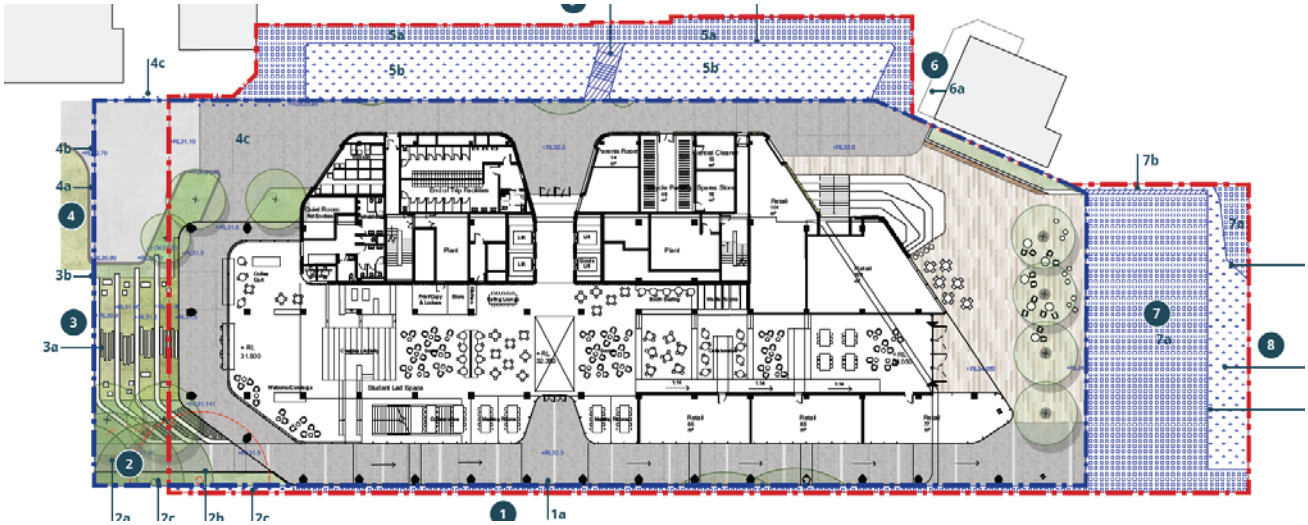


Figure 17 **Ground level student led spaces and external interface**

Source: *Aspect Studios*

3.3.5 Upper Level Uses

Upper level uses are characterised by student led break out and study spaces and centrally allocates teaching spaces (CATS) classrooms within Levels 1 and 2. Levels 3-7 provide flexible faculty space and will be fitted out at a later date with the end uses and layouts confirmed with UNSW and user groups. Refer to **Figure 18** below.

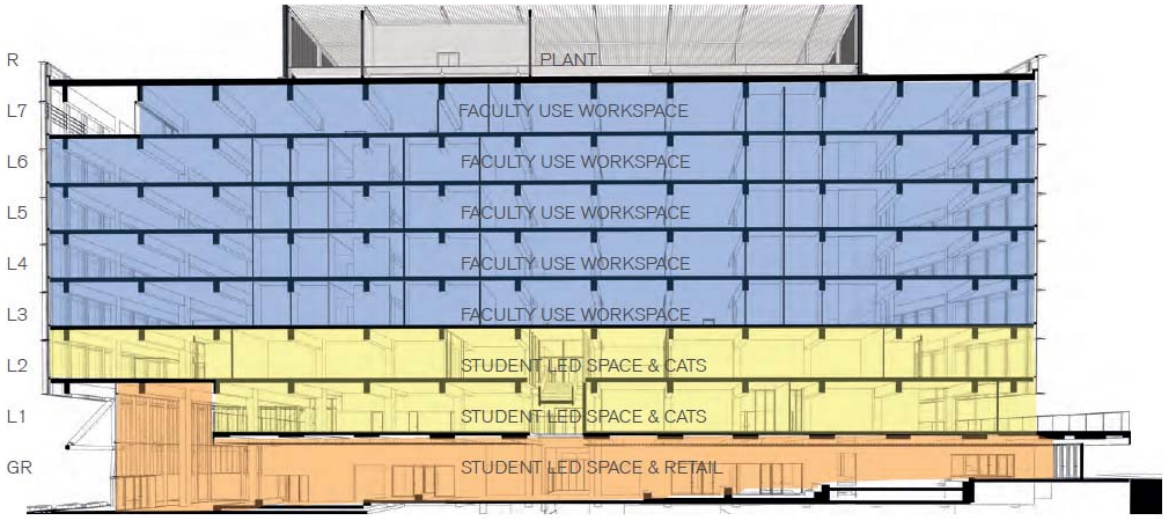


Figure 18 **Section of building overlaid with proposed use**

Source: *Tzannes*

3.4 External Facades, Materials and Finishes

A defining feature of the development is the base timber frame structure. The building comprises of a Cross Laminated Timber (CLT) building core and CLT floors. Glued Laminated Timber (Glulam) is proposed for the structural beams and columns of the base building. Recycled hardwood timber truss is used externally to clad the building (Level 1) and create a visually intricate and distinct feature to the building. The use of timber to create façade patterns articulates the built form and renders a fine grain quality to the building. Glazed curtain wall system drapes the overall timber structure. Dark bronze metal horizontal louvers are use externally for sun shading. A lighter coloured aluminium louvre is provided at lower levels for sun shading purposes. The vertical louvers add another layer of visual complexity and diversity to the building.

Masonry is proposed for the ground floor timber walls. Operable aluminium framed glazed panels are proposed for the shopfront glazing of the ground level retail tenancies. Concrete is limited to the base footing of the building and the Ground Level and Level 1 slabs.

Refer to **Figure 19** below for an extrusion of the proposed building structure and materials.

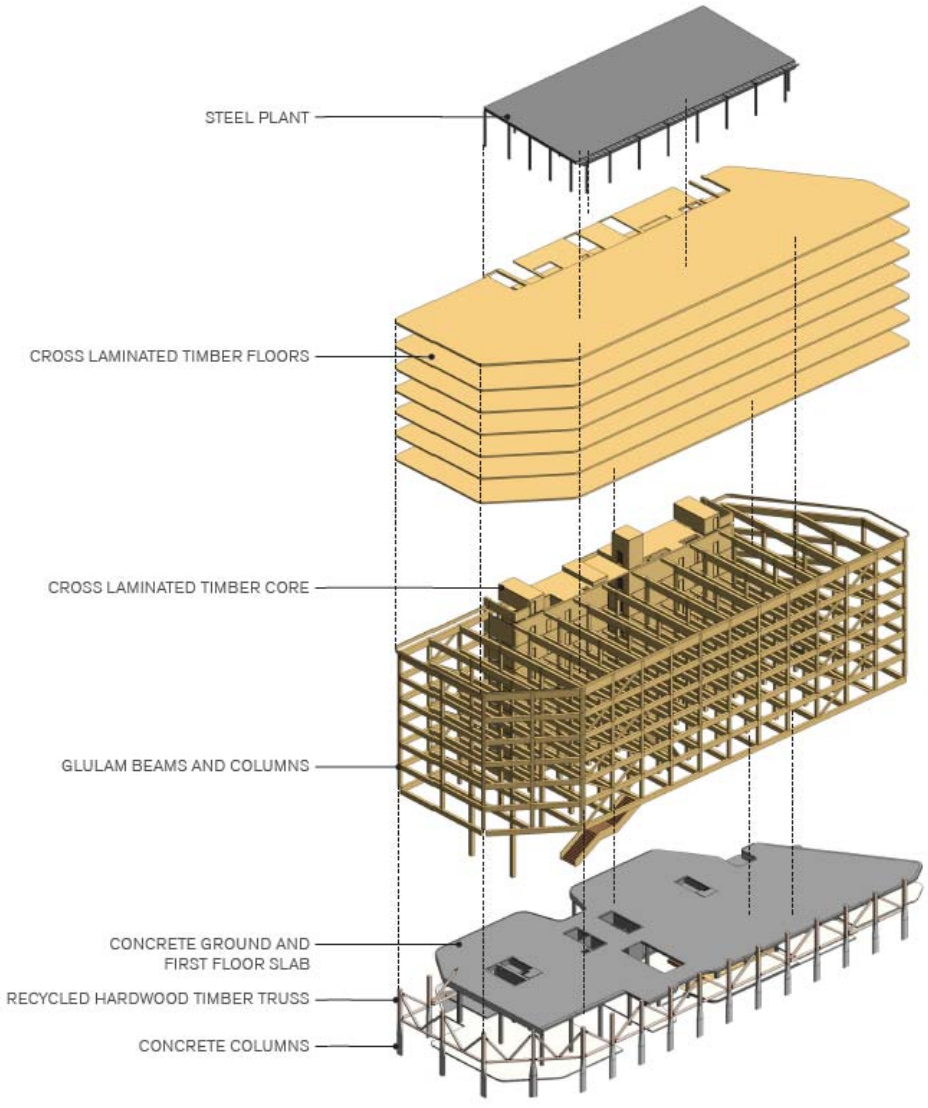


Figure 19 Proposed CLT timber structure

Source: Tzannes

3.5 Pedestrian and Vehicular Access

3.5.1 Pedestrian Access

The ground level has been designed to promote circulation and connectivity within the site. Accordingly, existing pedestrian connections around the subject site are retained (College Walk, Fig Tree Lane, Third Avenue) and additional north-south and east-west through site links are introduced to improve permeability (refer to **Figure 20**). Equitable access to the building is provided via the colonnade adjacent to College Walk as well as via the north and south entries. Importantly, the scheme offers a superior pedestrian experience by providing an overall improved urban design and built form response to the site's public domain interfaces.

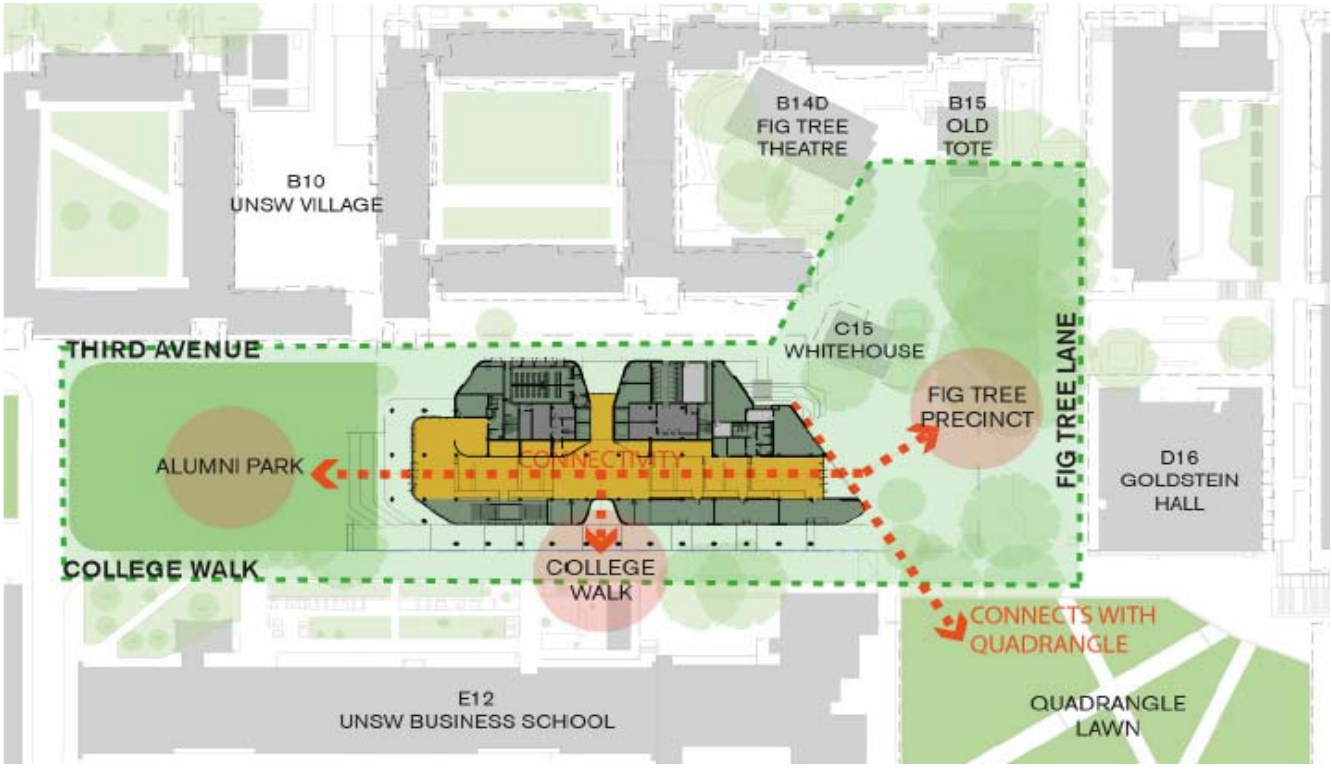


Figure 20 Pedestrian Access

Source: Tzannes

3.5.2 Vehicular Access

No on site, either at grade or basement, parking is provided under this proposal. The preferred servicing and loading strategy is discussed below.

3.5.3 Servicing and Loading

The loading zone for the building is provided to the north west of the building near to the building's waste room at ground level as shown at **Figure 21**. Services vehicles, delivery vehicles and emergency vehicles can access the loading zone area from Gate 2 via Gate Two Avenue and Third Avenue. The loading zone area is designed so as to allow all services vehicles (8m to 10.8m long garbage trucks), emergency vehicles (10.1m long) and delivery vans to enter and exit the site in a forward direction.

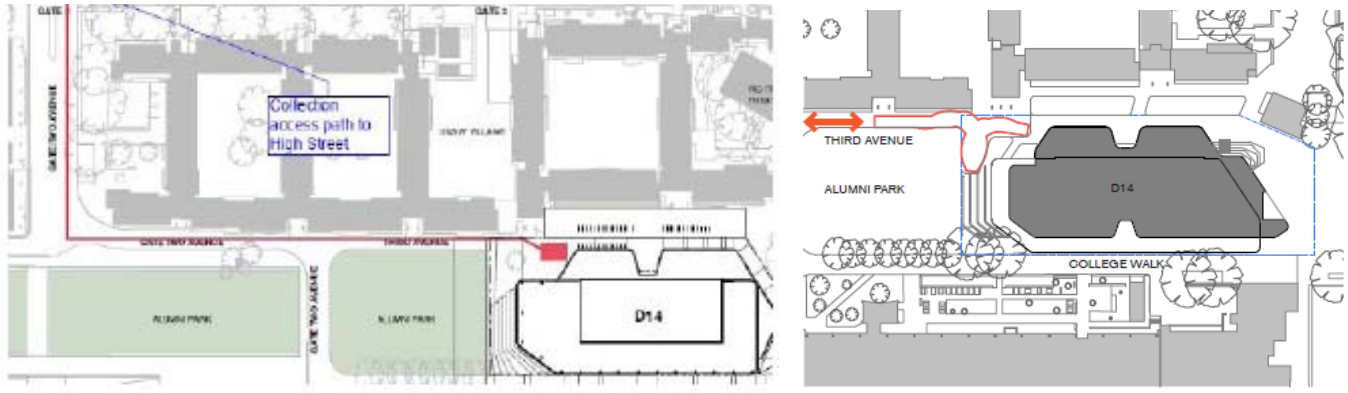


Figure 21 Servicing and loading strategy

Source: Tzannes

3.6 Operational Waste

A Preliminary Operational Waste Management Plan (WMP) has been prepared by Foresight Environmental and is included at **Appendix I**. The WMP is based on waste management guidelines such as the City of Sydney Council Waste Guidelines 2018 and the industry best practice guidelines including Better Buildings Partnership Operational Waste Guidelines. Based on benchmark data from similar developments, primary waste streams and the quantity of waste to be generated from each stream is identified in **Table 3** below. Adequate bin types to accommodate waste generated by the development and frequency of waste serving is also provided below.

Table 3 Operational waste types and servicing requirements

Waste Type	Bin Requirements	Frequency of Collections
General Waste	3X 1000L MGB	3/ weekly
Paper/ Cardboard	6X 1000L MGB	3/weekly
Co – mingled Recycling	2X 1000L MGB	3/weekly
Food Waste	7X 120L MGB	5/weekly

Waste Servicing

The waste room is located at the ground level of the building at the chamfered north western edge (shown bound in red in **Figure 22** below). The waste room is of an appropriate size to accommodate the waste bins. As discussed in **Section 3.5** above, waste servicing is proposed to be carried out from the servicing and loading zone near Alumni Park (as shown in yellow in **Figure 22** below).

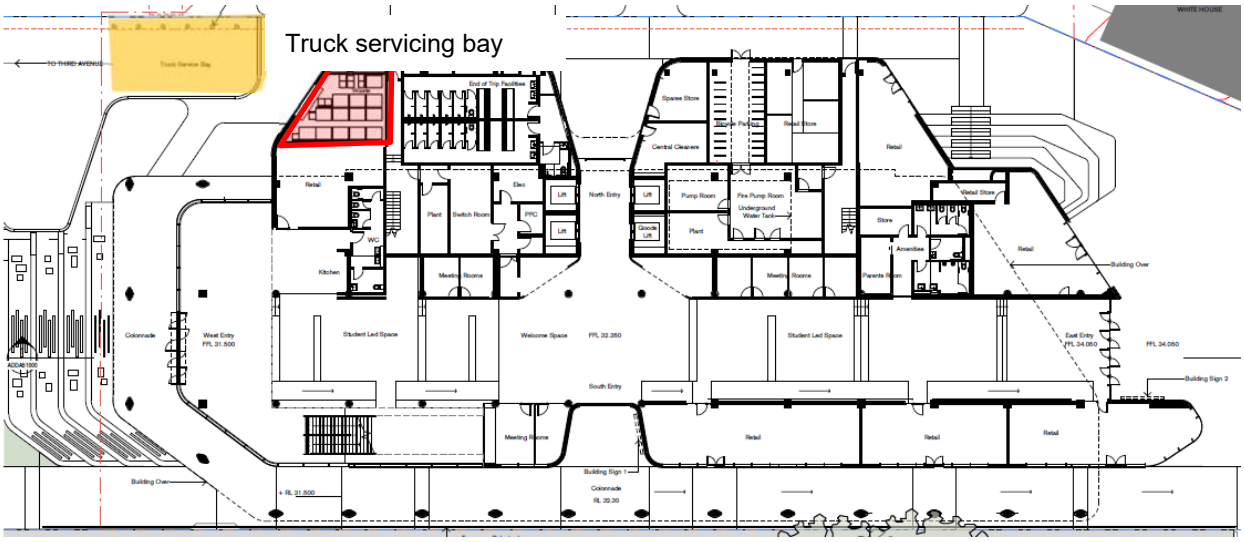


Figure 22 Waste servicing strategy

Source: Base Image, Tzannes

3.7 Public Domain and Landscaping

A Public Domain and Landscape Concept Strategy, along with landscape plans, prepared by Aspect Studios are provided with this application (**Appendix L**). The strategy sets out landscape and public domain works that are proposed to be carried out as part of this development, while also providing a broader masterplan strategy for public domain and landscaping embellishment works within the immediately surrounding area.

Landscape and public domain works proposed as part of this SSDA include public domain embellishment works (refer to **Figure 23** and **Figure 24**) within the project boundary and ground level rectification works. The rectification works are interim make good works that will ensure safe use of the site's interface edges post construction of the new D14 building. Public domain embellishment works of these interface areas will also be carried out separately by UNSW in in accordance with the masterplan by way of a separate approval process.

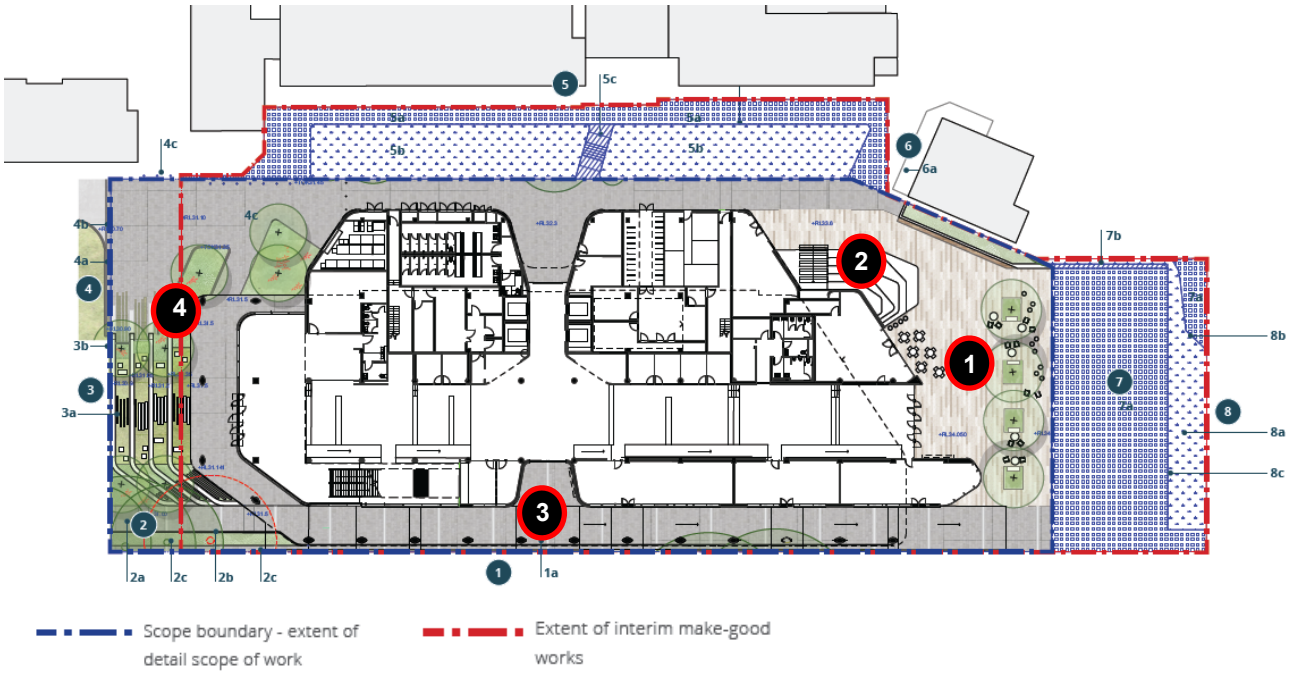


Figure 23 **Landscape and public domain masterplan (Ground Level)**

Source *Aspect Studios*

Ground Level Works within the Project Boundary

As illustrated in **Figure 23**, the following public domain works are proposed within the Building D14 boundary (within the boundary shown in red):

1. Fig Tree Courtyard space: Provide a flexible outdoor seating area either for outdoor dining or informal student breakout space. High quality stone or concrete unit paver in warm tone are proposed for paving. Precast concrete edges with timber seating surface. Planting (400L tree) is proposed to be integrated against the Whitehouse building
2. Whitehouse Bleachers: Provide terraced seating that is oriented to address the courtyard.
3. Building Colonnade: High quality stone or concrete unit paver that is reflective of the future College Walk materiality and design.
4. Alumni Terrace: Terraced seating area providing access to the building from D14. Precast concrete or a similar finish is proposed for the terraced seating. An access ramp (1 in 20 gradient) is proposed along the northern edge. A turning circle hammer head within park for garbage truck servicing is proposed to the west. Install new kerb and trafficable paving to accommodate servicing trucks.

Ground Level Rectification Works

As illustrated (in hatched blue pattern) at **Figure 22**, the following rectification works are proposed to the site interface areas:

- College Walk Interface
  - Installation of a handrail along Colonnade (at upper level);
  - Planting along College Walk and D14 Colonnade;
  - Entry grading to D14 Colonnade;
- Alumni Park Interface
  - Incorporate temporary stairs and mounding to facilitate access between Alumni Park and Alumni terrace levels;
  - Provide a temporary garden edge between the proposed planting and existing Alumni Park Turf;
  - Make good Alumni Park Turf;
- UNSW Village Interface
  - Provide insitu concrete paving or similar finish to suit proposed design levels in zone D14 and UNSW Village;
  - Provide stairs to connect D14 with UNSW Village;
- Whitehouse Interface
  - Tie proposed paving in to existing paving on a logical alignment;
- Fig Tree Lane Interface
  - Temporary planting and paving adjacent to development site;
  - Concrete unit pavers or similar finish to tie in with existing surfaces and levels;
  - Construct planter walls to function as seating edges;
  - Complete timber decking to tie in with existing levels;
  - Repair and replant area disturbed by demolition of existing building;
  - Make good paving edge disturbed by demolition of existing building;
  - Construct new garden edge;
- Service Vehicle Access
  - Accommodate turning circle hammer head within park for garbage truck servicing. Install new trafficable paving to accommodate truck;
  - Partially demolish existing kerb, install driveway crossover; and
  - Install pedestrian safety measures.

Level 1 Landscape Works

The Level 1 terraces provide large open breakout spaces. Seating nooks of varying scales and dense and rich mass planting of predominantly native species are proposed along the northern frontage where they interface with the UNSW Village. **Figure 24** provides an excerpt of the proposed seating and landscape arrangement for this level.

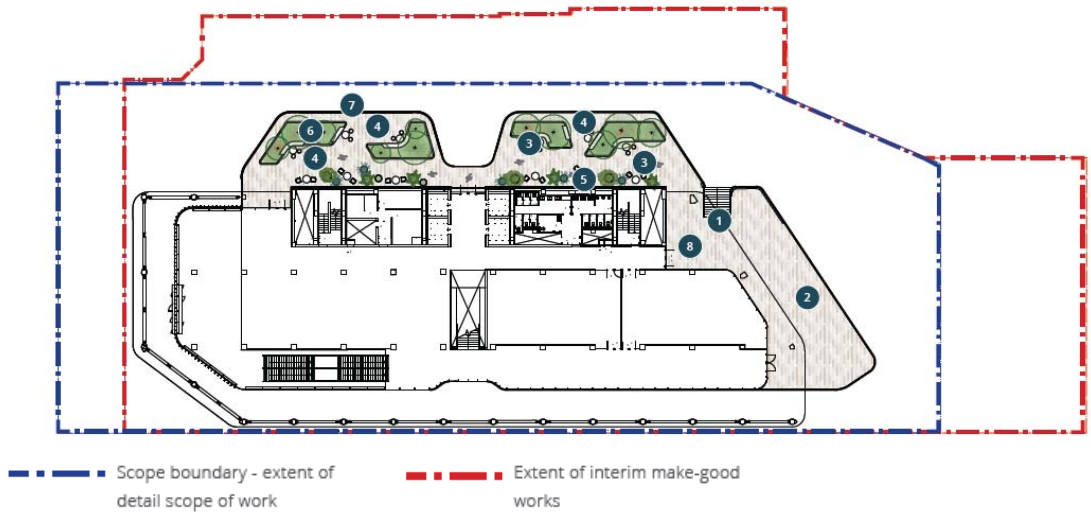


Figure 24 Landscape and public domain masterplan (Level 1)

Source: ASPECT Studios

3.8 Ecologically Sustainable Development

The building has incorporated Ecologically Sustainable Development (ESD) strategies and principles as defined in clause 7(4) of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

The University has a commitment to sustainability in the planning, design and management of all new buildings on Campus. The ESD strategy and key initiatives proposed for the development are outlined under the ESD Report (**Appendix R**) prepared by Lendlease. Key ESD aspects of the proposed building are as follows:

- The building is proposed to achieve a 6 Star Green Star As Built rating under the Green Star and As Built v1.2 tool;
- Installation of a 30kWp solar photovoltaic panels on the building's rooftop;
- Use of sustainable building materials with lower embodied carbon levels such as such as prefabricated cross – laminated timber (CLT);
- Minimise operational energy demand through passive building design measures (external shading), use of low energy lighting fixtures, high efficiency cooling and heating plants and extensive energy monitoring and metering;
- Integrate high performance facades (double glazing and solar control to facades);
- Use of water efficient fixtures (5 Star taps, urinals and dishwashers, 4 Star toilets and clothes washing machines and 3 Star showers) that will meet or exceed WELS ratings;
- Utilise bore water for the building where possible to reduce demand on potable water consumption;
- Aim to achieve a 90% or more construction waste diversion target; and
- Encourage staff and students to opt to use sustainable travel options by providing End of Trip facilities within the development and promoting the UNSW Green Travel Management Plan.

3.9 Construction Strategy

3.9.1 Construction Sequencing

As outlines under the Construction Management Plan (CMP) at **Appendix P**, the development will be delivered in one stage, however, the preferred construction sequencing programme for the development is as follows:

- Excavation, piling and inground services;
- Pouring of concrete to create the ground floor slab in four stages;

- Construction of the Mezzanine and Level 1 slab;
- Construction of the CLT frame structure above Level 1;
- Cladding the CLT frame with curtain wall glazing (Level 1 to Level 7);
- Installation of waterproofing systems
- Connection of all building services, as well as testing of each of the building services;
- Internal works and base build fitout; and
- Landscaping works including rectification works.

Refer to the CMP at **Appendix P** for additional details on works undertaken during each of the sequencing stages.

Installation of Crane

It should be noted that establishment of the work site, including erection of construction hoarding is proposed to be undertaken under Part 5 of the EP&A Act.

A hammer head J280 tower crane or similar is proposed for construction of the concrete structure and installation of the timber frame. The tower crane may be installed and removed over a weekend including Sunday, and will utilise College Walk, third avenue and alumni park. If required, High street will be utilised, with appropriate permits put in place. It will generally be located to the north of the building footprint and will be founded on an external flooring or frame.

3.9.2 Construction Hours of works

Nominated construction hours are as follows:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 5pm
- Sunday: No work

Occasional construction activity may be carried out outside of the above nominated hours of work for special deliveries, tower crane installation, hoarding removal and services cutovers.

3.10 Infrastructure and Utilities Services

Comprehensive services and infrastructure upgrades are proposed across this part of the Campus as part of the REF works. The design of these works has taken the proposed new D14 Building into consideration, and will be capable of servicing the new building.

In addition to the works being carried out under the REF authorisation, some additional services upgrades are proposed as part of this DA, as summarised below.

Electrical and Telecommunication

An Infrastructure and Services Management Plan prepared by Lendlease is provided with this application at **Appendix S** and confirms that the existing campus electrical and telecommunication services can accommodate the proposed development.

It should be noted that UNSW Kensington campus comprises a private electrical network. The electrical infrastructure within the campus is arranged to meet the requirements of the UNSW reticulation strategy, and Ausgrid is not required to undertake network modifications or provide any infrastructure for the development. The electricity supply to the D14 Building will be derived from a nearby substation in Building E15. Sufficient capacity exists in this substation to supply the D14 Building and so no substation is required, and no additional work is necessary to be undertaken to the high voltage network or to the substation.

The D14 Building is proposed to be connected to the UNSW campus communications network by two incoming underground cables. These will connect to the existing UNSW underground conduit system that runs around the site. Sufficient capacity exists in the UNSW communications system to service the D14 building. As these cables will be owned by UNSW and will be located on UNSW controlled land, no easement will be required.

Domestic and Fire Water Sewer Drainage, Stormwater Drainage, Natural Gas, Bore Water

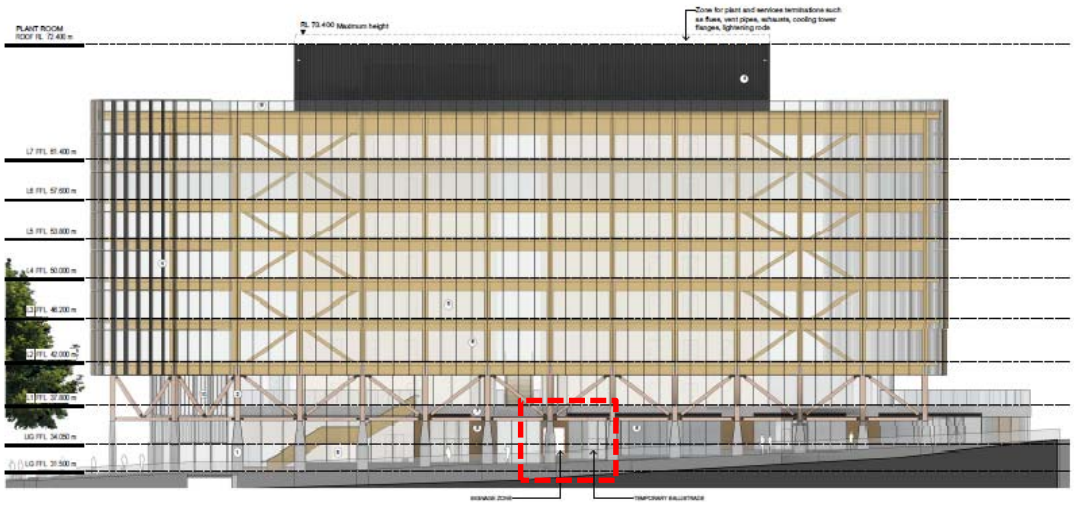
All hydraulic water, sewer, stormwater drainage, gas and bore water services are privately owned and managed by UNSW. Accordingly, all connections will be made to the UNSW infrastructure in accordance with the UNSW hydraulic standard and in locations approved by UNSW Estate Management.

3.11 Remediation Work

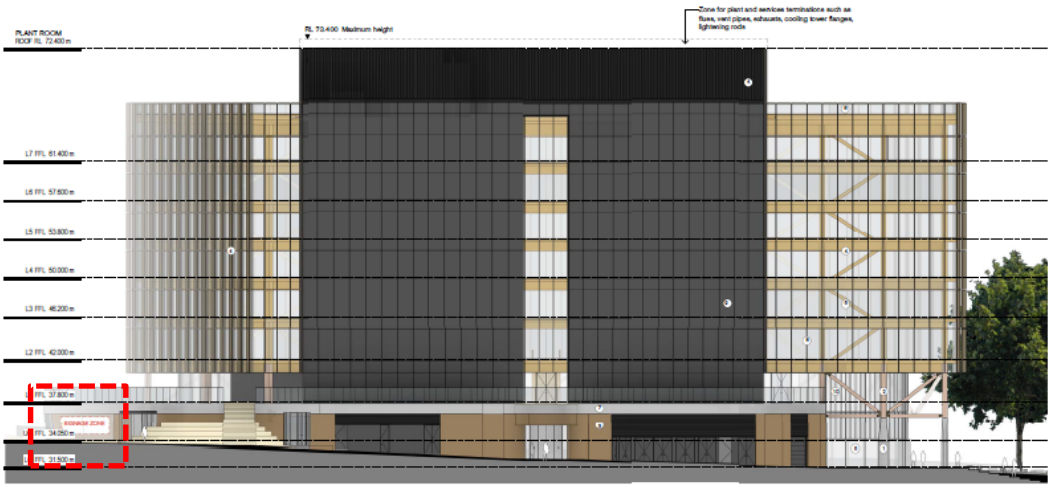
As identified under the Contamination Report (**Appendix U**), further investigation is proposed to determine potential contamination within the footprint of the existing UNSW Hall building. It is noted that this can only be carried out post demolition of the existing building (carried out separately under Part 5 of the EP&A Act). A Remediation Action Plan (**Appendix V**) has been prepared by Douglas Partners and outlines the intended remediation strategy for the site, should the further investigation works reveal the need for remedial action. The remediation strategy for the site is discussed in more detail at **Section 5.10** of this report.

3.12 Building Identification Zones

Two signage zones are proposed, one along the southern elevation near the south entry (Building Sign 1) and another along the eastern elevation, near the eastern entry (Building Sign 2) at Ground Level (refer to **Figure 25**). If necessary, separate approval will be obtained by UNSW in the future for detailed signage within the identified signage zones.



Building Sign 1 signage zone



Building Sign 2 signage zone

Figure 25 Signage zones

Source: Tzannes

4.0 Consultation

In accordance with the SEARs issued for this project, consultation was undertaken with relevant public authorities, the community and Council.

A summary of the consultation undertaken to-date with Council, the community and relevant agencies is provided below. Several consultants have undertaken additional consultation with relevant parties during the preparation of their reports.

Table 4 Summary of Issues Raised and Response

Key Issue	Response
Government Architect NSW	
• The proposed building effectively addresses the Whitehouse and Fig Tree open spaces to the north east and the UNSW Quadrangle to the south east through arrangement of external circulation, building massing and program. • The single storey 'satellite' building to the eastern end of D14 housing a retail/hospitality use shows respect in its scale to Goldstein Hall and will activate the key junction of College Walk and the University Quadrangle with Fig Tree Lane."	• Ongoing design development has further enhanced ground level connectivity between Alumni Park, College Walk and Fig Tree open spaces by continuing the ground floor Student Led Space across the entire ground plane from west to east, stepping up through a series of occupied platforms in response to the site topography. The single storey 'satellite' building proposed to the eastern end of D14 has been absorbed into the building footprint, further opening up the space between D14, Goldstein Hall and the Quadrangle. The eastern alignment of the tower element has been further profiled and refined to reach towards and have a relationship with the western corner of the Quadrangle, extending the colonnade further east along College Walk. • The north-east façade directly addresses the Fig Tree precinct to the north-east whilst retaining solar access to the Quadrangle to the south-east. • A single storey terrace extension to the east on level 1maintains a transition of the tower massing to the adjoining open space and Whitehouse / Goldstein Hall.
• The main lift entry and vertical circulation path through the building is currently accessed through an open, north/south corridor bisecting the floor plan at ground level. • The panel expressed concerns at this 'through site link' around entrance legibility, safety and amenity. The corridor is currently approximately 2.5m wide and generally one storey tall, limiting sight lines for people exiting the lifts; it is currently unclear whether there is a principle entrance.	• The original external 'through site link' has now been incorporated within the internal ground floor space. Enclosing this connecting link, provides safer and more secure movement through the building and direct connectivity between all student and faculty activities. • Entrance legibility from the colonnade has been developed though the articulation of the entrance with a curved inset facade at ground level and level 1 expressing an obvious and generous entry point. Additional building entry points are provided east, west and north to deliver clear way finding from any approach direction.
• The panel is concerned, that the student led space does not fully engage with the outdoor spaces to the west of the building, terminating Alumni Park. • There are concerns around the need to leave the building interior to access the lifts from the student led space. • The Internal circulation stair between Ground and Mezzanine levels is supported but could benefit from further consideration of how it engages with the upper and lower level spaces it links. • The terraces at L1 currently feel isolated from active interior spaces and may benefit from a direct connection via external stairs from ground level. • The plan of the typical faculty floors presents challenges with regards daylight and natural ventilation, given the 27m deep floor plate.	• The western edge of the ground plane will be activated with eating lounges, retail tenancy and social spaces to engage with the outdoor space. Beyond the facade, loose furniture is proposed for the terrace and the landscaped steps furnished with integrated seating to populate these desirable student social spaces. • The Lift Lobby is now unified with the internal Student Led Space. • Level 1 has been amended to include CATS and a "gallery space. • The Internal circulation stair from the west provides a direct link from the ground floor student led space to the level 1 "gallery." • A new external stair link in the north east corner orientated towards the Fig Tree precinct and Gate 4 creates an additional connection point between ground and Level 1 • The Level 1 façade has been pulled back to the east allowing connectivity between the landscaped northern

Key Issue	Response
	terraces and more open eastern terrace for looking over Fig Tree precinct and Whitehouse. • The potential for natural ventilation throughout workplace levels was revisited with UNSW, however issues with management of a mixed mode system and poorly designed precedents have negated this opportunity. Daylight studies have confirmed excellent daylight autonomy levels (being a minimum of 160 lux from daylight for at least 80% of business hours) of 58%, with >40% being 'acceptable' and >60% 'ideal'.
Comments • The D14 building presents a number of challenges around thermal comfort, internal amenity and energy use: • Large glazed facades facing west to all floors • Deep floor plates requiring heavy reliance on mechanical ventilation and artificial lighting • Inoperable facades creating reliance on HVAC rather than fresh air. • Sunshading currently shown is not considered adequate to achieve internal comfort. • The panel mentioned BIPV [Building Integrated PV] as one possible means to address overheating and energy use. • Regarding the timber structural components, the panel recommends sourcing the frame within Australia to reduce the embodied energy of the structure.	• D14 is targeting a 6 star Greenstar rating. • Level 2-7 facades on the west, north and east have double glazed high performance glass and both horizontal and vertical external shading as well as internal blinds. Additional external sun shading louvres have been added to the double height Student Led Space on the ground and first floor on the west to reduce heat load in that area. • Deep floor plates are a necessity of the brief management for maximum future flexibility and width for teaching and learning spaces. The glazed facades maximise natural light penetration. • Sunshading has been confirmed as adequate by ESD analysis. • BIPV was further explored, however the efficiency was lower than a roof mounted system and also created maintenance complications. • The timber for the colonnade elements is proposed to be sustainably sourced from Australia. The Glulam and CLT structure are sourced from overseas as Australia does not currently have the capacity to produce the volume and size of structural members required within the time frame required.
The panel urges the team to explore taking the primary timber structure closer to ground – the tall concrete column bases could be reduced in height to enable close visual and even physical contact with the timber elements from ground level."	The tall concrete bases address several issues: • They provide a robust element close to the ground plane which will be subject to most damage, wear and tear. • Provide the necessary strength to withstand vehicular impact. • Provide a constant top datum that rationalises the 4.5m level change across the site. • Protect the timber structure from exposure to termites
Randwick Council – meeting 24 October 2018	
Heritage – would like to see the colonnade height as a response to heritage buildings. Also can the landscape interpret racecourse past?	The colonnade has been provided as a double height space to provide a more seamless indoor outdoor inviting feel to the building. The undercroft space also promotes additional visual separation to the adjoining Heritage Conservation Area. The landscape strategy has opted for an open and modern feel which is in keeping with UNSW's broader masterplan framework.
Traffic – Bicycle parking appears to be tucked away, is there more being provided in the public realm?	Secure bicycle parking and end of trip facilities are provided for occupants of the building. There is also a broader strategy for providing bicycle parking by UNSW throughout the campus as part of other separate upgrade works. The design team has also ensured that the ground plane is as open and obstruction free as possible.
Aboriginal Archaeology Consultation	
To be carried out in accordance with the Office of Environment & Heritage guidelines and inform both the draft and final Aboriginal Cultural Heritage Assessment Reports (ACHAR).	Aboriginal community consultation is currently being undertaken in accordance with the OE&H guidelines with all relevant Registered Aboriginal Parties (RAP). All RAPs are provided until 20 November 2018 to respond and their responses will be considered in the preparation of the draft ACHAR. The draft ACHAR report will then be provided to all

Key Issue	Response
	RAPs for review and comment and at least 28 days provided for review and comment. On receipt of comments on the draft ACHAR, the ACHAR report will be finalised for submission. This is anticipated to be by mid-January 2019, or if possible, prior to the end of December 2018.

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

5.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see **Section 1.5**). The Mitigation Measures at **Section 7.0** complement the findings of this section.

5.1 Compliance with Relevant Strategic and Statutory Plans and Policies

The legislation, strategies, planning instruments, and policies which are relevant to the proposed development are listed below and are addressed in the following sections.

- NSW State Priorities;
- A Metropolis of Three Cities – the Greater Sydney Region Plan;
- Eastern City District Plan;
- Future Transport Strategy 2056;
- State Infrastructure Strategy 2018 – 2038 Building Momentum;
- Better Placed An integrated design policy for the built environment of New South Wales (GANSW, 2017);
- State Environmental Planning Policy (State and Regional Development) 2011;
- State Environmental Planning Policy 55 – Remediation of Land (SEPP 55);
- State Environmental Planning Policy (Educational Establishments and Child Care Facilities 2017);
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy 64 – Advertising and Signage;
- State Environmental Planning Policy – Hazardous and Offensive Development;
- Draft State Environmental Planning Policy (Remediation of Land);
- Randwick Local Environmental Plan 2012;
- Randwick DCP 2013; and
- Crime Prevention Through Environmental Design (CPTED) Principles

5.1.1 Relevant EPIs, Policies and Guidelines

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in **Table 5**.

Table 5 Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW State Priorities	The NSW State Priorities are a series of reforms designed to grow the economy, deliver infrastructure, and improve health, education and other services across NSW. Whilst not directly related to the proposed development, the project will facilitate the delivery of significantly upgraded education infrastructure, noting that the NSW State Priorities seek to improve educational results.
A Metropolis of Three Cities – the Greater Sydney Region Plan	The Greater Sydney Region Plan is the current metropolitan planning strategy that establishes a vision for the future growth of Sydney to 2056. The proposal broadly supports the ten directions outlined in the Strategy in that it: • Contributes to the creation of employment opportunities; • Contributes to the growth and improvement of the Randwick health and education precinct; • Integrates land uses with public transport; and

Instrument/Strategy	Comments
	• Will improve the competitiveness of The Harbour CBD by delivering a new state of the art educational facility that will support the achievement of an internationally competitive health and education precinct.
Eastern City District Plan	The Greater Sydney Regional Plan comprises of six districts. The District Plans identify the overarching strategic directions and goals for each of the six districts. The site is located within the Eastern City District and is identified as a Health and Education precinct and Collaboration Area. The proposal is consistent with the following directions identified for collaboration areas and education precincts under the Eastern City District Plan: • Supports the growth of core health and education activity; • Improving transport, walking and cycling connections across the precinct; and • Supporting the growth of innovation and advanced research industries. The Strategy identifies the Randwick Collaboration Area as having the potential to evolve into a health and education district. This proposal aims to provide a new multipurpose building within the UNSW campus that will provide contemporary facilities and promote new format learning, creative thinking and innovation. It also aims to provide faculty office spaces for University staff providing ongoing opportunities for research and innovation.
Future Transport Strategy 2056	The Future Transport Strategy is an update of the 2012 Long Term Transport Master Plan for NSW. It provides a 40 year strategy for NSW's transport system. The proposed development is consistent with the Strategy in that it will provide a new educational facility in proximity to existing bus and rail infrastructure. The proposal does not include parking. By providing no additional parking, the proposal will encourage the use of public transport and will assist in improving the modal split between cars and public transport.
State Infrastructure Strategy 2018 – 2038 Building Momentum	The Strategy outlines a 20 year strategy for infrastructure development in NSW in order to address a number of key challenges and opportunities, including population growth, demographic change, climate change and an emerging fiscal gap. The Strategy identifies that the NSW economy is expected to grow from $539 million to $1.4 trillion over the next 40 years. The projected economic growth will increase the demand for economic and social infrastructure. The proposal will deliver a new educational facility and consequently will provide state of the art educational infrastructure to meet the needs of a growing population and a growing economy.
State Legislation	
EP&A Act	The proposed development is consistent with the objects of the EP&A Act for the following reasons: • The proposal seeks consent for a state of the art educational facility that will promote the social and economic welfare of the community. • The proposal will facilitate the ecologically sustainable redevelopment of land by ensuring minimal impact to the site's ecology whilst delivering a facility that addresses the teaching needs of the university. • The proposal allows for the orderly and economic development of land. • The proposal has been designed to minimise the impact on the environment to the greatest extent possible and will not compromise the ecological values of the site. • It will have no impact to the heritage conservation areas in proximity to the site. • The scheme will deliver an educational facility that exhibits design excellence and will contribute to the amenity of the surrounding built environment. • Throughout the design development phase opportunities for public involvement and participation have been provided. • Throughout the design development phase opportunities for public comment by local and state planning authorities have been provided and addressed by the application, therefore facilitating the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State. • Measures outlined in the supporting documentation are proposed in order to promote the proper construction and maintenance of the building along with the health and safety of the occupants and those responsible for its construction. The proposed development is consistent with Division 4.7 of the EP&A Act, particularly for the following reasons: • the development has been declared to have state significance; • the development is not prohibited by an environmental planning instrument; and

<table>
<tr><th>Instrument/Strategy</th><th>Comments</th></tr>
<tr><td></td><td>• the development has been evaluated and assessed against the relevant heads of consideration under section 4.15(1).</td></tr>
<tr><td>EP&A Regulations</td><td>The EIS has addressed the specification criteria within clause 6 and clause 7 of Schedule 2 of the EP&A Regulation. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see Section 5.5).

As required by clause 7(1)(d)(v) of Schedule 2, the following additional approvals will be required in order to permit the proposed development to occur.
<table>
<tr><th>Act</th><th>Approval Required</th></tr>
<tr><td colspan="2">Legislation that does not apply to State Significant Development</td></tr>
<tr><td>Coastal Protection Act 1979</td><td>N/A</td></tr>
<tr><td>Fisheries Management Act 1994</td><td>N/A</td></tr>
<tr><td>Heritage Act 1977</td><td>N/A</td></tr>
<tr><td>National Parks and Wildlife Act 1974</td><td>N/A</td></tr>
<tr><td>Native Vegetation Act 2003</td><td>N/A</td></tr>
<tr><td>Rural Fires Act 1997</td><td>N/A</td></tr>
<tr><td>Water Management Act 2000</td><td>N/A</td></tr>
<tr><td colspan="2">Legislation that must be applied consistently</td></tr>
<tr><td>Fisheries Management Act 1994</td><td>No</td></tr>
<tr><td>Mine Subsidence Compensation Act 1961</td><td>No</td></tr>
<tr><td>Mining Act 1992</td><td>No</td></tr>
<tr><td>Petroleum (Onshore) Act 1991</td><td>No</td></tr>
<tr><td>Protection of the Environment Operations Act 1997</td><td>No</td></tr>
<tr><td>Roads Act 1993</td><td>No</td></tr>
<tr><td>Pipelines Act 1967</td><td>No</td></tr>
</table></td></tr>
<tr><td>SEPP (State and Regional Development) 2011</td><td>Under Schedule 1 clause 15, Development for Educational Establishments with a capital investment value of more than $30 million is SSD. As the proposed development will have a capital investment value of approximately $117.5 million (see Appendix D) it is defined as SSD.</td></tr>
<tr><td>SEPP 55</td><td>SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. A contamination investigation has been prepared for the site (see Appendix U) and demonstrates the site is suitable for the proposed development, however, localised areas of contamination are noted. Refer to Section 5.10 of this report.

The SEPP also specifies when consent is required for remediation of contaminated land. In this instance, a part of the site falls within the Old Tote and Fig Tree HCA, and as such consent is required to carry out Category 1 remediation works on the site. On this basis a Remediation Action Plan prepared by Douglas Partners is provided with this application (Appendix V). The RAP identifies that further data gap investigation are necessary following demolition of the existing building (under Part 5 of the EP&A Act) to determine the preferred remediation works carried out on site. Refer to Section 5.10 of this report.</td></tr>
<tr><td>SEPP (Infrastructure)</td><td>The aim of this SEPP is to facilitate the effective delivery of infrastructure across the State, including providing for consultation with relevant public authorities about certain development during the assessment process. The proposed development does not have direct frontage to a classified road. Further, the proposed development will not accommodate any additional students, staff, or car parking. The proposal will allow for a re-distribution of the existing campus population. As such, the development is not anticipated to generate additional person trips and is not considered to be traffic generating development as defined under clause 104. Pursuant to clause 102, appropriate measures</td></tr>
</table>

Instrument/Strategy	Comments
	have also been considered to ameliorate any impact from road noise or vibration impact. Refer to **Section 5.14** of this report or **Appendix K**.
SEPP 64 – Advertising and Signage	Pursuant to clause 8 of this SEPP, assessment of signage against the Schedule 1 assessment criteria is required for installation and display of signage. The design report sets out a concept signage strategy which nominates signage zones for future building and business identification signage. The intent of the strategy is to provide a coordinated approach for future installation of signs across the development. Given that installation and display of these signs are subject to a separate future approval process, assessment of SEPP 64 assessment criteria is not required. Any future signage application for installation and display of signage will be assessed against the SEPP objectives and the Schedule 1 assessment criteria.
SEPP 33 – Hazardous and Offensive Development	The proposed development is not identified as a potentially hazardous industry or a potentially offensive industry as described under this SEPP or relevant guidelines. Therefore, the preparation of a preliminary hazard analysis is not warranted for this development.
State Environmental Planning Policy (Educational Establishments and Child Care Facilities 2017)	The proposed development is consistent with the aims of the SEPP for the following reasons: • The proposal provides for the efficient redevelopment and use of land; • The proposal will deliver a state of the art educational facility that will contribute to improving the quality of the infrastructure provided by the university; • Opportunities for consultation with all relevant public authorities have been provided; and • The development is not traffic generating development under clause 57 of the SEPP as it simply relocates existing staff and students within the campus and is not intended to contribute to the overall campus population. Further, the building does not provide any on site car parking and therefore is not anticipated to result in any additional traffic generation.
Draft State Environmental Planning Policy (Remediation of Land)	The Draft SEPP Remediation of Land is currently under review and was released for public exhibition in January 2018. The objectives of the draft SEPP along with its key operational framework remain consistent with SEPP 55. The draft SEPP differs in that it contains new provisions that: • Require all remediation work that is to carried out without development consent, to be reviewed and certified by a certified contaminated land consultant; • Categorisation of remediation work based on the scale, risk and complexity of the work; and • Require environmental management plans relating to post-remediation management of sites or ongoing operation, maintenance and management of on-site remediation measures (such as a containment cell) to be provided to council. Refer to assessment provided within the contamination investigation prepared by Douglas Partners at **Appendix U**.
Draft State Environmental Planning Policy (Environment)	The Draft SEPP Environment was released for public exhibition in October 2017 and aims to repeal and replace a number of State Environmental Planning Policies and Sydney Regional Environment Plans that currently apply in NSW. The proposed development does not require further assessment under this Draft SEPP given the site is not zoned for the purposes of public open space, does not contain and is not in proximity to bushland, and is not subject to the SEPPs to which the draft EPI seeks to consolidate.
Local Planning Instruments and Controls	
Randwick Local Environmental Plan 2012	
Clause 2.1 – Land Use Zones	The site is zoned SP2 – Infrastructure (Educational Establishment). Development for the purposes of educational establishments (including any development that is ordinarily incidental or ancillary to development for that purpose) is permissible with consent. The proposal is therefore permissible within the zone. The proposal is consistent with the zone objectives as it will provide a land use that provides facilities and services to meet the day to day needs of the local residents.
Clause 4.3 – Height of Buildings	A maximum height limit does not apply to the portion of the site that forms a part of this application.
Clause 4.4 – Floor Space Ratio	A maximum FSR standard does not apply to the portion of the site that forms a part of this application.

Instrument/Strategy	Comments
Clause 5.10 – Heritage conservation	The site is not a heritage item. Notwithstanding, a small, marginal portion of the site falls within the Old Tote and Figtree Theatre (C2) HCA. The Racecourse (C13) HCA is located further northward of the site. A Statement of Heritage Impact undertaken by Tanner Kibble Denton Architects (refer to **Appendix E** demonstrates that there will be no adverse impact on the heritage conservation areas to the north. See **Section 5.8** for further discussion. In light of the heritage context of the site, any remediation work on site warrants development consent in accordance with SEPP 55. Accordingly, a Remediation Action Plan has been prepared for the site. Refer to **Section 5.10** of this report.
Clause 6.1 – Acid Sulfate Soils	The site is not located on or in proximity to land classified as containing acid sulfate soils.
Clause 6.3 – Flood Planning	The proposal has suitably considered the objectives and provisions of this control, as outlined within the Stormwater Assessment at **Appendix Q**.
Clause 6.4 – Stormwater Management	A Stormwater Management Statement has been prepared by WSP, which considers the impact of the proposal on stormwater flows, as well as potential impact on properties in proximity to the site. Refer to **Section 5.10** of this report or **Appendix Q** of this report.
Clause 6.8 – Airspace Operations	In accordance with the objectives and provision of this clause, the details of the proposal have been referred to SACL for initial comment and will be subject to further approval by relevant agencies.
Clause 6.11 – Design Excellence	An assessment against the design excellence provisions of the LEP is provided below in **Table 6.**
Randwick Comprehensive Development Control Plan 2013	
	In accordance with Clause 11 of the SRD SEPP and Planning Circular P2 11-019 DCPs do not apply to SSD, however a brief assessment is provided in **Section 5.2** below.

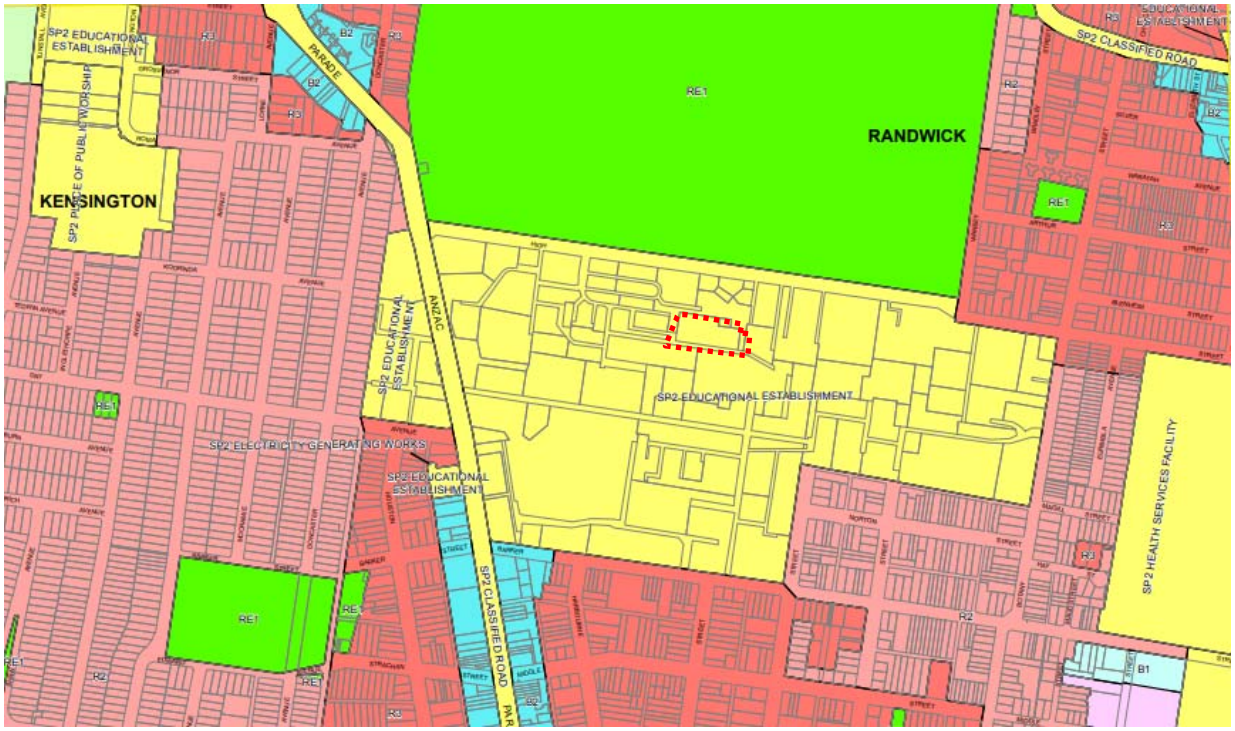


Figure 26 Land Use Zoning Map Extract (site location shown in red)

Source: Randwick LEP 2012

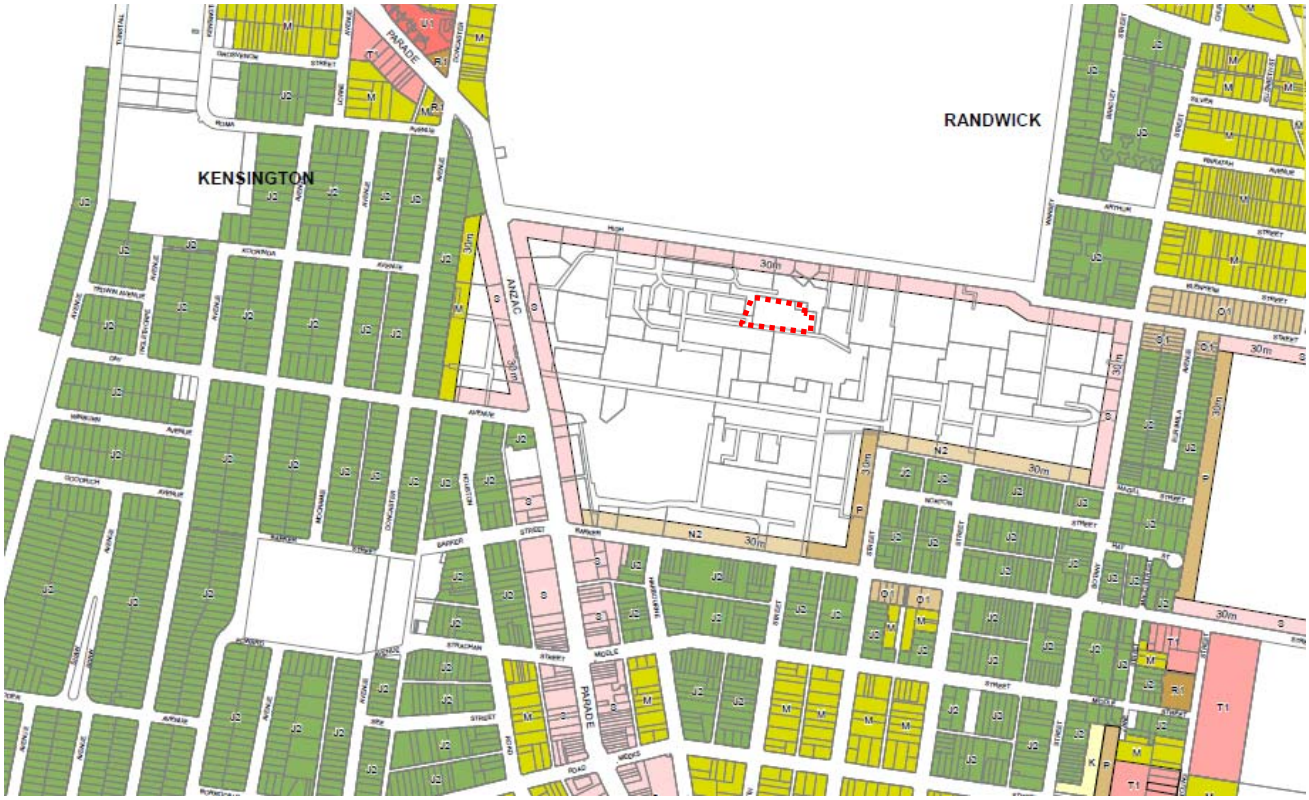


Figure 27 Building Height Map Extract (site location shown in red)

Source: Randwick LEP 2012

Randwick LEP 2012 – Design Excellence Provisions

In accordance with Clause 6.11(4) of the Randwick LEP 2012, in considering whether the development exhibits design excellence the consent authority must have regard to a number of matters of consideration**.** An assessment against each of the matters for consideration is provided in **Table 5** below**,** confirming the proposal exhibits design excellence.

Table 6 Consistency with Clause 6.11 of LEP 2012

Clause	Assessment
a) Whether a high standard of architectural design, materials and detailing appropriate for the building type and location will be achieved.	As demonstrated in the Architectural Drawings and Architectural Design Report (**Appendix A**), the design, materiality and detailing of the proposal is of high quality, and considerate of the context and proposed uses.
b) Whether the form and external appearance of the development will improve the quality and amenity of the public domain.	The proposal incorporates outdoor communal areas and comprehensive landscaping that seamlessly integrate with the surrounding public domain. The integration of the proposal with the surrounding public domain is further achieved through the careful siting of the development and the provision of generous setbacks. As shown at **Appendix A**, the building is of high architectural quality and will contribute visual interest to the Campus.
c) How the proposed development responds to the environmental and built characteristics of the site and whether it achieves an acceptable relationship with other buildings on the same site and on neighbouring sites.	The proposal is commensurate in bulk and scale with other surrounding developments, and responds appropriately to its interface with key public open space areas. As detailed in the Design Report at **Appendix A**, the proposal is designed so as to provide a boundary-less permeable ground plane facilitated by the provision of the proposed colonnade structure at the base of the building and generous setbacks.
d) Whether the building meets sustainable design principles in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency.	The proposal performs well on a range of amenity measures, including safety and security, reflectivity, and ventilation. The proposal has been designed to response to functional requirements of the use and achieves a high standard of environmental sustainability.

Clause	Assessment
e) Whether the proposed development detrimentally impacts on view corridors and landmarks.	The proposed development respects the building alignment established along College Walk. Consequently, view corridors along this primary pedestrian connection are maintained. The visual impact of the proposed development is further addressed at **Section 5.6**. The development also improves curtilage of the conservation area and in particular increases setback and separation to the Whitehouse.

5.2 Randwick Comprehensive DCP 2013

The Randwick Comprehensive Development Control Plan 2013 (RDCP 2013), contains detailed provisions for development of the UNSW Kensington Campus to support the Randwick LEP 2012 under Part E Specific Sites (Randwick Education and Health Specialised Centre. However, in accordance with Clause 11 of the SEPP SRD, the requirements of Development Control Plans (DCPs) do not apply.

Notwithstanding this, consideration has been given to the proposal's consistency with the design principles outlined for the Campus at Part E2 of RDCP 2013. The DCP outlines ten design principles aimed at shaping the Campus experience. These principles are:

- Sustainability;
- Sense of place;
- Legibility;
- Knowledge clusters and hubs;
- Landscape;
- Buildings;
- Housing;
- Retail and services;
- Recreation and cultural facilities and events; and
- Transport.

The proposal is consistent with the relevant design principles in that it will deliver a new state of the art educational facility that will enhance the Kensington Campus and improve environmental sustainability relative to the existing facilities contained within the site. In particular, the proposal will:

- Enhance the sense of place in the lower Campus through the building's relationship with the surrounding public domain and the adjoining heritage conservation area, by delivering a building that activates the ground plane and fosters connectivity.
- Improve the legibility of the precinct by improving pedestrian linkages around the building to the broader Campus;
- Deliver an appropriately scaled built form that allows for the provision of comprehensive landscaping that complements the surrounding public domain;
- Provide a high quality building that scores well on a range of ESD measures and utilises environmentally sustainable materials, including the proposed timber structure that represents a sustainable alternative to traditional concrete structural materials;
- Contribute to the ongoing revitalisation of the lower Campus;
- Deliver new retail uses that will provide additional retail opportunities and contribute to the activation of the public domain;
- Strengthen the lower Campus and academic relationships with the existing Hilmer Building, Chemical Sciences and Law Buildings and the SEB development which is currently under construction; and
- Reduce car parking dependence and encourage public transport patronage by excluding parking from the proposed design.

5.2.1 Urban Design

The Framework establishes a development direction for the lower and western Campus. The study focuses on these sections of the Campus as:

- There is greatest opportunity for change in these areas:
- The lower and western Campus lacks legibility and connectivity; and
- There are opportunities to locate facilities in this area to improve the student experience.

The proposal has been developed in accordance with the Framework and supports the strategic objectives of UNSW. The Framework indicates that the site to which the proposal relates is located along College Walk which is identified to be a major pedestrian connection and suitable for redevelopment. It also nominates that a future building is to define the site's built form edges (refer to **Figure 28**). Notwithstanding this, it is noted that UNSW is currently revising the overall campus masterplan. The proposal has also been designed to remain consistent with this draft UNSW Masterplan framework.

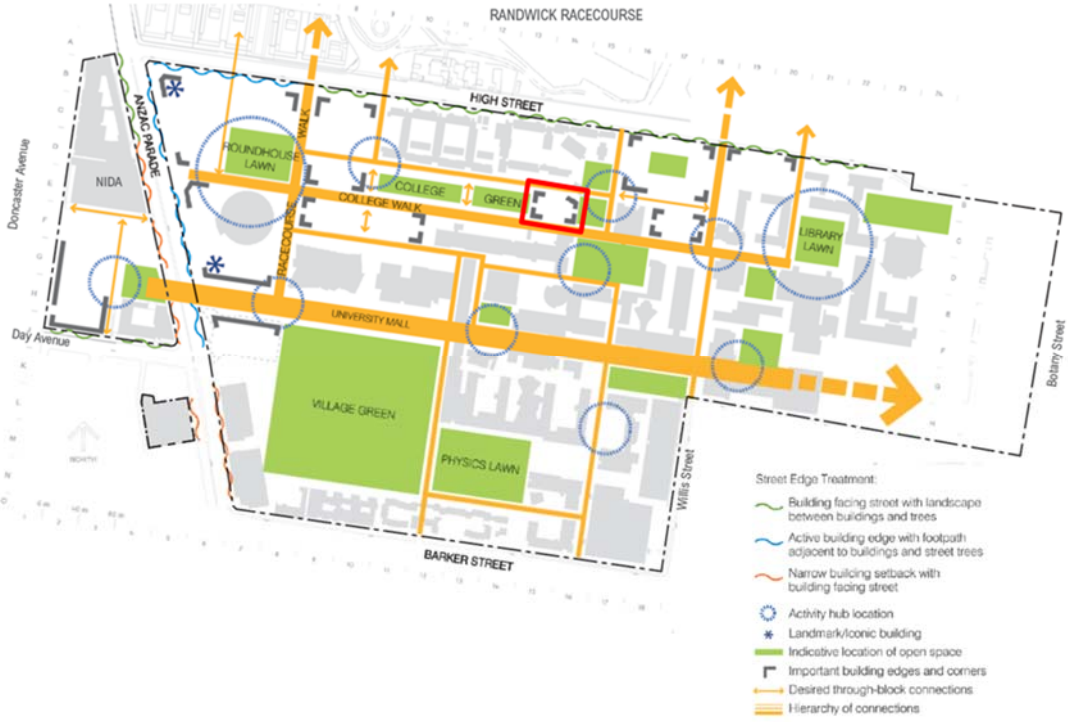


Figure 28 Urban Design Framework (site location shown in red)

Source: Aspect Studios

The Framework also sets out a number of broader key strategies which have been developed to enhance the character of the campus, foster social cohesion and minimise impacts on public domain vistas and access to sunlight. These strategies cover design and appearance, building height, setbacks and building sustainability and include:

- Taller buildings should maintain adequate solar access to surrounding buildings and open spaces between 9am and 3pm during the Winter Solstice;
- Pathways and laneways do not critically require solar access, meaning overshadowing during the Winter Solstice is acceptable;
- Setbacks and building corners articulate the Campus' built form edges and define open spaces.
- The use of water tanks and bore water to reduce potable water consumption; and
- Maximising cross ventilation for all buildings.

The proposal is consistent with these built form strategies. Specifically, it aims to deliver a building within the designated development area; articulate the built form edges of the site; and define the adjacent open spaces. In

light of this, the overarching built form, urban design and landscape strategy for the site has been to achieve an activated, boundary-less and permeable ground plane that fosters connectivity to the surrounding public domain.

As shown at **Appendix A**, the building respects the existing street wall alignment along College Walk for the purpose of defining and enhancing this important street edge. Retail uses are accommodated within the southern portion of the floorplate and will contribute to the activation of this major pedestrian connection.

The siting of the building has been designed to address the proposal's location at the important intersections of Fig Tree Lane and Alumni Park. At the site's eastern aspect, the envelope has been angled to provide a generous setback to Fig Tree Lane and minimise overshadowing to the surrounding public open space areas, including the Quadrangle, to the greatest extent possible. Within this setback, public open space embellishments are accommodated and will present as an extension of the existing open space area. At the western aspect, the building is also setback in order to incorporate an outdoor space with turf seating steps at the ground plane that link to Alumni Park.

The proposal also achieves a high level of sustainability and will reduce potable water consumption. The scheme is also capable of delivering a high standard of amenity, with its open plan layout maximising opportunities for ventilation and its glazed façade providing opportunities for solar access. Sustainability and ESD aspects of the development is discussed further at **Section 4.6** of this report.

5.3 Built Form and Urban Design

The proposal has been informed by the draft UNSW Masterplan Framework and the *Better Placed – An Integrated Design Policy for the Built Environment of NSW (Better Placed) design policy. Better Placed* has been prepared by Government Architect NSW to facilitate the delivery of good design across NSW by providing a guide for best practice design processes. The Strategy details a framework for good design outcomes. This framework nominates seven objectives that are required to be considered during the design phase. The objectives are summarised below and addressed in the subsequent sections.

- Better Fit – Delivering design outcomes with a place-based approach informed by location, context, heritage and the evolving future character of a place.
- Better Performance – Fostering sustainable design and construction.
- Better for Community – Ensuring built form outcomes create inclusive, welcoming and equitable environments with a focus on establishing links with the surrounds.
- Better for People – Create urban environments that are safe, comfortable and liveable.
- Better Working – Designing building and spaces suitable for their intended use that prioritise functionality and efficiency.
- Better Value – Delivering design outcomes that effectively create shared value.
- Better Look and Feel – Providing high quality aesthetically pleasing design outcomes.

Building Envelope and Massing

Tzannes has undertaken a detailed analysis of the site's opportunities and constraints, as well as the building's operational needs, to develop a design which accommodates the necessary services and facilities required by the University. In designing the proposal, various massing options and site layout options were considered. A justification for the preferred massing and site planning approach is addressed below.

The configuration of the building envelope has largely been dictated by the functional requirements of the academic building and the desire to respond to the site's surroundings, including the scale of surrounding buildings, the public domain areas and pedestrian circulation routes in the immediate surrounds. As shown at **Appendix A** the building reaches eight storeys and has a maximum height of RL 73.40m (approximately 41.9m). The proposed height is commensurate with surrounding buildings, including the SEB Building (currently under construction) and the Hilmer Building to the south west, which provide heights of RL 79m AHD and 68.90m AHD, respectively. The Chemical Sciences Building also located within the lower Campus adopts a height of RL 75.6m AHD. Accordingly, the proposed massing and scale is suitable in the context of the other developments on the Campus.

The proposal comprises two components consisting of a two storey base sited beneath a six storey envelope. The massing is simple in formation, adopting a rectilinear footprint. It exhibits a vertical expression that provides opportunities for full height glazing which allows for the visibility of the timber frame. The proposed roof form is a simple flat configuration and considered appropriate for the contemporary aesthetic of the building along with the need to preserve view corridors.

Due consideration has been given to ensuring the massing and site planning is sympathetic to the surrounding built form and public domain. In particular, where the proposal addresses the student accommodation to the north and the adjoining heritage conservation area, the building's mass steps down to the ground plane to provide a more human scale. At this sensitive interface, a low rise structure roof that has a dual function as a balcony is incorporated to further assist in minimising the perceived bulk and scale of the development.

The building's core along with the mechanical plant and service rooms are concentrated along the northern elevation in order to accommodate an extensive open plan area at ground level. Retail uses are contained in the southern portion and with facilitate the activation of College Walk. At the ground plan, the floorplate is inset in the location of the two primary entrance points to the building to clearly define these access points.

In accordance with the *Better Place* design policy, the scheme has sought to respond to the local character by delivering a design outcome that is sympathetic to the adjoining heritage conservation area and public open spaces. More specifically, the proposed setbacks combined with the configuration of the envelope are informed by four key public domain and masterplan elements, which include:

- Alumni Park
- College Walk
- Fig Tree Lane
- The Quadrangle

The proposed setbacks and the proposal's relationship to the aforementioned public domain and masterplan elements is addressed below. Overall, the siting and configuration of the envelope has sought to create an open and connected public realm (refer to **Figures 29** to **30**).

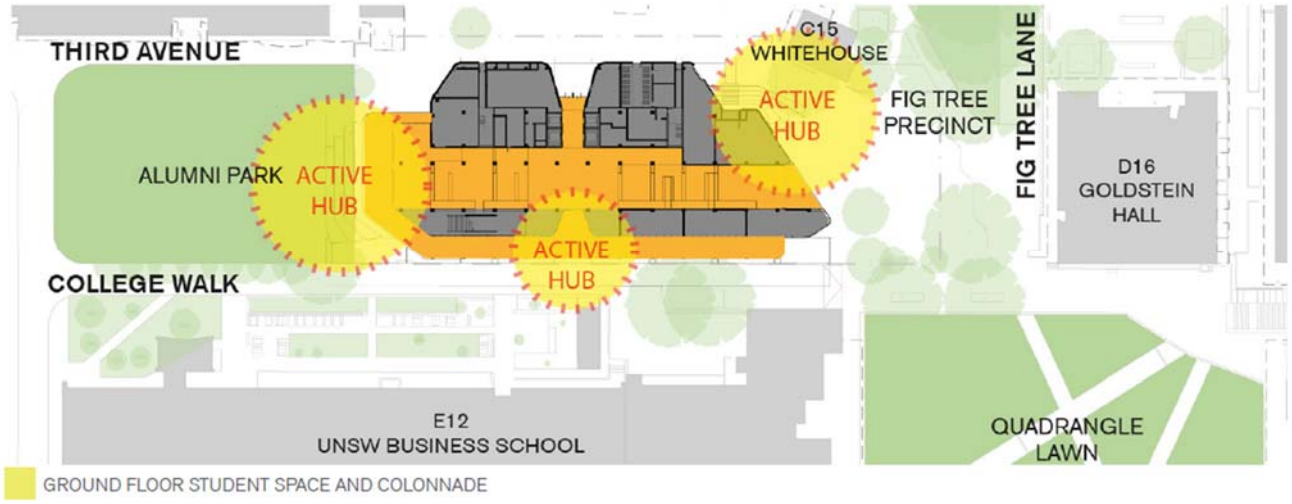


Figure 29 Proposed building siting and street wall alignment along College Walk

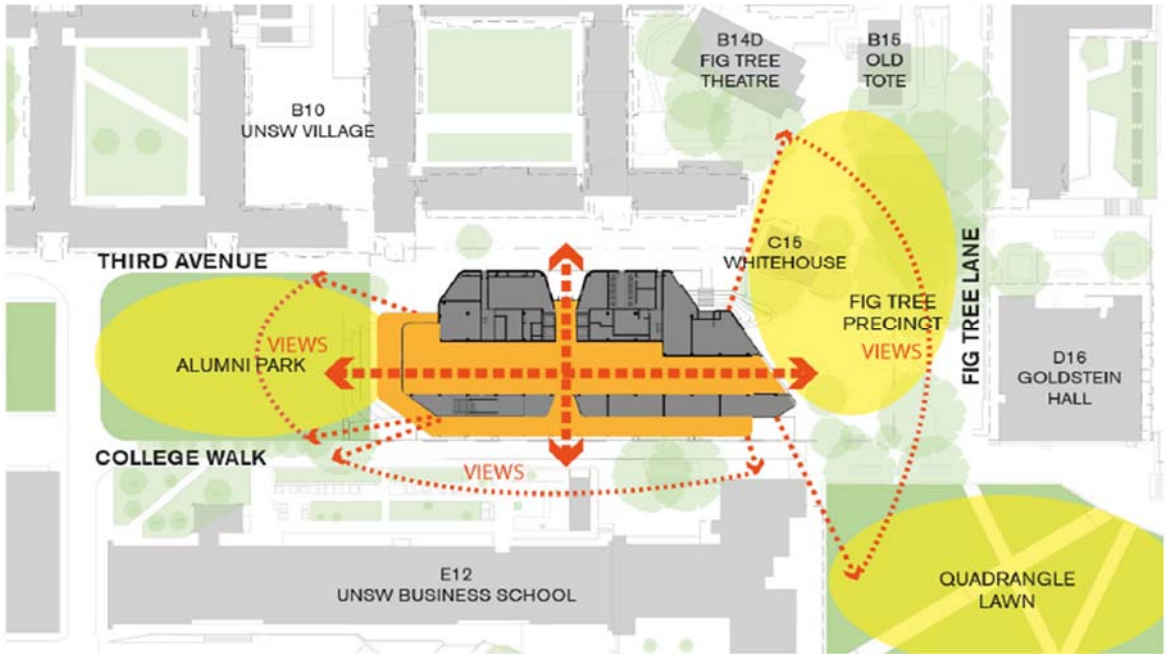


Figure 30 Proposed building siting and street wall alignment along College Walk

Source: Tzannes

Interface with Old Tote / Fig Tree Heritage Conservation Area

As addressed above, the proposal adjoins the Old Tote / Fig Tree Heritage Conservation Area that is located to the direct north east of the site. The Conservation Area is characterised by three buildings being the Old Tote structure, the Fig Tree theatre and the Whitehouse building which is located to the north of the site. The row of Fig Trees to the north east of the site also contribute to the overall aesthetic significance of the site.

To address this sensitive interface, the proposal incorporates a generous setback to the north that will provide a total building separation of 14m up to Level 1 and 23m to Level 2 and higher. It is noted that the setback is varied as a result of the configuration of the building footprint which has been designed to achieve a more human scale. A single storey built form is provided at this interface. The envelope of this single storey is chamfered at either corner, with the centre portion inset for the purpose of not only defining the rear entrance but minimising the perceived bulk of the development. The stepping down of the building to a singular low-rise structure along with the provision of a generous setback and chamfered envelope allows for an appropriate transition in scale.

Interface with Alumni Park

The site adjoins Alumni Park at the site's western aspect which provides opportunities for passive recreation. To protect the solar access and the amenity of this public open space area, a setback of 14.2m to the western boundary is proposed. The setback combined with the proposed landscape embellishments facilitates the achievement of a series of distinct yet connected outdoor and indoor spaces leading up to the building's western entrance point.

The provision of a generous setback provides an opportunity to incorporate a series of landscaped steps that ascend upwards from the eastern edge of Alumni Park to connect with the building's proposed colonnade and internal stairs accommodated within the western foyer entrance. At the south western aspect, the envelope is characterised by a chamfered corner which provides a reduced building mass in this location. The corner edge also increases the extent of the ground plane and contributions to the creation of a boundary-less permeable ground plane that is sympathetic to Alumni Park and maintains view corridors to and from this space.

Interface with College Walk

At the southern boundary, the site interfaces with College Walk which functions as a major circulation promenade towards Anzac Parade. A general setback of 24m to Level 2 and higher is provided to the south to the northern façade of the UNSW Business School building. The setback ensures the building aligns with Goldstein Dining Hall to the east and Alumni Park to the west to provide a consistent street wall alignment along College Walk and to maintain view corridors down this important promenade (refer to **Figure 31**).

As shown at **Appendix A**, the proposal incorporates a colonnade system and active retail uses at ground level which will open out towards College Walk and activate the pedestrian thoroughfare.

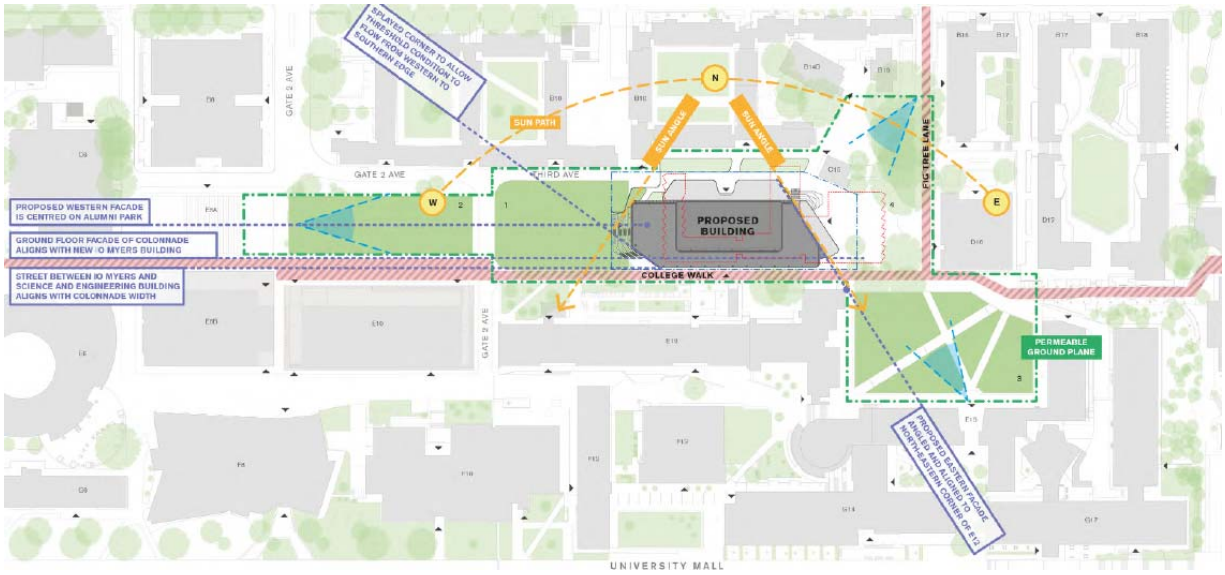


Figure 31 Proposed building siting and street wall alignment along College Walk

Source: Tzannes

Interface with Fig Tree Lane

To the east, the site adjoins Fig Tree Precinct which accommodates a landscaped area that provides a connection to the Old Tote Courtyard, the Whitehouse building and Fig Tree Lane. A minimum setback of 12m from the proposed façade to the Whitehouse is achieved, along with setbacks between 7.9m and 22m from to the Fig Tree Lane Precinct as a consequence of the angular configuration of the building envelope. The envelope adopts an increased setback towards the north for the purpose of increasing solar access to the Old Tote Courtyard and the Quadrangle Lawn (refer to **Figure 31**). The setback also provides an appropriate curtilage around the Whitehouse. Bleacher steps are proposed at this interface and will open the building out towards this area to create a seamless transition to the Fig Tree Precinct (refer to **Figure 32**).

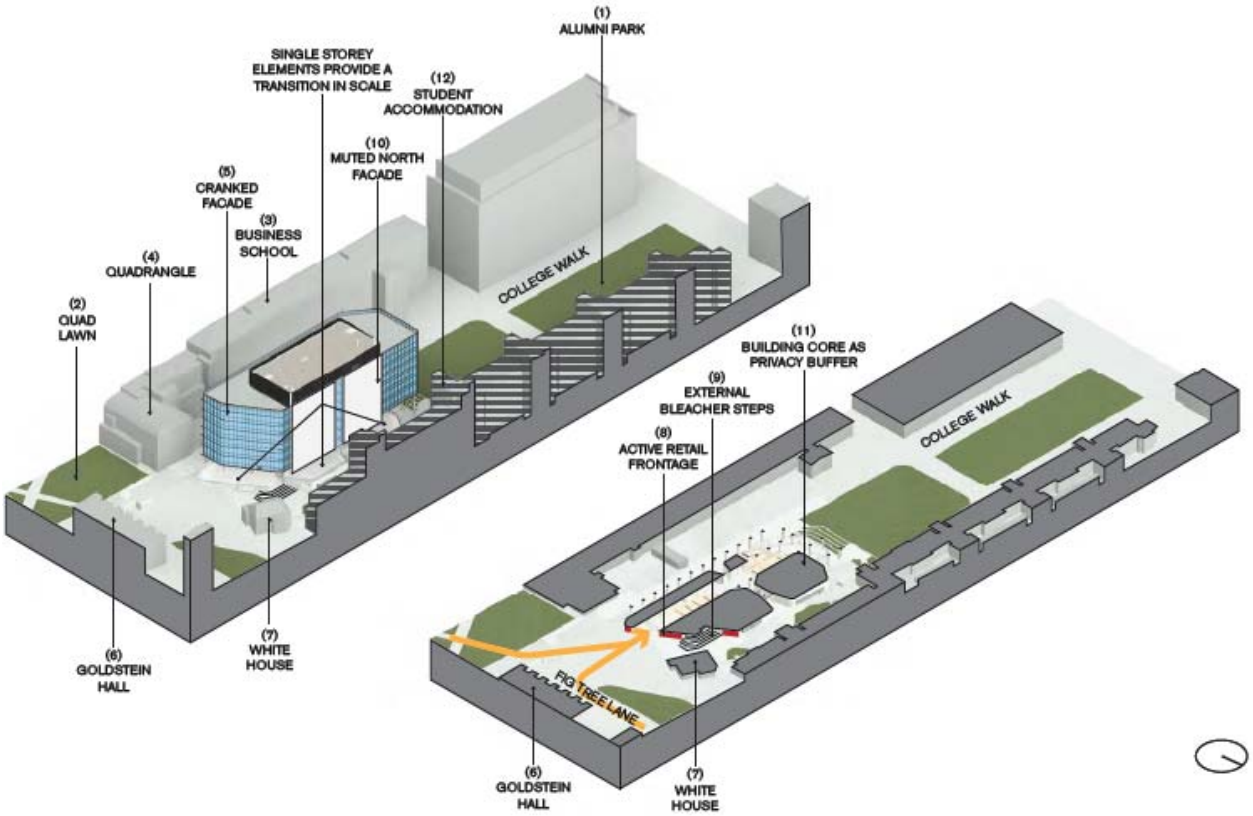


Figure 32 Key public domain elements

Source: Tzannes

Building Articulation and Façade

The proposal reflects a distinctive architectural expression and is of high quality architectural design. As per the *Better Placed* design policy, the articulation of the façade and the selected materiality are sympathetic to the local character whilst being complementary to the evolving future character of the Campus.

As illustrated at **Appendix A**, the proposed architectural expression is defined by a timber structure that adopts a geometric grid formation which exhibits a juxtaposition between a horizontal and vertical expression. This structure is made visible by the inclusion of glazing that wraps around the building's facade. Supporting this structure, is a two storey base characterised by an external geometric colonnade system. The columns are concrete in materiality and extend from the ground upwards to adjoin exposed hardwood struts. The architectural expression makes a positive contribution to the evolving character of the lower Campus which comprises a number of recently constructed and approved developments that are contemporary in appearance.

In response to the heritage conservation area located to the north, the northern façade incorporates a sympathetic and complementary cladding at the base. The proposed cladding in this location combined with the recessed form (undercroft space) contributes to the provision of a reduced bulk at this sensitive interface and provides an appropriate transition scale to the heritage conservation area.

5.4 Visual Impact

As addressed above, the siting of the proposed development has been designed to respond to the surrounding public domain areas and built form.

The proposed development is of a comparable bulk and scale to other developments within the campus and sits amongst similarly sized buildings, including large buildings to the north directly addressing High Street. This setting reduces the scale and associated visual impact of the proposed building when viewed from the broader vantage points to the north.

Figures 33 to **35** demonstrate the views that will be available from within the Campus towards the proposed development. It is considered that the building is appropriate in the context of other nearby buildings such as Goldstein Hall building (east), the UNSW Village (north), the Hilmer Building (south) or the SEB building (west) which is currently under construction. In this regard, the building will not appear as excessive in scale or form. Furthermore, the built form is seen to provide an appropriate street edge definition to key internal streets such as College Walk and Third Avenue. Whilst the proposal will be visible from the surrounding public domain areas, its massing and siting has been carefully considered for the purpose of respecting view corridors from key points within the public domain.

The proposal will have a high level of visibility when viewed looking east from the far end of Alumni Park (refer to **Figure 33**). The proposal has been sited and massed so that the width of the building envelope aligns with Alumni Park. As shown below, the proposal will continue to allow Alumni Park to present as an expansive area of open space. It is noted that the proposal is commensurate in height with the surrounding developments that frame Alumni Park. In this respect, the proposal will sit comfortably in the context of the surrounding built form when viewed from this vantage point.

As shown in **Figure 33**, the south western corner of the proposal is chamfered. The proposed configuration reduces the perceived bulk and scale of the development, providing for a less dominating built form that widens the corridor looking west down College Walk.

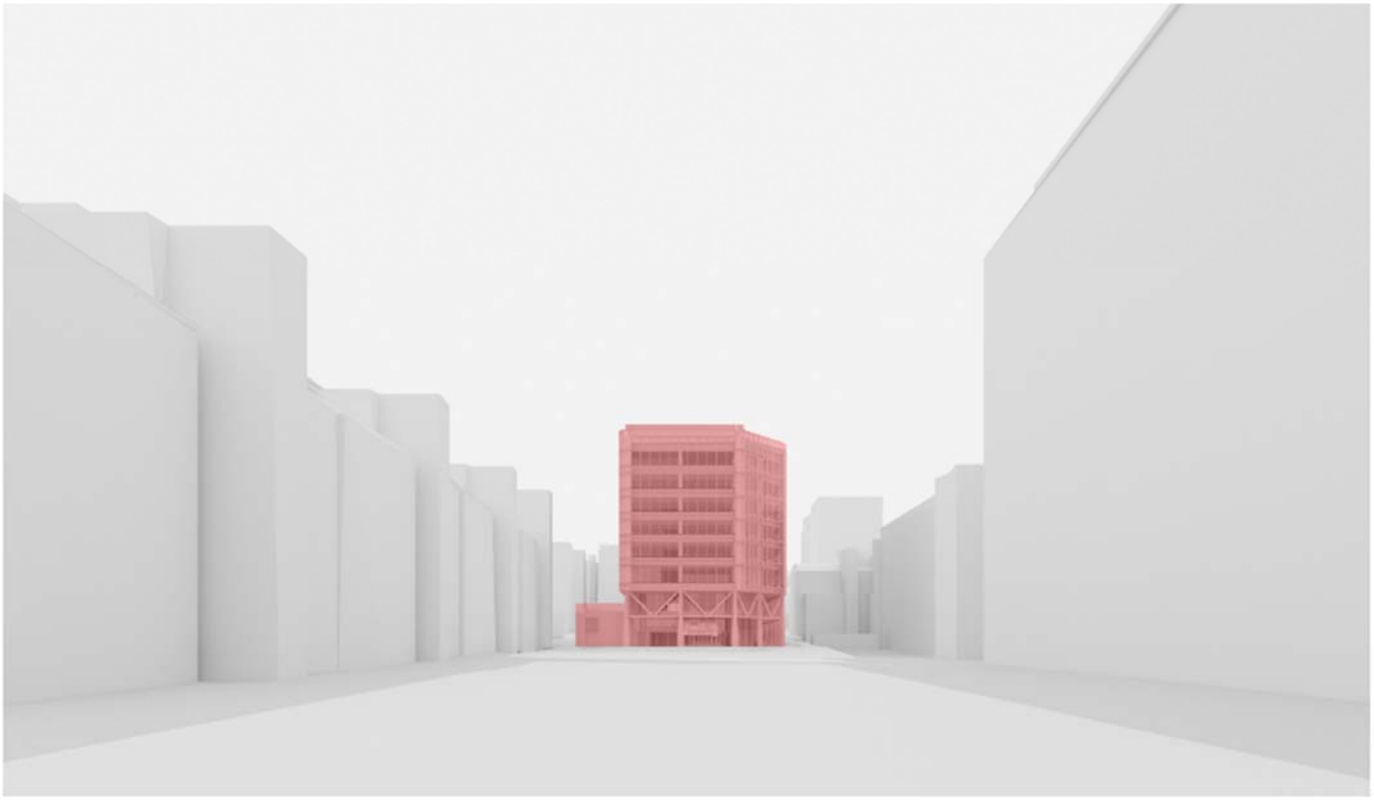


Figure 33 View from west end of Alumni Park

Source: Tzannes

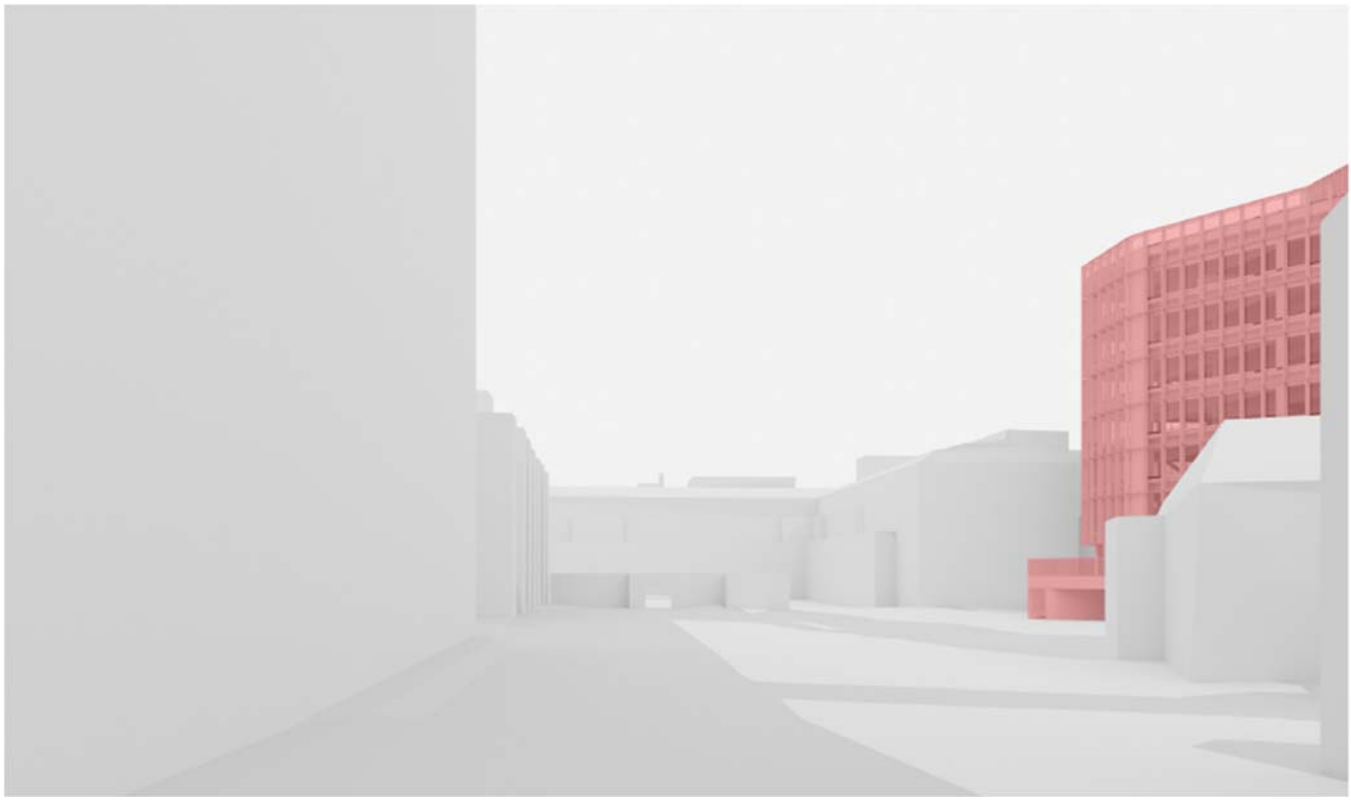


Figure 34 View from Fig Tree Lane near High Street

Source: Tzannes

When viewed from Fig Tree Lane near High Street looking south into the Campus, the proposed envelope is located behind the adjoining built form. Consequently, the proposal will not encroach upon the view line obtained from Fig Tree Lane. Furthermore, as shown in **Figure 35**, a high degree of openness to the sky will be maintained.

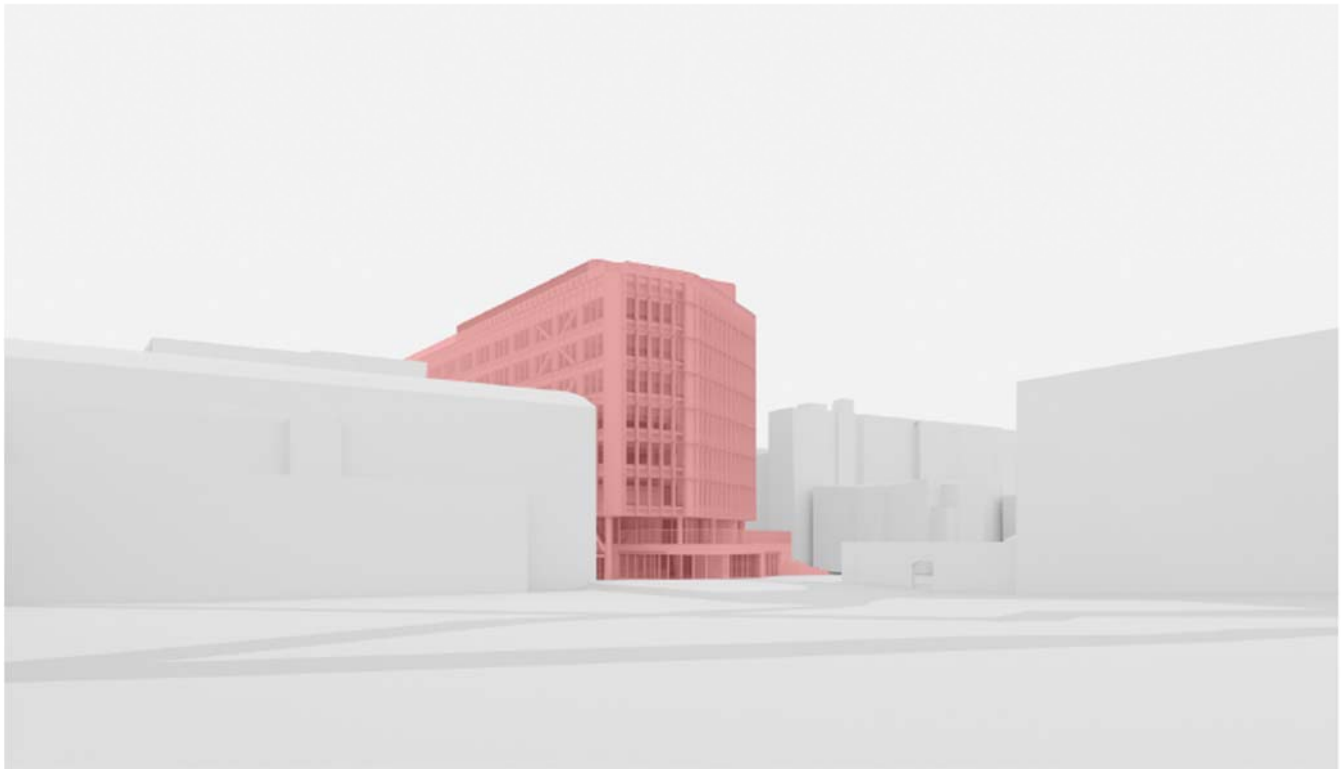


Figure 35 View from south eastern corner of the Quadrangle

Source: Tzannes

Figure 35 depicts the view corridor obtained from the south eastern corner of the Quadrangle viewed looking to the north east towards the Old Tote / Fig Tree heritage conservation area. Given the height of the proposal, the view corridors from this location will be altered, however ameliorated by the scale of the fig trees and adjoining buildings. Further, the angular configuration of the eastern façade significantly reduces the perceived bulk and scale of the envelope and maintains sightlines towards the UNSW Village and the Whitehouse within the Old Tote / Fig Tree heritage conservation area. Further, the proposal is of high quality design and will provide interest from this public space.

5.5 Ecologically Sustainable Development

An ESD Report has been prepared by Lendlease and is included at **Appendix R**. ESD principles will be incorporated into the design, construction and ongoing operation phases of the development in order to meet the principles established under the campus-wide UNSW 2025 strategy for sustainability. The adoption of the ESD principles form part of a framework designed to achieve national best practice sustainability and building principles to improve the development's environmental performance. As outlined in the report the proposal has been designed to achieve a 6 Star Green Star rating under the Green Star Design & As Built v1.2 tool.

The report sets out targeted initiatives for a number of areas, including:

- Encouraging energy savings through the delivery of a high quality indoor environment and carbon reduction initiatives.
- Adopting a framework of Sustainable Building Principles including:
  - use water reuse initiatives to encourage water efficiency and minimise reliance on potable water consumption;
  - adoption of external shading, high performance glazing and blinds to minimise energy use;
  - implementation of cooling efficiency measures;
  - use of LED lighting as opposed to fluorescent lighting for the purpose of reducing energy consumption;
  - construction of a timber structure that will reduce the embodied carbon associated with the project;
  - the undertaking of a Life Cycle Assessment to identify further opportunities to reduce embodied carbon; and
  - inclusion of a rooftop solar photovoltaic array with a minimum target capacity of 30kWp.
- Maximising building performance through the adoption of the following measures:
  - facilitate the achievement of a high standard of operational building performance by prioritising energy and water efficiency,
  - reducing waste to landfill,
  - utilising natural materials including a timber frame; and
  - maximising thermal comfort, solar access and ventilation to the greatest extent possible.
- Undertaking a client change risk assessment that will inform design measures and a Climate Change Adaption Plan for adoption in the design and operational phase.

Overall, the proposal will provide a positive societal outcome by delivering an aesthetically pleasing scheme with a high level of functionality and environmental sustainability.

In addition to the above, the environmental performance of the development has been assessed against clause 7(4) of Schedule 2 of the EP&A Regulations. The proposed development is consistent with the five accepted principles of ESD, as described below.

5.6 Solar Access and Overshadowing

Shadow diagrams prepared by Tzannes at **Appendix A** demonstrate the shadow impacts associated with the proposed development, including changes to solar access as a result of the demolition of the existing D14 building (as part of the broader campus masterplan works).

The shadow diagrams demonstrate that during the winter solstice (21 June), the proposed development will cast shadows that largely fall on the public domain area to the south and east, which predominantly consists of the internal road network.

Due consideration has been given to the massing of the building to reduce overshadowing to surrounding public domain areas and in particular open space areas such as the Quadrangle and Fig Tree Lane to the greatest extent possible. Furthermore, no additional overshadowing will occur to the public open space area known as the Quadrangle between 9am and 1pm. It is noted that whilst this space is overshadowed by other adjacent buildings, the demolition of the existing built form combined with the proposed envelope will actually improve solar access to the Quadrangle from 11pm to 1pm which is generally when the Quadrangle is commonly used by staff and students.

Importantly, the proposed scheme significantly improves solar access to the Fig Tree Lane and Old Tote Courtyard from 9 am to 3pm and enhances the character and quality of this significant heritage precinct within the campus. The development provides landscaping and public domain embellishments within this courtyard creating new spaces within the campus with improved access to sunlight for outdoor relaxation.

Figure 36 11am June 21

Source: Tzannes

Figure 37 12pm June 21

Source: Tzannes

Figure 38 1pm June 21

Source: Tzannes

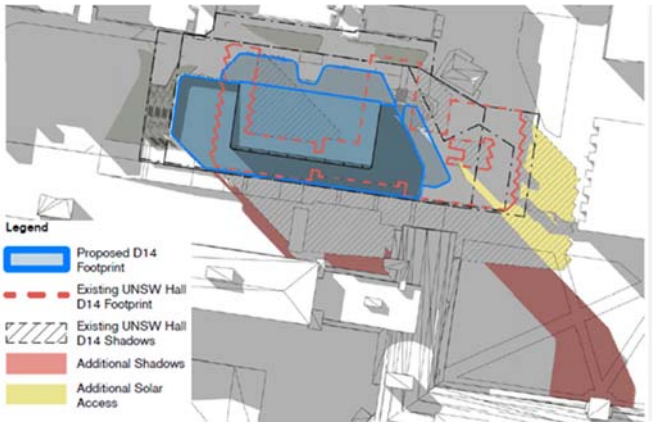


Figure 39 3pm June 21

Source: Tzannes

In the late afternoon, a minor amount of additional overshadowing will impact the Quadrangle to the south east during the afternoon period from 2pm to 3pm. The overshadowing increases in extent at 3pm, as shown in **Figure 39**. In light of this, the proposal does not overshadow this space for the most part of the day. The additional overshadowing is considered reasonable as it occurs for a limited duration in the late afternoon period. Moreover, the affected public domain area remains free of overshadowing for the most part of the day (refer to **Appendix A**).

Additional shadow will be cast on the northern elevation of the Quadrangle Building for the most part of the day. Notwithstanding, it is noted that back-of-house facilities that are infrequently used are concentrated along the

northern aspect of this building. Consequently, the shadow cast will not impact key useable spaces and will therefore have a limited impact on amenity of occupants.

The additional overshadowing resulting from the proposal will be offset by the increase in solar access and amenity resulting from the demolition of the existing built form contained within the site and the proposed massing of the envelope. In addition to increasing solar access to the Quadrangle during the morning period, greater solar access will be provided to the Fig Tree Precinct for the full duration of the Winter Solstice. As noted previously, the proposal seeks to incorporate landscape embellishments in this location and will function as a key communal space enjoyed by both staff and students.

5.7 Parking, Traffic and Access

Arup has prepared a Traffic and Transport Report which is included at **Appendix M**. The report assesses the main traffic and transport features of the proposal once it is operational.

5.7.1 Car Parking

Presently, there is no car parking directly associated with the existing Building D14. As discussed in **Section 2.2.1** of this report, parking areas are located on the perimeter of the campus and are accessed from Gates 2, 5, 8, 9, 11 and 14. They include multi-storey parking stations, basement parking and several at-grade parking areas. The closest car parking is the basement parking located beneath the UNSW Village.

No new car parking is proposed as part of the development and there will be no relocation or modification of existing parking areas as a result of the redevelopment. This is considered acceptable given that:

- The development will not result in a change in overall campus population. The Randwick DCP 2013 indicates that parking demand rates are related to accommodation on the campus. As the proposed development will not increase the overall accommodation on the campus, additional car parking spaces are not required to support the proposed development;
- Based on the 2015 findings of an annual travel survey conducted by UNSW, the mode share split of students and staff accessing the site via private vehicles is only 18.5% while the remainder either live on campus (5.2%), walk or cycle to the campus (18.7%) or use public transport (57.5%). The travel survey confirms that the majority of staff and student rely on public transport options over private vehicle use to access the campus. The survey also revealed that the travel trend of private vehicle use has sharply declined from 2007 to 2015;
- The university has developed a campus wide Green Travel Plan, in accordance with the RDCP 2013, and actively promotes use of sustainable modes of transport over private vehicles. This is discussed further in **Section 5.7.5** below; and
- The campus is generally well serviced by public transport. The delivery of the Sydney CBD and South East Light Rail will further improve accessibility to the campus and encourage greater modal shift.

On this basis, the strategy to limit car parking on site is acceptable. This is also in line with UNSW's aims of making the campus more sustainable by discouraging private vehicle use.

5.7.2 Traffic Generation

The proposal is considered to have a minimal or no impact on the operation of the surrounding road network. Reasons for this include:

- The 2015 UNSW Travel Survey found that 81.5% of staff and students currently use non-car modes of transport (mostly public transport) to access the campus;
- No change in parking provision is proposed;
- Given that the proposed development does not involve any direct increase to student or staff numbers at the campus, and no additional staff parking will be available, there will be no increase in site traffic generation resulting from the proposal;
- No roads are proposed to be closed during construction and completion; and
- Existing car parking areas within the campus and in proximity to the campus are time restricted and are closely managed and enforced by Randwick Council and UNSW.

Due to the above factors, no traffic modelling was undertaken for the proposal. Further, no infrastructure will be required to ameliorate any impacts on the road network as a result of the proposed development.

5.7.3 Public Transport

As discussed in **Section 2.0** of this report, the site is well located for public transport access, with bus services operating on a high frequency to the UNSW campus. The Sydney CBD and South-East Light Rail is expected to open in 2020 which will also increase the sites transport accessibility. As students arrive and depart throughout the day based on lecture times which are often outside the commuter peak periods, there is a reduced impact on the local public transport network.

As such, the existing public transport system is considered adequate to cater for this development.

5.7.4 Active Travel and End of Trip Facilities

The site is well served by a network of walking and cycling routes, with no changes proposed to the existing network during the course of the redevelopment. The current network is deemed both adequate and appropriate for the proposed works.

Secure bicycle parking is available across the campus with complementary end of trip facilities such as lockers and showers provided in many locations. Further, the proposed development offers a new End of Trip facility at ground level with 28 secure bicycle parking spaces, 72 lockers and 11 showers. It is anticipated that this will further promote and encourage cycling as a viable mode of transport to the site and contribute to a reduced car mode share.

The perimeter of the site will remain a key pedestrian thoroughfare, particularly along College Walk and throughout the Fig Tree Precinct. The future College Walk will provide a key east-west access route through the campus, connecting to the new light rail stop on Anzac Parade. UNSW intended to expand the provision of visitor bicycle parking throughout the campus public domain areas by way of implementing their masterplanned vision over the longer term.

5.7.5 Green Travel Plan

In accordance with RDCP 2013, UNSW actively encourages the use of public and alternate travel measures for students, staff and visitors to the Kensington Campus, in lieu of private vehicles. As such, travel demand management plans are well established at UNSW. The UNSW Environmental Management Plan outlines the following strategies and programs:

- Develop sustainable transport strategy to reduce car dependence;
- Improve bike facilities including the establishment of a BikeHub;
- Review, improve and promote sharing services (Carpooling, GoGet);
- Develop transport emissions reduction and offsets plan;
- Establish annual data collection and reporting processes for relevant transport data;
- Develop a communication plan to promote active transport; and

The implementation of these strategies will contribute to reducing parking demand, particularly for staff, and encourage other forms of transport to the site.

5.7.6 Servicing and Loading

As discussed in **Section 3.5.3** of this report, Service vehicles (8m to 10.8m long vehicles) and emergency vehicles (10.1m long vehicles) accessing Building D14 are proposed to enter and exit the campus via the signalised intersection of Gate Two Avenue and High Street (Gate 2).

5.7.7 Construction Traffic Management Plan

A Construction Traffic Management Plan (CTMP) has been prepared by Arup and is appended to the Traffic and Transport Report (**Appendix M**). This CTMP identifies potential heavy vehicle movements into and out of the site on a daily basis and the associated impacts on the local road network. The report notes that:

- All construction vehicles are proposed to enter and exit the campus via the signalised intersection of Gate Two Avenue and High Street (UNSW Gate 2)
- All construction vehicles will be wholly accommodated within the site, and so no Works Zones are proposed.
- Heavy vehicle trips generated are estimated to be in the order of approximately 60 truck movements per day or up to 20 trips per hour. Traffic generation of this magnitude is anticipated to have a minimal impact on the surrounding road network.
- No car parking is proposed to be provided for construction staff. As part of site induction employees will be advised of the public transport options and encouraged to use these facilities or carpooling arrangements to decrease the number of employee vehicles.

The CTMP has provided mitigation measures that will be adopted during construction to ensure that traffic movements have minimal impact on surrounding land uses and the community in general.

5.7.8 Summary

In conclusion, the assessment by Arup within the Traffic and Transport Report has determined that:

- The site is well serviced by a number of public transport services;
- There are a number of designated walking and cycling routes close to the site;
- Approximately 81.5% of staff and students currently use non-car modes of transport to access the campus;
- The application proposes no net increase to the student/staff population at the campus;
- There will be no change to total site traffic generation compared with existing levels, and no change in parking provision is proposed;
- All roads and vehicular site access into UNSW are to be retained via Gate 2 on High Street with no proposed changes; and
- A construction traffic management plan will be implemented to reduce impact to the pedestrians in the area.

The assessment concludes that the traffic impacts arising from the works proposed for the redevelopment of Building D14 (SSD 9606) are minimal and can be appropriately managed.

5.8 European Heritage

A Statement of Heritage Impact prepared by TKD Architects in accordance with the requirement of the SEARs is provided with this report at **Appendix E**. The report undertakes a detailed assessment of potential impact of the development on the adjoining Old Tote and Fig Tree Theatre HCA and the Racecourse HCA. A summary of the key findings and recommendations of the heritage assessment is provided below:

- The development will have no impact on the Racecourse HCA given the physical distance and separation of the site from the conservation area, which is located outside the UNSW campus across High Street.
- Heritage significance of the Old Tote and Fig Tree Theatre conservation area is attributed to the unique aesthetic significance provided by the Federation style Whitehouse (north of the site) and the row of Fig Trees along Fig Tree Lane (north west of the site) and the historical significance of the Old Tote structure and the Fig Tree Theatre building (north of the site). This development does not propose to alter or modify any item of heritage significance within the conservation area.
- The proposed development is appropriately setback from the HCA interface, further than the existing UNSW Hall building, to offer an improved curtilage and setback to the Whitehouse building.
- The new development is well modulated, to offer a sympathetic edge to the HCA. The façade is appropriately articulated using timber columns to present a fine grain quality and lightweight materials such as timber and glazing are used to provide a more sensitive and complementary finish to the HCA and in particular the two storey timber Whitehouse building.

- While the development is of a more intensive scale than the existing UNSW Hall building, the HCA is currently surrounded by recently completed developments of a similar scale and size such as the UNSW Village, the Goldstein College and Goldstein Hall.

Further the built form steps back at lower levels to create an undercroft area to the north and to the west. This recessing of the lower levels offers additional relief to the heritage interface and affords a sense of openness to the heritage courtyard area. On this basis, noting the built form, its setting and the proposed materiality of the building, the overall development will not result in any adverse heritage impacts, and to this end can be supported from a heritage perspective.

5.9 Aboriginal Heritage

An Aboriginal Cultural Heritage Assessment Statement prepared by Dr. Paul Irish (**Appendix F**) identifies potential for Aboriginal archaeological remains within the site area but at a subterranean level under the building footprint of the UNSW Hall building. While much of the site is understood to contain introduced fill or areas largely disturbed areas from construction and use of the Kensington Racecourse, the earthworks proposed for footing and levelling of the new building (near the eastern boundary) has potential to disturb a natural dune horizon which is known to have the potential to contain Aboriginal archaeological remain. In light of this, due diligence investigations cannot be undertaken until construction and in particular, excavation of the ground plane commences.

Accordingly, the statement recommends that archaeological monitoring of the site is placed as a condition of consent for the development. This will ensure that an appropriate archaeologist, with provisions for archaeological excavations, is present to monitor activities during earthworks as well as identify and investigate any undisturbed sand horizons.

Based on previous experience on nearby projects, the values identified by local Aboriginal people are most likely to be associated buried natural landform. However, this cannot be ascertained prior to commencement of demolition works (that will be carried out under Part 5 of the EP&A Act) and construction works (commence excavation for footing). It is also possible that there are historical Aboriginal associations with the former Kensington Racecourse on which it was built but if these are identified, they can also be managed through interpretation as a condition of development consent.

Aboriginal Cultural Heritage Assessment Report
The Statement also sets out a strategy and a timeline within which an Aboriginal Cultural Heritage Assessment Report (ACHAR) in accordance with the Office of Environment and Heritage (OE&H) Guidelines will be prepared for the site. Aboriginal community consultation is currently being undertaken in accordance with the OE&H guidelines with all relevant Registered Aboriginal Parties (RAP). All RAPs are provided until 20 November 2018 to respond and their responses will be considered in the preparation of the draft ACHAR. The draft ACHAR report will then be provided to all RAPs for review and comment and at least 28 days provided for review and comment.

It is anticipated that the final ACHAR report will be prepared by mid January 2019 or if possible prior to December 2018. The final ACHAR report is not considered to include anything contrary to the information set out under the Statement.

5.10 Contamination

Extensive contamination investigations have occurred across the Kensington Campus over the years, including a September 2018 Contamination Assessment prepared by Douglas Partners for the proposed works area (**Appendix U**).

The assessment has concluded that the risk of contamination at the site was generally considered to be low and the site is suitable for the proposed development from a contamination perspective. The primary potential source of contamination that was identified being imported fill and demolition waste from previous site buildings / structures. In light of this, the recommended strategy is to apply the unexpected finds protocol as outlined under the Contamination Report (**Appendix U**)

Additionally, following demolition works proposed under Part 5 of the EP&A Act, further (data gap) investigation is to be undertaken within the footprint of those structures to fully characterise the site. These works are to be completed prior to the commencement of SSD works. The findings of the data gap assessment are necessary to fully understand the extent of contamination on the site and determine if remediation is necessary.

Notwithstanding this, a small part of the site (north east corner) is located within a part of the Old Tote and Fig Tree HCA, accordingly any remediation activity, if necessary, becomes a category 1 work for which development consent is required. In light of this, a Remediation Action Plan (RAP) has been prepared for the site by Douglas Partners (**Appendix V**). The RAP outlines all possible remedial options for the site as follows:

- Option 1: No Action;
- Option 2: On site treatment of contaminated material;
- Option 3: Removal of contaminated material to landfill; or
- Option 4: Capping/on-site contaminant of contaminated materials.

The anticipated remedial treatment predicted for the site is to be either by way of removal of any contaminated material to landfill or by capping on-site containment of contaminated materials. The preferred option will ultimately be decided based on the results of the post-demolition data gap assessment and validation works.

It is noteworthy that consent for remediation works is sought on a precautionary basis, should remedial action be considered necessary based on the results of the data gap assessment and the findings of the unexpected finds protocol. On this basis, remediation works, if necessary, can progress without any unnecessary future delays. A suitable mitigation strategy is provided to this end.

Mitigation Measure

Following completion of demolition works on site in accordance with the REF works, further investigation is to be undertaken within the building footprint of those structures to fully characterise the site. If the results of the investigation warrant remediation, works will be carried out in accordance with the RAP prepared by Douglas Partners (refer to **Appendix V**). Following remediation a Validation Report will be prepared by a suitably qualified Environmental Consultant, which will detail the methodology, results and conclusion of the assessment, provide waste classification and disposal information, and make a clear statement regarding the suitability of the site for the proposed land use.

5.11 Tree Removal and Protection

An Arboricultural Impact Assessment has been prepared by The Ents Tree Consultancy (**Appendix W**) which considers the trees present within the proposed works area, including those to be retained and those to be removed.

Only a single tree is identified for removal under this application, being Tree 1119, located directly between behind the Whitehouse. Other trees identified for removal under the report are proposed to be removed under Part 5 of the EP&A Act.

A total of 22 other trees located in proximity to the site (as identified in **Figure 40**) will be retained and protected in accordance the Australian Standard AS4970 2009 Protection of trees on development sites and the additional protection measures set out under the Arborist Report.

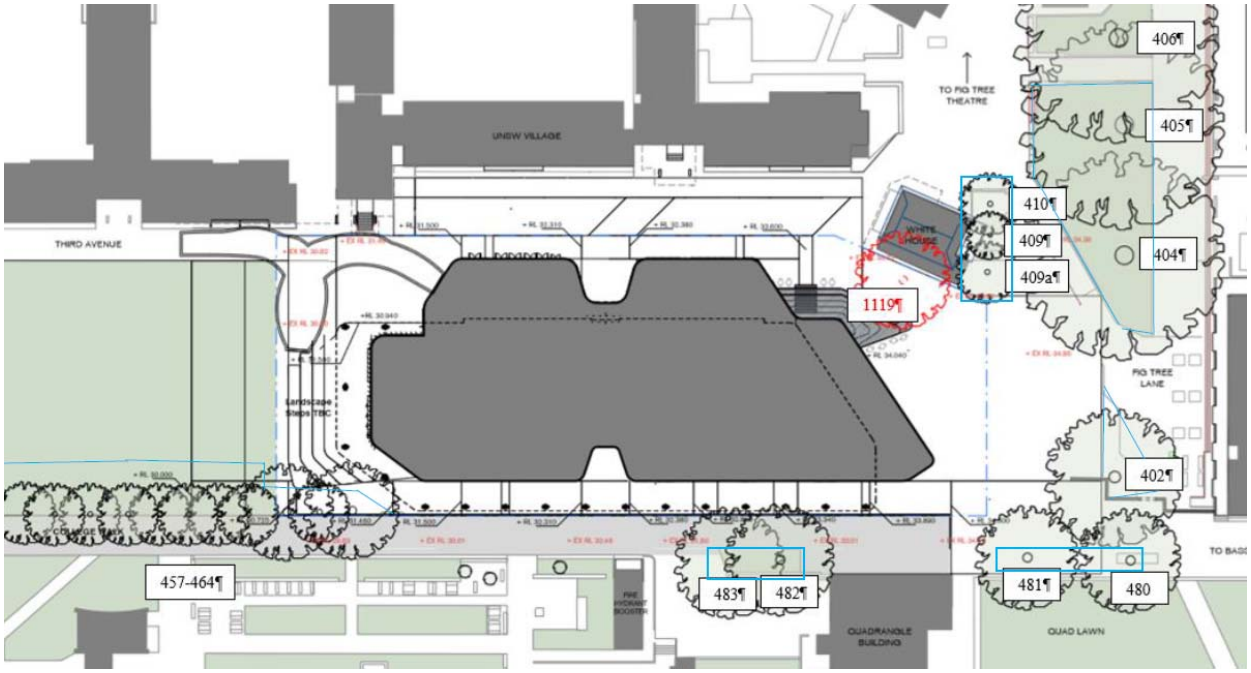


Figure 40 Tree removal and protection

Source: Ents Tree Consultancy

Management and Mitigation Measures

It is recommended that construction proceeds in accordance the Australian Standard AS4970 2009 Protection of trees on development sites and the specific additional Tree Protection measures recommended by the Arborist are implemented.

5.12 Water Cycle Management

A Stormwater Management Report has been prepared by WSP (refer to **Appendix Q**) in accordance with the UNSW 2025 Stormwater Strategy Management Plan which sets out the overarching stormwater strategy for the campus. The strategy splits the campus into a number of catchment areas. Under the strategy, the site falls within the Catchment B1. The proposed stormwater management system is designed to meet the requirements of Catchment B1.

Stormwater Management Plan

Stormwater run-off from the site will be captured via the proposed pit and pipe network and reticulate to a percolation chamber that is proposed underneath the stairs to the western boundary of the site (refer to **Figure 41**). The percolation chamber will serve as an onsite detention and allow rainwater to percolate to the Botany Sands Aquifer, from where it will be drawn for irrigation and other non-potable uses within the campus.
A silt arrestor is proposed to be installed to capture sediments prior to stormwater discharging into the chamber. The chamber will be wrapped and sealed in geotextile to prevent the ingress of fine backfill material into the tank and shall sit on a bed of crushed aggregate wrapped in geotextile.

In line with the UNSW Stormwater Strategy, the percolation chamber is designed to cater for the 5%AEP storm event, with an overflow pipe to limit the discharge from the site in the event of a 20% AEP to the Village Green area. Any overflows from the system shall be safely conveyed west across College Walk. The proposed discharge rates during a 20%, 5% and 1% AEP storm event is provided at **Table 7**. The discharge rate from the developed site during a 1% AEP is limited to the 2-% AEP pre – development rate to avoid overloading the Village Green detention and infiltration system.

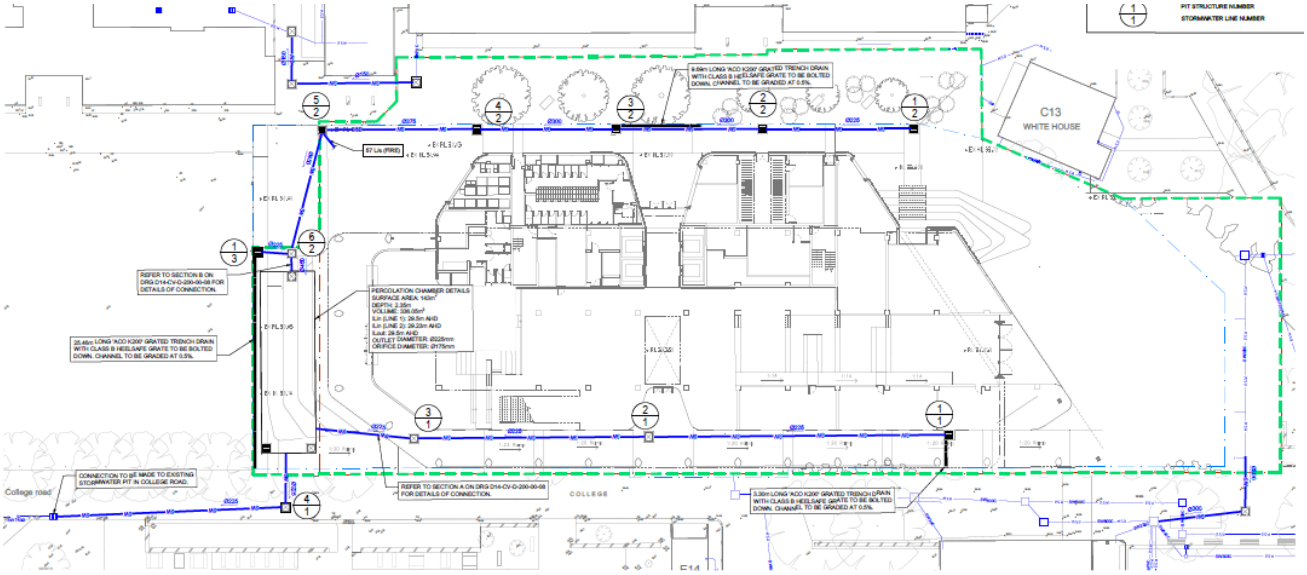


Figure 41 Stormwater Plan

Source: WSP

Table 7 Site discharge levels

	20%AEP (L/s)	5%AEP (L/s)	1%AEP (L/s)
Piped System (to Village Green)			
Pre-Development	68	96	129
Post Development	36	52	65
Total Site Discharge			
Pre-Development	105	152	211
Post Development	40	61	128

Source: WSP, Stormwater Plan

Stormwater Quality

The Green Building Council of Australia requirements for water quality are adopted for the project given that the Randwick Development Control Plan 2013 does not nominate pollutant reduction targets.

Based on the above stormwater management plan, pollutant reduction results are determined using MUSIC modelling software. The findings confirm that the stormwater discharge quality will significantly exceed the Green Star Target reduction requirements as discussed below.

- Gross Pollutants (GPs) reduction of 98.5%, which exceeds the Green Star Target Reduction of 95%;
- Total Suspended Solids (TSS) reduction of 96.4%, which exceeds the Green Star Target Reduction of 90%;
- Total Phosphorus (TP) reduction of 95.3%, which exceeds the Green Star Target Reduction of 70%; and
- Total Nitrogen (TN) reduction of 93.9%, which exceeds the Green Star Target Reduction of 60%

5.12.1 Sediment and Erosion Control Plan

A Sediment and Erosion Control Plan is also proposed for the site to manage and mitigate sedimentation and erosion during the construction phase of the development. Sediment control fences are proposed to be installed on exposed earth areas that are located on a slope and vulnerable to run off. Installation of the sediment and erosion control fences and other sediment and erosion control measures in accordance with the Soil and Water Management Plan at **Appendix Q** are proposed to be undertaken as part of the Part 5 REF process. Refer to **Appendix Q** for more detail.

5.12.2 Flooding and Overland Flow Impacts

WSP provide the following recommendations for implementation into the project as part of their Stormwater Management Report provided at **Appendix Q**.

- Should stormwater be discharged to an infiltration system, the infiltration area shall be sized for all storm events up to, and including, the 5% AEP storm event with provision for a formal overland flow path;
- Should no formal overland escape route be provided for storms greater than the 5% AEP storm event, the infiltration system shall be sized for the 1% AEP storm event, and;
- Sediment/silt arrestor pits are to be provided within the site prior to stormwater being discharged from the site or into any infiltration areas. The sediment/silt arrestor pits are to be constructed in accordance with RCC requirements.

5.13 Biodiversity Impact

Pursuant to Sections 1.5 and 7.3 of the *Biodiversity Conservation Act 2016* and the clause 1.4 of the Biodiversity Conservation Regulation 2017, a Biodiversity Development Assessment Report (BDAR) waiver request was submitted to the DP&E on the basis that the development is unlikely to adversely impact any local fauna species or trigger the need the Biodiversity Offset Scheme.

Accordingly, a BDAR waiver was issued for this SSDA by the DP&E and the OEH on 6 December 2018 and 28 November 2018 respectively. A copy of the issued BDAR waivers are appended with this application at **Appendix Y**.

5.14 Wind

Cermak Peterka Petersen Pty Ltd (CPP) has prepared a Qualitative Wind Assessment for the proposed D14 Building at UNSW (**Appendix G**) to determine the potential wind impacts on the surrounding pedestrian level wind environment, and to advise on potential improvements in terms of comfort and amenity for use of the through site link and surrounding public domain.

The Wind Assessment confirms that due to the height and massing of the proposed development in the context of the surrounds, the proposed development is not expected to significantly affect local wind conditions. The distribution of wind speeds in and around the development is important to the success of the development, and the impacts are broadly discussed in this report.

It is noted that the Randwick City Council DCP (2013) has no specific wind assessment criteria. Therefore, the wind assessment criteria used in this study will be based upon the criteria provided within a report entitled 'The Determination of the Wind Environment of a Building Complex before Construction'. This report provides both pedestrian comfort and distress/safety criteria for various activities. The wind assessment confirms that:

- For most locations, wind conditions within the proposed development site are expected to remain similar to the existing wind conditions;
- From a pedestrian comfort perspective, the wind environment around the proposed development site is likely to be classified as acceptable for pedestrian standing or walking;
- Pedestrian comfort levels would be suitable for public accessways, and for stationary short-term exposure activities. Localised amelioration measures would be suggested if calmer areas are desired for particular locations. All locations would be expected to satisfy the safety/distress criterion;
- Relatively frequent breezes would be anticipated in the through-site link. A difference in pressure on the north and south facades of the building will attempt to equalise though the link, generating pressure-driven flow through the space. The strength of the resulting flows is not expected to be particularly severe, however would occur relatively frequently. The link is expected to experience conditions suitable for transient use only.

The proposed development is relatively well protected from prevailing strong winds by neighbouring structures of comparable size and massing. Wind conditions around the site are expected to remain largely similar to existing, being classified as suitable for Pedestrian Walking or Pedestrian Standing and satisfy the safety/distress criterion. Local amelioration would likely be necessary for areas intended for long-term stationary or outdoor dining activities.

Mitigation Measure

Identify wind amelioration measures that will provide suitable shelter and wind relief for areas identified for outdoor sitting and outdoor dining activities. This is proposed to be undertaken during detailed design stage and implemented within the development.

5.15 Operational Noise

A Construction and Operational Noise Report has been prepared by Wilkinson Murray (**Appendix K**) in order to assess the noise generating sources during operation and recommend any mitigation measures to minimise potential noise impacts on surrounding occupiers of land.

In order to quantify the existing noise environment, long-term ambient noise levels were monitored on the northern side of the site adjacent to UNSW Hall. This was determined in order to determine the impact on the surrounding receivers including:

- UNSW Village;
- Colombo House;
- Education premises are located to the south of the site;
- Student Services in the Arc building; and
- Open common space within the site.

Operational noise from the building will occur from activities within the new building as well as mechanical plant located predominantly on the roof plantroom. Through a review of the potential operational noise sources this assessment has determined that:

- Noise from most major plan equipment will be contained in the roof plantroom. As the selection and design of this equipment will be conducted after project approval, the detailed assessment of operation noise emission should form a condition requirement of the development consent, to be satisfied prior to the issuing of the construction certificate;
- To mitigate noise from mechanical plant, it is likely that some or all of the following noise control measures may need to be adopted at the design stage to meet noise objectives;
  - Equipment selection;
  - Silencers on carpark and other fans;
  - Acoustic louvers;
  - Noise barriers; and
  - Variable speed controls on fans.
- The mechanical plant will be designed to meet the Project Noise Trigger Level criteria as outlined within the Construction and Operational Noise Report;
- The proposed use of the D14 Building is for classes and administration offices and, as such, noise generated within this area is expected to be adequately contained by the façade of the building. No specific measures are required to protect the acoustic amenity of nearby residents.

Site specific operational noise criteria has been determined for the project based on ambient noise monitoring. By satisfying the relevant criteria at the subject site, compliance will readily be achieved at surrounding noise sensitive receptors. Noise emission from the D14 site will be addressed during the detailed design phase.

The construction noise and vibration impact assessment and suitable mitigation measures are discussed at **Section 5.19** of this report.

5.16 BCA and Fire Safety

A BCA Capability Statement has been prepared by Steve Watson and Partners (**Appendix J**) which finds that compliance with the BCA will be achieved through a combination of compliance with the Deemed-to-Satisfy provisions and alternative performance based solutions. Compliance matters identified as areas of non-compliance

can be resolved as per the recommendations of the report. This can be resolved prior to Construction Certificate stage by progressively reviewing and incorporating changes to detailed design drawings

With respect to fire safety, a preliminary Fire Safety Engineering Review has been undertaken by Defire (**Appendix N**) and has confirmed compliance with the requirements of the code by way of alternative fire engineering solutions. The performance solutions are proposed to be developed at detailed design stage.

Mitigation Measure

Prior to issue of Construction Certificates, develop suitable performance based solutions for areas identified as issues requiring further resolution or areas requiring alternate performance solutions under the BCA report.

5.17 Accessibility

An Access Report (**Appendix H**) prepared by Morris Goding Access Consulting (MGAC) confirms that the proposed development, including external site linkages, building access, common areas, and sanitary facilities is designed to achieve compliance or can readily achieve compliance with minor design changes at detailed design stage in accordance the relevant Access Standards (AS 1428 series, AS 1735.12), *The Disability Discrimination Act 1992,* the BCA and the Universal Design Principles.

5.18 Structural Adequacy

A Structural Statement has been prepared by WSP (**Appendix O**) to address the structural requirements of the building, particularly in light of the building's specific functional requirements. The statement confirms that the structural design will be in accordance with standard engineering practice and principles, the BCA and the relevant Australian Standards in particularAS1170 Structural Design Actions (Parts 1-4), AS4100 Steel Structures, AS1288 Glass in Buildings and AS3600 Concrete Structures.

5.19 Construction Impact and Management

A Construction Management Plan (CMP), prepared by Lendlease, outlines the delivery of the development and construction management practices and mitigation measures that will applied during the construction phase of the project. It identifies the operational and site management measures, including site establishment works, proposed construction staging strategy, identifies the proposed construction hours among others. A copy of the full CMP is provided at **Appendix P** and a summary of the key construction management measures applied to the development during the construction phase is discussed below.

5.19.1 Dust Emission

Dust emissions are likely to occur during external works and construction involving vehicle movements and transportation of soils. Where this occurs, the management measures as set out under the CMP, and a Dust Management Plan that will be prepared by Lendlease prior to commencement of construction activities, will be adopted to reduce any potential air quality impacts.

5.19.2 Construction Noise and Vibration

A Construction noise and vibration impact assessment prepared by Wilkinson Murray is provided with this report at **Appendix K**. Key noise sensitive receivers in proximity to the site are identified as:

- Residential receivers (UNSW Village and Colombo House)
- Educational buildings with class rooms (UNSW Business School);
- Student Services in the Arc building to the east; and
- Active recreational spaces near to the project site.

Site specific noise management criteria

Relative background noise levels (RBLs) were monitored using noise loggers placed strategically in proximity to the project boundary. Site specific construction noise management levels were determined for the site (10 dBA + RBLs for during standard construction hours and 5 dBA + RBLs outside of standard hours) in accordance with the EPA's *Interim Construction Noise Guidelines* (ICNG). **Table 8** below identifies the site specific noise management criteria for the site.

Table 8 Site specific noise management criteria

	Construction Noise Management Level, LAeq - dBA				
Area	**Day**	**Evening**	**Night**	**Saturday**	**High Affected Noise Level**
Residential receivers	63	57	56	63	75
Open Space Area	65 dbA				
Office Retail outlets	70 dBA				
Classrooms at educational institutions	55dBA				

Source: Wilkinson Murray

Construction Noise Predictions

Construction activities were grouped into three scenarios being:

- Scenario A – Foundations
- Scenario B – Building Construction
- Scenario C – Facade

The predicted construction noise for each scenario was determined by identifying the construction tools intended for use during each phase.

Assessment

Construction noise predictions at the nearest noise sensitive receivers identified exceedance of noise management levels at the nearest residential building being the UNSW Village and the UNSW Business School building. Maximum exceedance of the noise criteria for these receivers is observed during Scenario A and Scenario B as discussed below:

Scenario A, being construction of the foundations:

- UNSW Village: 3dBA to 10 dBA (windows open scenario) or no exceedance (windows closed scenario); and
- UNSW Business School: 11 dBA (windows open scenario) and 1 dBA (windows closed scenario).

Scenario B, being construction of the building:

- UNSW Village: 3dBA to 5dBA (windows open scenario) or no exceedance (windows closed scenario)
- UNSW Business School: 15dBA (windows open scenario) and 5 dBA (windows closed scenario).

Findings and Recommendations

Exceedances of the construction noise management levels is largely attributed to the proximity of the UNSW Village and UNSW Business School sites to the project site. It noteworthy however that exceedances are nominal or minor during a windows closed scenario.

It is likely that windows of nearby education building will need to be closed during the noisy construction phase of the development.

The following noise management measures are recommended

- Notification of works to nearby impacted receivers;
- Installation a 2.4 metre plywood hoarding around the construction site;
- Scheduling foundation works during university holidays or in consultant with nearest impacted receivers (where feasible);
- Selection of quietest feasible construction equipment; and
- Localised treatment such as barriers, shrouds, and the like around fixed plant such as pumps, generators, and concrete pumps.

Further, a Construction Noise and Vibration Management Plan that will be prepared prior to commencement of construction activities and will outline management plan to ameliorate construction noise and vibration during the construction phase of the development.

Vibration Impact

Vibration Impact of the proposed construction activity was assessed against the vibration assessment criteria set out in British Standard 6472-1992. The DIN4150 recommended vibration level for heritage buildings are set as the criteria for nearby building within the heritage conservation area, in particular the Whitehouse.

As such, mitigation measures as outlined under the above reports will ameliorate construction noise and vibration impacts appropriately during the course of the construction work.

Construction Traffic Noise Impacts

Noise from construction vehicles are also included within the wider assessment to determine cumulative construction noise. However, the development is anticipated to generate up to six heavy vehicle movements per hour during the construction phase. The traffic will enter and leave the site via High Street and therefore is not anticipated to result in significant quantifiable noise impacts.

5.19.3 Construction Waste

As outlined under CMP, a Waste Management Plan (WMP) will be prepared prior to commencing the construction work to ensure construction waste is appropriately managed on site and disposed correctly. Based on previous timber projects such as the K5 timber building in Brisbane, Qld, the construction waste generation is estimated to be 341,998kg. A 90% plus construction waste diversion target is proposed to be adopted under the WMP. Auditable records will be kept of quantities of all materials both recycled and disposed landfill. Records will be monitored to ensure Lendlease internal recycling targets are achieved or exceeded. This information will be collected and reported in compliance with our Environmental Management Plan and its Waste Management and Recycling Sub-Plan over the duration of the project.

5.19.4 Construction Traffic Management

As discussed in **Section 4.2** of this report, a Preliminary Construction Traffic Management Plan (CTMP) prepared by Arup is provided as an attachment to Traffic and Transport Report (**Appendix M**). The CTMP identifies construction vehicle travel routes and opportunities to minimise pedestrian conflict with construction vehicles. Pedestrian travel routes are also identified. College Walk will be management as a no pedestrian zone during the course of the development by accredited traffic controllers. Subject to implementation of mitigation measure outlines under the CTMP, Construction Traffic and Pedestrian Impact can be appropriately managed on site.

Mitigation Measure

An Environmental, Health and Safety Management Plan and all associated sub-plans as identified under the CMP, in particular a Dust Management Plan and Construction Noise and Management Plan is prepared for the project site and enforced on site by the Site Manager prior to commencing construction phase of the development.

5.20 Crime Prevention Through Design

The development implements the principles of Crime Prevention Through Environmental Design (CPTED). A Summary of the proposal's consistency with the CPTED principles is provided below:

Natural Surveillance

Opportunities for crime can be reduced by providing opportunities for effective natural surveillance. The surveillance principle indicates that offenders are often deterred from committing a crime in areas with high levels of natural surveillance that foster communal activity. Effective surveillance is achieved when individuals are able to see what others are doing.

The introduction of a new building on the site will improve passive surveillance of the immediate surrounds of the area. In addition, the proposal development predominantly comprises glazed facades and provides minimal opportunities for blank walls. Consequently, sightlines will be permitted to and from the building at all aspects of the development, allowing for the passive surveillance of the surrounding area. Where blank walls are provided, they

are limited to the northern façade in the location of the building's lift core. Notwithstanding, an entrance point and lobby area is incorporated at this location which will encourage the use of the area. The internal building and surrounding public domain will be well lit, allowing for passive surveillance during night time periods.

Access Control

Access control measures restrict and manage the activities of people and vehicles that move to and from the site. Access control measures constitute physical and symbolic barriers that influence the way people navigate and use a space. They are also effective in increasing the length of time and effort it takes for a crime to be committed.

Access control will be restricted to students and staff only through the use of a swipe card system. It is recommended that access to plant and services contained throughout the development be restricted to authorised personal. Access to these areas should be managed by a control strategy (i.e. card / key controlled entries / lifts and intercom systems) to prevent unauthorised access to these areas.

Territorial Reinforcement

The NSW Police *Safer by Design Guidelines* note that people generally recognise areas that are well cared for and areas that display strong ownership cues are less likely to be improperly used than those that do not. In particular, ownership cues are heightened and fear can be reduced amongst residents and visitors through the personalisation, marking, maintenance and decoration of a building.

The proposal will provide a high level of territorial reinforcement. Communal areas such as lobby areas, a central concierge desk, lounge areas and open plan collaborative learning spaces are incorporated at ground level. Additionally, a number of small retail stores are accommodated along the southern façade oriented towards the campus's internal road network. As a result of the proposed glazed facades, these areas will be visible from the surrounding public domain. Accordingly, the internal layout of the building will increase the presence of informal guardians and convey ownership cues. It is recommended that suitable wayfinding signage be provided in and around the development to reduce opportunities for people to find excuses to gain unauthorised access. Whilst all access points are legible and inviting, signage will further enhance this perception.

Activity and Space Management

The management of space and activity is important to maintaining control over a space and preventing incidents of crime. Space management relates to the supervision, control and the ongoing care of a development. Spaces that are infrequently used are known to experience crime and be the subject of abuse. Effective space management also encourages people to feel a shared responsibility for its use and condition.

In designing the development, due consideration has been given to activity and space management. The configuration of the entrances and their location provide for well-designated and controlled areas that convey clear cues that signify they are not for general public use. Furthermore, the site will be well maintained by the University and will consequently send singles that the area is utilised and well cared for.

Environmental Maintenance

The image of an area can influence perceptions of safety and danger, and impact an individual's decision to engage with the community. The image of the interim and completed development can have a large impact on the overall level of real and perceived safety on the site. Further, vandalism, graffiti and other crimes can induce fear and avoidance of public spaces. In light of this, the maintenance of the proposed development and its surrounds is a key crime prevention mechanism.

The proposed development will provide a high quality urban environment which will convey a clarity of ownership along with the image that the building is well cared for. The proposed development provides a higher quality building to what has previously existed on the site. This in turn provides the opportunity to act as a catalyst for environmental improvements to the surrounding public areas and provide the opportunity to reduce levels of graffiti, litter, and urban decay, which will negatively impact perceptions of safety; community confidence in using a public space and crime opportunity.

The University will be responsible for the maintenance, upkeep and operations of the proposed development. Given the exterior of the development is publicly accessible, it is recommended that a rapid removal policy be implemented for vandalism repair and the removal of graffiti.

Lighting and Technical Supervision

Effective lighting can reduce fear, increase community activity, improve visibility and increase the likelihood that offenders will be detected. Given the proposal is located within a publicly accessible campus, it is recommended a CCTV system be developed for the building and in consultation with a security consultant. Lighting in and around the development should be designed to correspond with the location of CCTV cameras to allow for adequate facial recognition.

5.21 Contributions

The relevant contributions plan for the site is the Randwick City Council Section 94A (section 94A) *Development Contributions Plan 2015*, effective since April 2015.

Exemptions from a levy under the existing section 94A Plan may be considered by Council or the relevant consent authority for the following development, or components of development:

- *Places of worship, public hospitals, police stations, fire stations, and other emergency services.*
- *Works proposed to be undertaken for charitable purposes by, or on behalf of, a not-for profit charity (as defined by the ATO) but only in cases where the development is of a small scale, for example a retail outlet operated by the Salvation Army, St Vincent de Paul or similar organisations, and where the Council considers that there will not be an increase in the demand for public works or infrastructure as a result of the development which would warrant the payment of a Section 94A levy.*
- *Seniors housing, as defined in the State Environmental Planning Policy (Housing For Seniors or People with a Disability) 2004 which is undertaken by a social housing provider.*
- *Applications submitted by or on behalf of Randwick City Council.*

Those applicants which seek exemption from a levy under this Plan must provide a comprehensive submission to the Council, which clearly demonstrates how the proposed development falls within one of the development types defined above, prior to the Council determining whether such an exemption applies.

In considering any application for an exemption the Council will take into account:

- *The extent to which the proposed development comprises or includes the provision, extension or augmentation of public amenities or public services that provide a public benefit, and/or*
- *Whether the applicant is affected by any adverse financial circumstance which will impact on its ability to fund the payment of any levy which is imposed in accordance with this Plan.*

It is noted that the payment of any contribution on this development is discretionary, and that the approval authority, in this case the Minister for Planning, while empowered to impose a condition requiring the payment of a monetary contribution is not required to under either the EP&A Act or Council's Contributions Plan.

Whilst developments by the Crown are not automatically exempt from payments under this section 94A Plan, development that in the opinion of Council does not increase the demand for the categories of public facilities and services addressed by the Plan should warrant a merit-based exemption. Justifications for the exemption of contributions include:

- the University is a registered not-for-profit organisation; and
- the University is an education facility and a nominated charity.

There has been a consistent approach adopted by the Department of Planning and Environment (the Department) for UNSW on previous applications of this nature.

University as the Crown and Public Educational Institution

UNSW is recognised as the Crown by virtue of clause 226 of the EP&A Regulation. Section 4.33 of the EP&A Act provides that in relation to Crown applications, a consent authority is unable to impose a condition of consent without the approval of the University or the Minister. However, the University is conscious of its central position in the Randwick LGA and its ongoing relationship with Council and the local community. The University also understands the need to continue to work cooperatively with Council to reach agreement on an appropriate balance of development conditions that meet Council's planning responsibilities, whilst also meeting the University's need to provide critical infrastructure.

The Public Nature of the Proposed Development, and the Randwick Section 94A Development Contributions Plan 2015

The University and its functions are inherently of a public nature, providing educational and employment opportunities to the Randwick community and to the public at large. The proposed construction of a new research and teaching facility is part of the University's core academic functions. The inherent public character of the University development is in contrast to a strictly commercial development where a full levy might be considered reasonable (such as applicable in a section 94A Plan).

The underlying purpose of Council's Contributions Plan is to raise funds from private, commercially driven developments to be put towards the cost of public facilities and infrastructure which are burdened by those developments. Imposing a levy on the University's own public infrastructure (and in doing so financially compromising the University's ability to perform its teaching and research functions) conflicts with the public tenet of the Contributions Plan. Indeed, to do so would be simply diverting education-based funding away from the University for other unrelated purposes, potentially with no nexus to UNSW.

Whilst Council's Contributions Plan states that Crown Developments are not automatically excluded from the payment of developer contributions, applicants are able to seek as exemption under Section 13.3 of the Plan. Under Section 13.3, in considering an exemption from the payment of section 94A contributions, Council is required to take into account:

- *The extent to which the proposed development comprises or includes the provision, extension or augmentation of public amenities or public services that provide a public benefit, and/or*
- *Whether the applicant is affected by any adverse financial circumstance which will impact on its ability to fund the payment of any levy which is imposed in accordance with this Plan.*

An exemption is considered appropriate as the University is a not-for-profit public institution which relies on government grants, donations, and community funding to provide new facilities for both the University community, and the wider public at large. The levying of a development contribution would divert a portion of these public funds, which have been specifically provided for an educational purpose, to local services without any direct nexus to the impact on those services.

It is noted that the majority of the building's new occupants will be transferred from existing buildings on the Campus. As a result of the development, there will be no increase in students and staff. As outlined in further detail below, the nature of the development, and its location within a University Campus, means that many of the categories of infrastructure that Council is seeking to levy for are already provided by the University, for use by staff, students and the general public. On this basis, it is considered unnecessary that the development be levied for community facilities, public domain or new open space contributions.

The University's position is supported by the provisions of Circular D6, as discussed below.

Crown applications – Department of Planning Circular D6

It is noted that Randwick City Council (Council) does not automatically grant exemptions to Crown Developments, however the Department's Circular D6 sets out the reasons why Crown developers should be able to seek exemptions from developer contributions payments.

While Circular D6 *"Crown Development Applications and Conditions of Consent"* was formulated in 1995, it still remains the guiding document in relation to Crown applications and development contributions. The effect of this circular is, that where the applicant is a Crown authority and the development is for Educational Services, no contributions should be collected for open space, community facilities, parking, and general local and main road upgrades. As the proposed development is integral to supporting the University's academic functions it is clearly part of the University's Educational Services. Whilst contributions may be levied for stormwater works, as detailed in the EIS, the University caters for all stormwater run-off on-site and will not further burden any Council-related infrastructure.

Other Public Amenities Provided by the University on the Kensington Campus

The exemption from payment of contributions relating to community facilities, public domain and new open space is considered appropriate, as the University provides significant areas of accessible open space and recreation, as well as a range of community facilities available of the general public. These include:

- Five child care centres;
- Fitness and Aquatic Centre – including health and fitness programs, school sports programs and children's holiday activities;
- Library;
- Performance and rehearsal venues;
- A range of retail services e.g. food outlets including restaurant, cafes and take away outlets, banks, ATMs, post office, travel agency; Medibank Private outlet, pharmacy;
- Medical centre, physiotherapy, optometry clinic (with free eye testing);
- Kingsford Legal Centre – pro bono advice and assistance;
- Indigenous outreach programs to schools; and
- Village Green detention basin and aquifer recharge facility – substantially reduces stormwater discharge from the Campus to Council's stormwater system.

The availability of these amenities and services on the Campus, which are maintained by the University, reduces the demand on public amenities outside the Campus.

Taking into account the significant public benefits which the proposed development, and the presence the University generally, provides, and the minimal impact this development has on local infrastructure, it is considered that no development contributions should be levied against this development.

As stated in Circular D6:

> *Crown Activities providing a public service or 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.*

Consistent Approach for UNSW

In recent determinations made by the Department for the Tyree Energy Technologies Building (MP 09_0163), the MSEB (SSD 5373), Electrical Engineering Building (SSD 15_7370) and the Biological Sciences Project (SSD 6674) a rational approach has been adopted with regard to contributions.

In the assessment of these applications, the Department considered that given the University is a not-for-profit organisation the principle of reasonableness should be adopted in the calculation of contributions with the levy relating only to the increase demand on public services and infrastructure.

On this basis, any contribution (if at all) should be based on the demand generated by the additional population. It is noted that the proposed development will not result in any additional staff or students on the University Campus. Further, due to the nature of the development, and its location within a University Campus, many of the categories of infrastructure that Council is seeking to levy for are already provided by the University, for use by staff, students and the general public. On this basis, it is considered unnecessary that the development be levied for community facilities, public domain or new open space contributions.

For the recent Biological Sciences Building project, it was agreed between Council, UNSW and the Department that the reasonable approach in this instance would be to levy a contribution with a direct nexus to the need for public domain and roadworks in the vicinity of that development on Botany Street. This included signalisation of the Gate 11 / Botany Street intersection. This was greatly reduced from a typical maximum 1% levy.

For the Tyree Energy Technologies Building and the MSEB, the Department reduced the levy via a formula based on the estimated increase in staff generated by the project, noting that students accommodated within the building would be those relocated from other buildings on the Campus.

As stated above, for the UNSW Mechanical and Manufacturing Engineering and the Electrical Engineering Building projects, no contributions were paid on the basis that the developments did not increase either the student or staff

populations on the Campus. Should the Department still consider the development contributions are appropriate in this instance, then it is advised that UNSW has, in respect of recent development consents, agreed with Council that any condition requiring a development contribution will include the words “for public domain works within the University of New South Wales and Hospitals Precinct”.

The wording is in accordance with Council’s Planning Committee report and resolution of 9 February 2010, recognising that S94A contributions arising from development on the University Campus would be matched by specific capital works within Council’s Contributions Plan, within the vicinity of the University.

5.22 Geotechnical Impact

A Geotechnical Impact report prepared by Douglas Partners is provided at **Appendix T** of this report. The report discusses the excavation conditions for the proposed development based on the geotechnical testing and investigation undertaken on the site.

Given that the development does not include subterranean basement levels, the depth of excavation for footings and foundation slabs are relatively shallow (less than 1m deep). Deeper localised excavation (2m deep) will be necessary to accommodate services and lift pits.

Groundwater

Based on the groundwater data available at this stage, it is unlikely that the groundwater table would lie above the proposed ground floor levels and localised excavations for service/lift pits (assuming localised excavations are no deeper than 2 m below proposed ground floor levels). Some minor inflow due to seepage of surface water into subfloors and localised excavations should be expected after rainfall events.

6.0 Environmental Risk Assessment

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

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

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

Figure 40 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

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

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

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

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

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

Figure 42 Risk Assessment Matrix

				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Construction Impact	C	Construction noise, vibration, traffic and dust emission impacts	• Preparation of a Construction Noise and Vibration Management Plan incorporating the recommendation set out under the Construction Noise Report by Wilkinson Murray • Preparation of an Environmental, Health and Safety Plan and associated sub-plans prior to commencing construction activity on the site.	C= 3	C =3	6 (Low/Medium)
Heritage Impact	C + O	Construction impact due to the proximity of heritage significant items to the project site boundary. Impact of the proposed built form to the HCA.	• Dilapidation survey will be conducted prior to commencing construction works. A Construction Noise and Vibration Management Plan will be implemented during construction to manage vibration impacts. • The built form is designed to provide an increased curtilage to the Old Tote and Fig Tree Theatre HCA. The overall design, setting, materials and finishes provide an improved outcome with regard to heritage impact ameliorate heritage impact and provide an improved heritage response	C = 2 O = 2	C=2 O = 1	4 (Low/Medium) 3 (Low)
Wind Impact	O	Some amelioration is required for outdoor relaxation areas	• Condition of consent to identify and provide wind amelioration measures during detailed design stage	O= 3	O=2	5 (Low/Medium)
Stormwater Impact	C	Sediment laden runoff	• A Sediment and Erosion Control Plan is also proposed for the site to manage and mitigate sedimentation and erosion during the construction phase of the development	C= 3	C=2	5 (Low/Medium)
Contamination	C	Following evaluation of the results of the data gap assessment, remediation works are proposed in accordance with the RAP	• Following competition of demolition works on site in accordance with the REF works, further investigation is to be undertaken within the building footprint of those structures to fully characterise the site. Remediation works, if necessary, will be undertaken in accordance with the RAP prepared by Douglas Partners at **Appendix V**. Following remediation, a Validation Report will be prepared by a suitably qualified Environmental Consultant, which will detail the methodology, results and conclusion of the assessment, provide waste classification and disposal information, and make a clear statement regarding the suitability of the site for the proposed land use.	C=4	C=4	8 (Medium)

7.0 Mitigation Measures

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

Table 9 Mitigation Measures

Mitigation Measures
Construction Management Plan • The CMP should be implemented during the construction phase of the development. In addition, a Environmental, Health and Safety Management Plan and all associated sub plans as idenitfied under the CMP must be prepared prior to commencing construction activities and management measures as outlined under these plans should be applied during the construction phase of the development.
Construction Noise and Vibration Management Plan • Preparation of a Construction Noise and Vibration Management Plan in accordance with the mitigation measures, guidelines and recommendations identified by the Operational and Construction Noise Assessment Report prepared by Wilkinson Murray and the CMP.
Construction Traffic Management Plan • All construction vehicle and pedestrian management measures as outlined under the CTMP should be applied to the site during the construction phase
Contamination • Following competition of demolition works on site in accordance with the REF works, further investigation is to be undertaken within the building footprint of those structures to fully characterise the site. Remediation works, if necessary, will be undertaken in accordance with the RAP prepared by Douglas Partners at **Appendix V**. Following remediation, a Validation Report will be prepared by a suitably qualified Environmental Consultant, which will detail the methodology, results and conclusion of the assessment, provide waste classification and disposal information, and make a clear statement regarding the suitability of the site for the proposed land use.
Building Code of Australia • Alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA should be considered during detailed design stage. The alternate solutions should be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.
Aboriginal Heritage • A condition of consent to monitor activities during earthworks as well as identify and investigate any undisturbed sand horizons. • Ensure archaeological activities are carried out in accordance with a final Aboriginal Cultural Heritage Assessment Report prepared in line with the in line with the OE&H Guidelines.
Tree Removal and Protection • It is recommended that construction proceeds using the Australian Standard AS4970 2009 Protection of trees on development sites is used and the specific additional Tree Protection measures recommended by the Arborist are implemented as a condition of consent.
Wind Impact • A condition of consent to develop suitable wind amelioration measures for areas nominated for outdoor dining, seating and relaxation.

8.0 Justification of the Proposal

In general, investment in major projects can only be justified if the benefits of doing so exceed the costs. Such an assessment must consider all costs and benefits, and not simply those that can be easily quantified. As a result, the EP&A Act specifies that such a justification must be made having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development.

The proposed development involves the construction of a new multipurpose D14 Building. The assessment must therefore focus on the identification and appraisal of the effects of the proposed change over the site's existing condition.

Various components of the biophysical, social and economic environments have been examined in this EIS and are summarised below.

8.1 Social and Economic

The proposed new D14 Building development will deliver a new development with contemporary facilities for the use of university students and staff within the UNSW campus. The building provides additional learning spaces for students including new format learning environments that aim to promote student interaction, creative thinking and innovation

The overall development is designed to provide an improved urban design and architectural response for the immediate site, its surrounds and the broader campus area. The ground plane promotes permeability and connectivity as well as equitable access to facilities.

While the development is designed specifically to address current university needs for additional learning space and faculty seating areas, the modular design of the development promotes future flexibility, allowing the building to easily adapt to the changing demands of an evolving and growing university. In this regard the development promotes sustainability and allows the university to address both short and long term educational, academic and operational needs of a premier Australian university.

Importantly, it allows the University to use a key site within the campus for a new well designed, high quality campus development that aims to meet current and future needs of a growing campus in line with the UNSW 2025 Strategy. In this regard, the overall proposal provides numerous positive social and economic impacts for the University and the university students and staff, and no adverse social or economic impacts are anticipated from the delivery of this development.

UNSW Sydney in collaboration with UNSW Village will provide affordable student accommodation within the existing UNSW Village building located immediately to the north of the site. A portion of the UNSW Village is currently in the process of undergoing refurbishment to accommodate the additional beds, with completion anticipated by February 2019.The existing UNSW Hall residents will be relocated to the UNSW Village prior to commencement of any demolition or construction work to UNSW Hall. The accommodation will maintain the quota of existing affordable on campus student housing accommodation, in addition to providing 5 additional affordable beds. As such, in this regard, the proposal will not result in any adverse social impacts, and conversely will provide positive benefits by increasing the supply of affordable beds on campus.

8.2 Biophysical

Section 5.0 of this EIS contains a thorough assessment of the likely biophysical impacts of the proposed development. The environmental risk assessment contained at **Section 6.0** demonstrates that the proposed development will not result in any significant environmental impacts that cannot be appropriately addressed through standard conditions of consent or the current mitigation measures included at **Section 7.0**.

The environmental impact assessment of the proposed development has demonstrated that responsive measures will ensure noise and vibration impacts, air quality impacts and construction traffic and pedestrian conflicts are adequately managed during the construction phase. Further, no adverse biodiversity or ecological impacts are considered to arise from the proposed development. On this basis, the development is not anticipated to result in adverse biophysical impacts.

8.3 Ecologically Sustainable Development

The EP&A Regulation lists 4 principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of environmental resources.

An analysis of these principles follows.

Precautionary Principle

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

Given the location of the subject site within an urban and metropolitan context and the previously developed nature of the project site and broader UNSW campus area, this EIS has not identified any serious threat of irreversible damage to the environment and therefore the precautionary principle is not relevant to the proposal.

Intergenerational Equity

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

- Providing an improved urban design and architectural response to a strategic and centrally located site within the UNSW Kensington campus
- Facilitating improved connectivity, permeability and equitable access opportunities within the project site
- Providing a modular development that will promote sustainability in the long term as the building can be easily adapted for future needs of an evolving and growing university;
- Implementing safeguards and management measures to protect environmental values; and
- The project is set to achieve a 6 Star Green Star rating.

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

Conservation of biological diversity and ecological integrity

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

The proposal would not have any significant effect on the biological diversity and ecological integrity of the study area.

Improved valuation, pricing and incentive mechanisms

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

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases.

8.4 Site Suitability and Public Interest

The site is suitable for the proposed development in that it is already accommodates educational facilities, with surrounding buildings that are of a built form not dissimilar to the contemporary design that is proposed.

The development will not increase the number of students, staff or visitors to the site, and consequently there will be limited additional impacts on the surrounding development as a result of the proposal.

The site is in close proximity to transport infrastructure, and other services, and the built form is in keeping with the existing site, existing surrounding development, and the future direction envisaged under the relevant strategies, policies and guidelines.

The development is suitable for the site as it is permissible in the zone; involves the construction of a quality building of architectural design that enhances the Campus; provides state of the art teaching facilities; and is considered to have no adverse impacts on the surrounding locality.

9.0 Conclusion

The EIS has been prepared to consider the environmental, social and economic impacts of the proposed new D14 Building. The EIS has addressed the issues outlined in the SEARs (**Appendix B**) and accords with Schedule 2 of the EP&A Regulation with regards to consideration of relevant environmental planning instruments, built form, social and environmental impacts including traffic, noise, construction impacts and stormwater.

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

- Facilitate use of a strategic site within the UNSW for a well designed, high quality development that provides an improved urban design and architectural design response for the project site and its immediate surrounds;
- The development will facilitate improved circulation, connectivity and accessibility within the UNSW Kensington campus;
- Improves solar access and amenity to 'Old Tote and Fig Tree Theatre' Heritage Conservation Area;
- Activation of the ground plane, particularly along the Alumni Park and College Walk;
- The project is proposed to achieve a minimum 6 Star Green Star As built rating;
- The proposal will introduce new contemporary facilities for use of students and staff including specialised new format learning environments that aim to promote student interaction, creative thinking and innovation;
- The development is consistent with the objectives of the UNSW 2025 Strategy to provide new cutting edge development that meets the current and ongoing operational needs of a premier Australian University; and
- The proposal will offer a wide range of positive short and long term socio-economic benefits.

Given the planning merits described above, and significant public benefits proposed, it is requested that the Minister, or his delegate, approve the application.