State Significant Development Application

SSD 7382 Environmental Impact Statement

University of Technology Sydney

UTS Central Project

Submitted to Department of Planning & Environment
On Behalf of University of Technology Sydney

May 2016 ▪ 15746

JBA Urban Planning Consultants Pty Ltd ABN 84 060 735 104 / North Sydney t +61 2 9956 6962 w jbaurban.com.au

JBA operates under a Quality Management System that has been certified as complying with ISO 9001:2008. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

This report has been prepared by:

Angus Halligan 2 May 2016

This report has been reviewed by:

2 May 2016

Alexis Cella

Contents

Contents

Figures

Contents

Tables

Appendices

Contents

Contents

Statement of Validity

Development Application Details	
Applicant name	University of Technology, Sydney
Applicant address	Level 19, Building 1, PO Box 123 Ultimo 2007
Land to be developed	UTS Central Campus
Proposed development	UTS Central Project as described in **Section 3.0** of this Environmental Impact Statement
Prepared by	
Name	Angus Halligan
Qualifications	BPlan - UNSW
Address	Level 7, 77 Berry Street, North 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	Angus Halligan
Date	2/05/2016

Executive Summary

Purpose of this Report

This Environmental Impact Statement (EIS) has been prepared for a State Significant Development Application (SSDA) for the UTS Central Project – Extension of Building 1 and Redevelopment of Building 2 at the Broadway Precinct of the University of Technology City Campus Sydney.

The SSD Application relates to the Concept Plan Approval for the University of Technology Sydney (UTS) City Campus Broadway Precinct, which was approved in December 2009 (MP08_0116).

This EIS is submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP& A Act) and *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD).

Overview of the Project

This EIS will accompany a SSDA for works that relate specifically to the UTS Central Project, the extension of Building 1 (podium) and redevelopment of Building 2 (tower) at the City Campus, Broadway Precinct.

More specifically, this SSDA seeks approval for the following components:

- Site preparation works, including demolition and clearance of existing Building 2 down to approximately ground level and associated tree removal;
- Retention and re-use for educational purposes of existing basement Level 1 and Level 2;
- Construction and use of a new podium building fronting Broadway (Building 1 extension and new Building 2);
- Construction and use of new floors above new Building 2 podium;
- Public domain improvements surrounding the site;
- Landscaping works to roof levels;
- Retention of existing vehicle access and parking arrangements; and
- Extension and augmentation of physical infrastructure / utilities as required.

The Site

The Broadway Precinct of the UTS City Campus is located on the southern edge of the Sydney Central Business District with frontages to Broadway, and Thomas, Wattle and Harris Streets (see **Figure 1**). Central station is located less than 700m to the east.

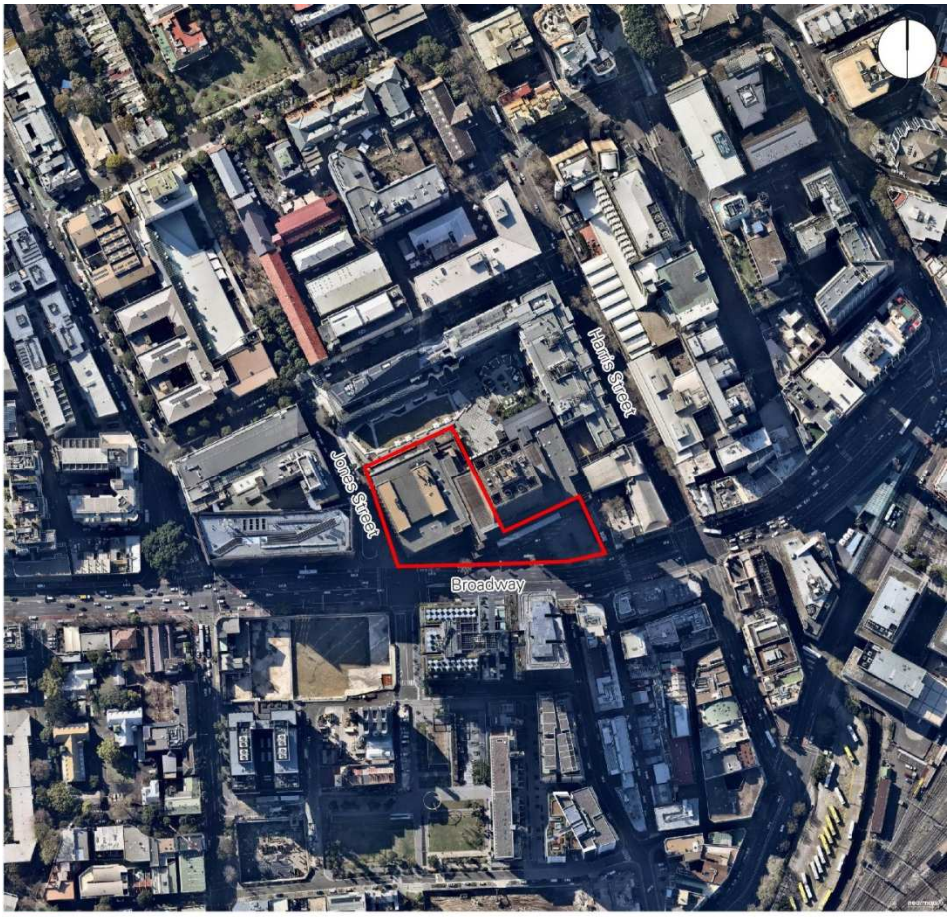

Figure 1 – Subject Site
Source: Nearmap

Planning Context

The proposed development has a total Capital Investment Value (CIV) of **$278,230,007 million** (as detailed within the Quantity Surveyor Report prepared by Wilde and Wollard) and is classified as State Significant Development pursuant to Clause 15, Schedule 1 in SEPP SRD.

A request to issue Secretary's Environmental Assessment Requirements (SEARs) for the proposed development was made on 11 November 2015.

The SEARs were issued to UTS on 9 December 2015. A copy of the SEARs is provided at **Appendix A**.

Section 6.0 of the EIS considers all applicable legislation in detail. The proposal is generally consistent with the requirements of all relevant environmental planning instruments.

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 the applicant to manage and minimise potential impacts arising from the development.

Key environmental assessment considerations identified include, amongst others:

- compliance with relevant environmental planning instruments and strategic plans;
- height, bulk, scale and setbacks of the proposed development within the context of the site;
- environmental amenity including overshadowing impacts, privacy, visual impact, acoustic and wind impacts;
- transport and accessibility including pedestrian and cycle access, peak public and private transport demand;
- implementation of ESD measures;
- impact of heritage significance of heritage items in the vicinity;
- noise and vibration during construction and operation;
- potential for site contamination;
- assessment of flood risk;
- details of site drainage; and
- identification of waste streams generated during construction and operation.

All identified impacts are addressed in this EIS and are capable of being ameliorated through the implementation of appropriate mitigation measures outlined in **Section 8**.

Benefits of the Project

The Project will provide state-of-the-art research and teaching facilities at UTS. The proposed development aligns with the UTS *City Campus Masterplan 2020* which provides a framework for refurbishments and new building works across the campus (comprising the Broadway Precinct and other sites in the Sydney CBD) in order to provide improved facilities and to accommodate future expected student and staff growth.

The new floor space will accommodate a range of educational and ancillary educational uses, such as:

- Library
- Research
- Teaching Space
- Informal Learning Space
- Student Centre
- Student Union Spaces
- Food and Beverage Outlets
- Academic (including Faculty space)

Conclusion and Justification

This EIS fulfils the requirements of the EP&A Act and addresses the SEARs.

Section 8 sets out the mitigation measures to ensure that the potential impacts of the development are acceptable and are able to be managed.

Given the planning merits of the proposal, the proposed development warrants approval by the Minister for Planning.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning & 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 Application (SSDA) for the extension of Building 1 (podium) and redevelopment of Building 2 at the City Campus, Broadway Precinct of the University of Technology (UTS).

Development for the purpose of Educational Establishments 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 proposed development has a Capital Investment Value (CIV) exceeding $30 million and is declared State Significant Development (SSD) for the purposes of the EP&A Act.

This EIS has been prepared by JBA on behalf of UTS and is based on the Architectural Drawings provided by Francis-Jones Morehen Thorp Architects (see **Appendix B**) and other supporting technical information appended to the report (see Table of Contents).

This report describes the Project site, its environs and the proposed development. This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the Secretary's Environmental Assessment Requirements (SEARs), which are included at **Appendix A**.

1.1 Overview of Proposed Development

This SSD Application seeks approval for the following components of the development:

- Site preparation works, including demolition and clearance of existing Building 2 down to approximately ground level and associated tree removal;
- Retention and re-use for educational purposes of existing basement Level 1 and Level 2;
- Construction and use of a new podium building fronting Broadway (Building 1 extension and new Building 2);
- Construction and use of new floors above new Building 2 podium;
- Public domain improvements surrounding the site;
- Landscaping works to roof levels;
- Retention of existing vehicle access and parking arrangements;
- Extension and augmentation of physical infrastructure / utilities as required.

The UTS Central Project is being designed by Francis Jones Morehen Thorp Architects (FJMT Architects) and Lacoste + Stevenson / Daryl Jackson Robin Dyke Architects.

Demolition of existing Building 2 (located at corner of Broadway and Jones Street) will facilitate the construction of a new building that has an effective height of 14 – 15 storeys above Jones Street. The upper storeys are setback from

Broadway and the height similar to the mid-rise One Central Park building opposite and the new UTS Faculty of Engineering and IT Building, located on Broadway between Wattle and Jones Street. The proposal includes a 4 – 5 storey facade along Broadway that aligns with the extension to Building 1 Podium.

The new floor space will accommodate a range of educational and ancillary educational uses, such as:

- Library.
- Research.
- Teaching Space.
- Informal Learning Space.
- Student Centre.
- Student Union Spaces.
- Food and Beverage Outlets.
- Academic (including Faculty space).

1.2 Background

1.2.1 Approved Concept Plan

UTS was formed in 1988 from the former NSW Institute of Technology, and was restructured in 1990 with the merger of the Kuring-gai College of Advanced Education, the School of Design, and the Institute of Technical and Adult Teacher Education to form the current UTS.

This change in profile, combined with the University's predominantly CBD location in Sydney, created a new identity. During its early evolution, student numbers increased at UTS without any significant increase in student facilities.

UTS recognised the need to upgrade the City Campus back in 2000, and undertook a number of visioning and master planning projects culminating in the *City Campus Masterplan 2020* (BVN, 2008) which provides a framework for refurbishments and new building works across the campus (comprising the Broadway Precinct and other sites in the Sydney CBD) in order to provide improved facilities and to accommodate future expected student and staff growth.

The long term strategic vision for UTS is 'to be one of the world's leading Universities of Technology'.

On 23 December 2009 a critical step in realising UTS's vision and identity for the Broadway Precinct was realised, with approval of the UTS City Campus Broadway Precinct Concept Plan (BPCP).

The Concept Plan included:

- New Broadway Building and Thomas Street Building with a combined gross floor area (GFA) of 44,650m^2;
- Expansion of Buildings 1 and 2 with a combined additional GFA of 10,800m^2;
- Expansion of Building 6 for the provisions of student housing with an additional 25,250m^2 GFA;
- Modifications to Buildings 3, 4 and 10;
- Modifications to Alumni Green with a new Multi-Purpose Sports Hall and book vault beneath; and

- Public domain improvements to Broadway and Thomas, Harris, Wattle and Jones Streets.

The Minister also granted Project Approval for the following works:

- Construction of a new underground Multi-Purpose Sports Hall; and
- Demolition of Buildings 11, 12 and 13.

The key components of the approved Concept Plan are illustrated in **Figure 2**.

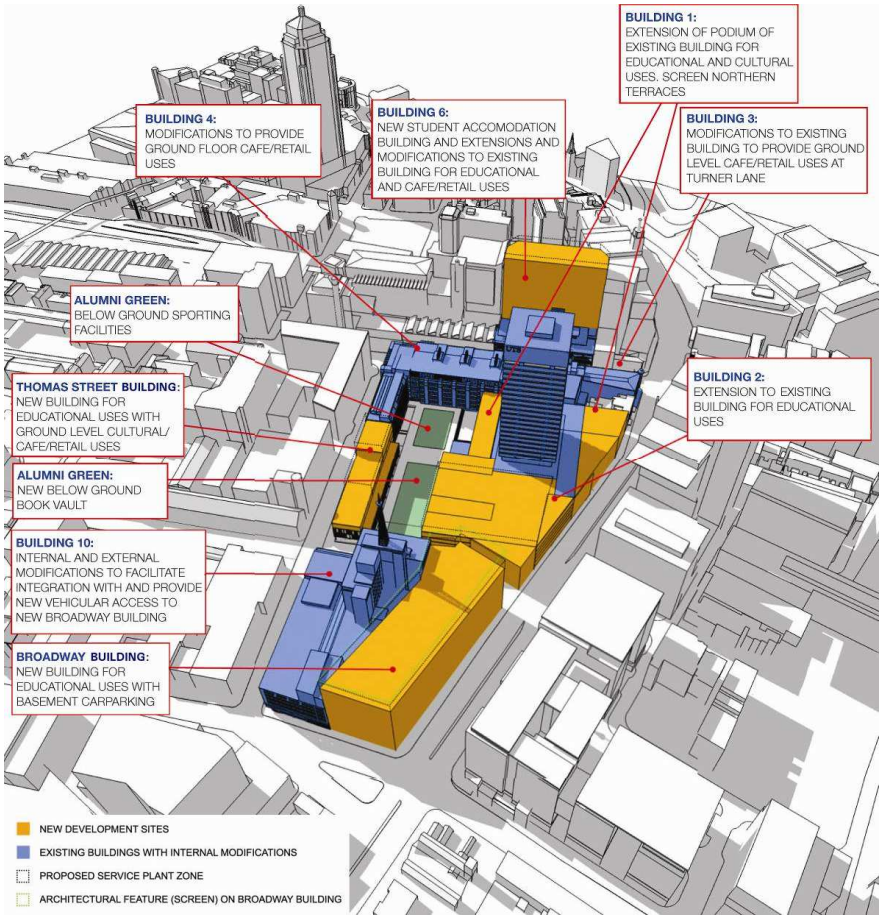

Figure 2 – 3D Model of approved concept plan
Source: BVN, DCM and JBA

1.2.2 Concept Plan Modifications

Since the Concept Plan was approved, Five (5) subsequent modifications have been approved.

Modification No 1

Modification No 1 (MP 08_0116 Mod 1), approved in March 2011, sought to include bulk excavation works for the Broadway Building as part of the Project Approval works granted under the Concept Plan approval (enabling these works to be undertaken ahead of the Project Application for the building).

Modification No 2

Modification No 2 (MP 08_0116 Mod 2), approved in March 2011, related to an administration amendment to Concept Plan condition B2.

Modification No 3

Modification No 3 (MP 08_0116 Mod 3), approved in July 2011, sought to include the excavation, construction and operation of the Library Retrieval System (LRS) and Storage Building together with bulk excavation works for the Thomas Street Building as part of the Project Approval works granted under the Concept Plan approval (enabling these works to be undertaken without any further environmental assessment).

The modification also included a revised breakdown of GFA across the UTS Broadway site, with the Environmental Assessment submitted in support of the S75W identifying an increased GFA for the Thomas Street building of 12,150m^2 (corresponding with a decreased GFA for the Broadway Building of 34,650m^2).

Modification No 4

Modification No 4 (MP 08_0116 Mod 4), approved in March 2012, related to an administration amendment to Concept Plan condition E3 (approved truck route plan for excavation of Thomas Street building and the library retrieval system).

Modification No 5

Modification No 5 (MP 08_0116 Mod 5), approved in March 2016, relates to an increase in the approved additional GFA for Building 2 to 38,261m^2, comprising an increase of 31,511m^2. Expansion and amendment to the approved building envelope for Building 2, resulting in a maximum building height of 64.5m (RL 79.50) at Broadway, comprising an increase of 34.41m. Consequential amendments to the Urban Design Quality Controls/Principles for Building 2 and Statement of Commitments.

1.2.3 Evolution of Concept Plan

Since approval of the Concept Plan in 2009 UTS has secured the necessary detailed planning approvals and delivered a number of state of the art and iconic learning, research and social facilities across the Broadway Precinct, including:

- Faculty of Engineering and IT Building (**Figure 3**), designed by Denton Corker Marshall Architects.
- Multi-Purpose Sports Hall (**Figure 4**), designed by PTW Architects.
- Alumni Green (**Figure 5**), designed by ASPECT Studios Landscape Architects.
- Faculty of Science and Graduate School of Health Building (**Figure 6**), designed by Durbach Block Jaggers in association with BVN Architecture.
- Library Retrieval System, designed by Hassell Architects.
- Great Hall and Balcony Room Upgrade, Designed by DRAW Architects in association with Kann Finch Architects.

Some of the buildings delivered to date by UTS have gone on to win architectural design awards, including the Faculty of Science and Graduate School of Health Building receiving two 2015 Australian Institute of Architects (NSW) awards:

- City of Sydney Lord Mayor's Prize.
- Educational Architecture - William E Kemp Award.

UTS has also gone through a competitive design process for the Building 1 and Building 2 Podium Extension project, with Lacoste + Stevenson in association with Darryl Jackson Robin Dyke Architects (Lacoste + Stevenson) awarded the design commission (refer to **Figure 7**). This State Significant Development Application relates directly to these works.

Figure 3 – Faculty of Engineering and IT Building

Figure 4 – Multi Purpose Sports Hall

Figure 5 – Alumni Green

Figure 6 – Faculty of Science and Graduate School of Health Building

Figure 7 – Lacoste + Stevenson winning design competition entry for Building 1 and Building 2 podium

1.3 Objectives of the Development

The core vision for the UTS Central Project stems from the UTS City Campus Master Plan 2020 prepared by BVN (in 2008) which articulate a series of eleven Strategic Drivers as the key objectives for UTS to achieve.

Two of these drivers are specifically addressed by the UTS Central Project:

- Centre for the Campus – Learning Commons by revitalising the heart of UTS by developing a new central location for the Learning Commons (Library) and identity for the campus.
- Vital/Connected Campus that is integrated within the fabric of the city in a legible and permeable fashion to create a 'sticky' campus with places for students that 'foster a strong sense of academic community, with an emphasis on spaces that enable collaboration and communication'.

- The UTS Central project also responds to a series of the other Strategic Drivers outlined in the Master Plan including:
  - Accommodating further growth as a result of projected increases in staff/student numbers expected to occur over the next 6 years in the Library, general teaching spaces (GTS), academic, research, cultural and informal recreation areas.
  - Providing new modes of student-centred, collaborative and individual learning in the spaces.
  - Revitalising the heart of UTS by developing a Learning Commons as a centre for the city campus.
  - Delivering design excellence.
  - Activating the campus as a living laboratory for sustainability.
  - Maximising capacity and development potential of the Building 1 (CB01) and Building 2 (CB02) sites.
  - Addressing the objectives of the City of Sydney's Sustainable Sydney 2030 vision.

1.4 Analysis of Alternatives

The use of the site will remain unchanged as a result of the proposal. The proposal involves an extension of Building 1 (podium) and the redevelopment of Building 2 as part of the UTS City Campus Broadway Precinct. The proposal allows for a range of educational and ancillary educational uses along with an increase in student population.

A 'do-nothing' alternative is not an option on this site, as the operation of the UTS Campus would be significantly disadvantaged in its ability to provide library, general teaching spaces (GTS), academic, research, cultural and informal recreation areas. The proposed upgrades will allow UTS to provide the highest standard of teaching and student facilities into the future, and deliver valuable facilities for the University.

The Concept Plan was based on providing facilities for a student load of 15,000 EFTSL[1] on the Broadway Precinct by 2015.

In 2014 the student load was 17,100 EFTSL. The current projection for 2020 is 19,500 EFTSL, up 4,500 EFTSL from the 15,000 EFTSL the Concept Plan was planned to accommodate.

The projected student numbers have increased during the period from 2008 to 2015 due to the following factors:

1. Planned strategic increases in response to current market and competitive conditions including to fund the provision of new courses, student services and facilities.
2. The Federal Labor Government in 2009 endorsed a target of 40 per cent of 25 - 34 year olds having at least a bachelor degree by 2025. To achieve this goal domestic student intake caps were removed and Australian higher education institutions were encouraged to enrol more domestic degree students by 2013. The UTS projections in 2008 were prepared on the basis that the Government's higher education funding on Commonwealth supported students would continue to be capped for limited growth. However the Government removed the cap in 2012 allowing universities to increase intakes to meet demand.

[1] *Equivalent full time student load*

3. The implementation of a new Research Strategy that promotes collaboration with industry partners and overseas institutions and includes significant increases in research student numbers. The University also needs an increased student population base to be competitive in the international research field. Apart from increasing international rankings a strong research performance also influences private sector and community investment and contributes to the university's long term financial stability.
4. Increases in demand from overseas students, including from China and India. UTS is prepared to offer education opportunities to students in developing countries by increasing international student intakes from 2013. In the past 5 years there has been a significant increase in student residential accommodation in the precinct that is available to overseas students, making UTS more accessible.
5. Establishment of the new Graduate School of Health in 2012. This was not contemplated in 2008 when the UTS Concept Plan was prepared. The course was initially established in response to a shortage of pharmacists in NSW. The Graduate School of Health is expected to grow to more than 600 students by 2020.
6. Closure of UTS Kuring-gai campus in December 2015. Courses offered at Kuring-gai will continue to be offered at the Broadway and Haymarket Precincts of the UTS City Campus.
7. UTS has provided a number of new and refurbished facilities on the City Campus during the past 2 – 5 years. These have allowed UTS to improve efficiency and provide a better learning experience to students.
8. The UTS learning model. This provides a learning foundation that is practice – oriented, globally focussed and research – inspired.

With the Concept Plan clearly well progressed in its delivery, there remains realistically only one site left capable of accommodating the increased student load, being the subject of this application

1.5 Project Team

The Project Team assembled to assist in the delivery of the UTS Central Project are identified below.

Proponent	University of Technology, Sydney
Architecture	Francis Jones Morehen Thorp (FJMT Architects) and Lacoste + Stevenson / Daryl Jackson Robin Dyke Architects
Urban Planning	JBA
Survey	Rygate
Quantity Surveyors	Wilde and Woollard
Traffic and Transport	GTA Consultants
Landscape Architect	FJMT Architects
Arborist	Earthscape Horticultural Services
Geotechnical	Douglas Partners
Solar Access/Overshadowing	FJMT Architects
Environmental Sustainable Development	Steensen Varming
Noise and Vibration	Acoustic Studio

Heritage	Godden Mackay Logan (GML)
Visual Impact	Architectus
Wind	Cermak Peterka Petersen (CPP)
Reflectivity	Surface Design
Hydraulic Engineer	Erbas
Fire Engineer	ARUP
Electrical Engineer	JHA
Structural Engineer	AECOM
Waste Management	UTS/Richard Crookes Construction
Building Code of Australia	Steve Watson & Partners
Access	Accessibility Solutions (NSW)
Preliminary Construction Management Plan	Richard Crookes Construction
Construction Traffic Management	GTA/Richard Crookes Construction
Drainage and Stormwater	Erbas Hydraulic Engineers
Community Consultation	KJA

2.0 Site Analysis

2.1 Site Location and Context

The Broadway Precinct of the UTS City Campus is located on the southern edge of the Sydney Central Business District (CBD). The UTS City Campus is located entirely within the Sydney Local Government Area.

The site has frontages to Broadway, Thomas, Wattle and Harris Streets, and the Ultimo Pedestrian Network and is less than 700 metres from Central Railway Station. Jones Street runs through the Precinct. The area covered by the Concept Plan (MP_08-0116 as amended by Modification 5) is shown in **Figures 8**.

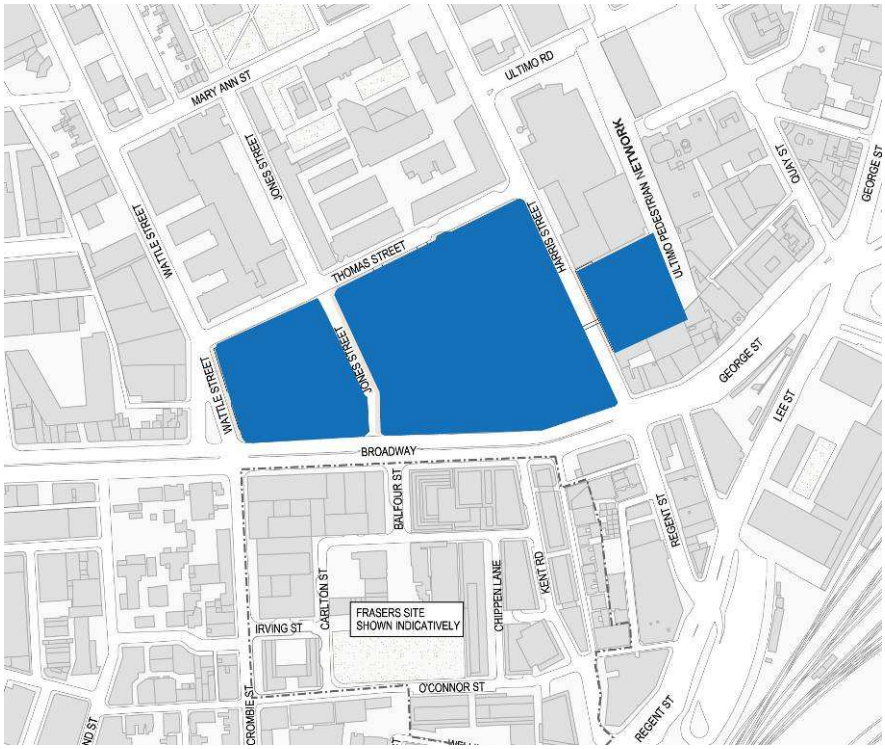

Figure 8 – Site Context
Source: BVN

More specifically the UTS Central Project focuses on new and refurbished podium areas of the existing UTS 'Tower' building (CB01) constructed between1969-1979 and adjoining Building 2 (CB02) constructed in 1984 (refer to **Figure 9**).

Figure 9 – Project Location
Source: FJMT Architects

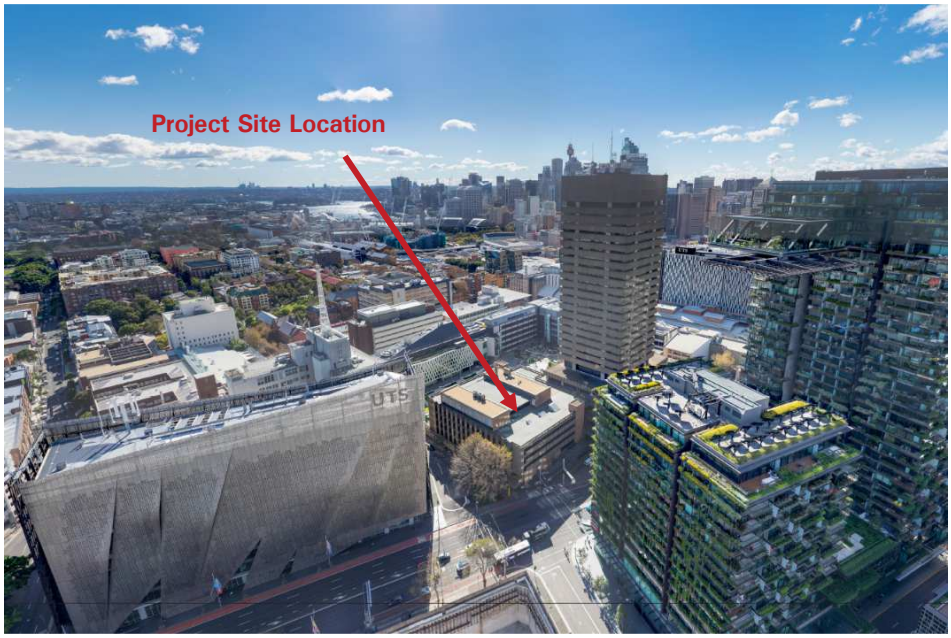

Figure 10 – Aerial view of UTS Broadway Precinct and surrounds

2.2 Land Title

The UTS City Campus comprises nine allotments which are legally described in **Table 1**. UTS is the legal owner of all the allotments.

Table 1 – Legal Description of Allotments

Land Parcel	Legal Description	Site Area (m^2)
Buildings 1, 2, 3, 4 and 7 (UTS Tower and main campus)	Lot 2012 DP 1183894	26,943
Building 6 (UTS Harris Street)	Lot 11 DP 835246	5,109
Buildings 18 (former Building 8) and 9 (UTS Terrace Buildings)	Lot 1 DP 1079855	717
Building 10, 11	Lot 2012 DP 1190337	9,238
Total		42,007m^2

The proposed works are located entirely within Lot 2004, DP 1053548. A site survey is submitted at **Appendix C**.

2.3 Site Description

The Broadway Precinct of the UTS City Campus has frontages to Broadway, Thomas, Wattle and Harris Streets, and the Ultimo Pedestrian Network and is less than 700 metres from Central Railway Station. Jones Street runs through the Precinct.

The subject site, within the UTS City Campus, is referred throughout this EIS as UTS Central and consists of:

- UTS Building 1 (CB01) – Tower Building.
- UTS Building 2 (CB02) – Former faculty of Engineering and Information Technology.

The UTS City Campus occupies approximately 42,000m^2 of land within the Ultimo Cultural and Education Precinct (UCEP) which includes, amongst others, the Sydney Institute of TAFE, the Powerhouse Museum and the ABC.

2.3.1 Geotechnical Conditions

A desktop geotechnical assessment has been undertaken by Douglas Partners (**Appendix D**) for the UTS Central Project to provide information on expected subsurface conditions to aid the approvals process. The assessment included a review of information from previous investigations, published information on the geology of the area and a site inspection by geotechnical engineer.

The site is underlain by Hawkesbury Sandstone which typically comprises medium to coarse-grained quartz sandstone with minor shale and laminate lenses. The groundwater table is likely to be well below the bedrock surface. Near-surface Hawkesbury Sandstone and Ashfield Shale generally exhibit low permeability which results in very low ground water yield.

2.3.2 Contamination and Remediation

A Preliminary Site Investigation for contamination assessment purposes was undertaken by Douglas Partners (**Appendix E**) for UTS Central Project.

The Preliminary Site Investigation indicates that the potential for contamination to be present within the development areas is low. There is nothing to suggest that the site is unsuitable for the proposed redevelopment and continued use as an educational facility. The site is therefore considered to be suitable, or could be made suitable, for the proposed redevelopment provided that the recommendations made above are actioned during the works.

2.3.3 Infrastructure and Services

All services (i.e. water, sewer, gas, electricity and telecommunications) are available to the site, and can be connected / augmented to service the Project. Further details are provided in **Section 6.9**.

2.3.4 Access

Pedestrian and Cycling

Formalised pedestrian facilities are provided on all road frontages in the vicinity of the UTS Central Campus and include footpaths and ramps. Safe crossing points in the vicinity of the site include two pedestrian crossing at the frontage of Building 2 of the Chippendale Way/Broadway intersection and all legs of the George Street/Harris Street/Regent Street intersection.

Within the Campus, UTS has proposed and implemented several pedestrian links as part of the original City Campus Master Plan to enable the connection of key hubs across the City Campus.

The Master Plan included the plan to close Jones Street to vehicular traffic from Broadway, which has been implemented. The pedestrian network proposed as part of the original City Campus Master Plan is shown in **Figure 11** below.

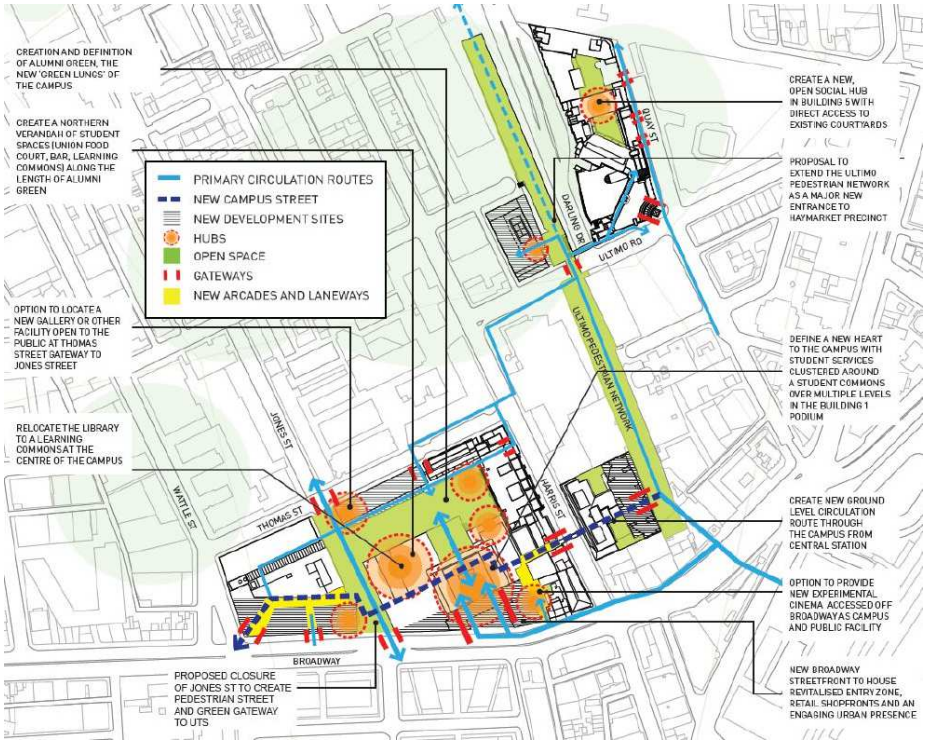

Figure 11 – Pedestrian Network
Source: UTS Master Plan 2008

The site is located within close proximity to both on and off-road cycling facilities as indicated in an extract from the City of Sydney's cycle network map shown in **Figure 12**.

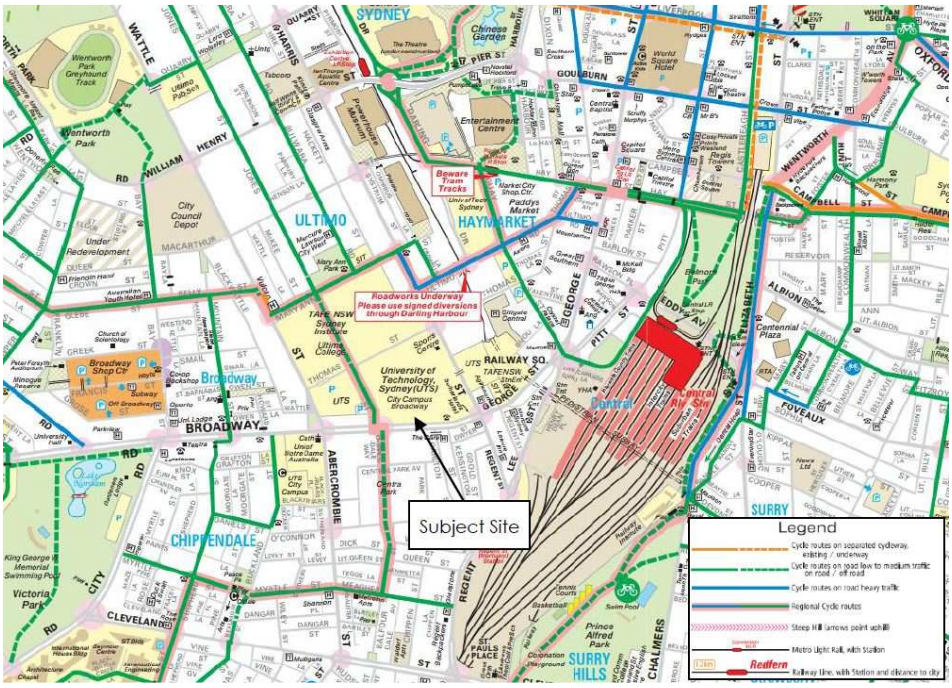

Figure 12 – Cycle Network
Source: City of Sydney Cycling Map 2015

The nearest dedicated cycle facility surrounding the site is the 4m wide shared path along Jones Street between Thomas Street and Mary Ann Street. This section of Jones Street is closed to vehicular traffic and is a key thoroughfare for the TAFE Sydney Institute.

Bicycle parking facilities are provided throughout the UTS City Campus with the nearest facilities to the site located at:

- Building 10 car park (entrance located at the corner of Thomas Street and Jones Street)
- Harris Street, corner of Thomas Street

The Building 10 car park currently accommodates 288 bicycle parking spaces, 260 lockers, 14 toilets and 28 male and female showers. These bicycle parking spaces are an initiative of the original Concept Plan to provide staged increases in bicycle parking provision at UTS.

Rail and Light Rail

Central Railway Station is located approximately 700m east of the Central Park site. The station offers regular suburban and interstate services on the Sydney rail network. Central Railway Station also provides light rail services with the Central light rail stop located to the north of the station.

Bus

The subject site has excellent access to regular bus services along Broadway, as well as a connecting bus interchange on the corner of George and Lee Streets to the north east of the site.

Vehicle

The development proposal does not include any additional on-site parking and would not include changes to vehicle access arrangements. This is consistent with the remaining UTS City Campus where parking provision is not provided or limited. Considering the availability and capacity of public transport services surrounding the site and the limited parking availability off-site, there is not

expected to be any significant increases in car parking demand with users of the site generally discouraged in car usage.

2.4 Surrounding Development

The key uses within the immediate context are predominately tertiary educational, integrated with the UTS Campus.

Buildings located near the UTS Central site include the 13 storey Building 10 and the 11 storey Building 11 on Jones Street and Broadway respectively; the 4-5 storey Building 07 on the northern side of Alumni Green and 25 storey CB01.

A number of lower rise buildings are located to the east of CB01 and west of Harris Street. These include the heritage listed Terraces (Building 18), Building 3 otherwise known as Bon Marche. Both of these buildings are accessed to the rear by Turner Lane and will interface with the east façade of the new Broadway extension to CB01.

The site is surrounded by an eclectic mix of medium-high rise commercial, residential and tourist accommodation buildings of no consistent scale or design.

Opposite the site on the southern side of Broadway is the 5.795 hectare Central Park. This commercial / residential development extends to a height of 116 metres which is similar to the height of the UTS Building 1 Tower.

Adjacent to Central Park on its northern side are several modern high rise hotels and Central Railway station and bus terminus.

To the western side of Central Park is an education precinct comprising the UTS Blackfriars Precinct and the University of Notre Dame. The University of Sydney is further to the west along Broadway / Parramatta Road.

Beyond Central Park and to the south of Broadway is the suburb of Chippendale – characterised by small-scale workers cottages, residential flat buildings, warehouses and networks of narrow streets.

On the northern side of Thomas Street are the Sydney Institute of Technical and Further Education (TAFE) and the light industrial and commercial precincts of Ultimo, Haymarket and Pyrmont.

The headquarters of the ABC adjoins Building 6 on Harris Street. UTS's Haymarket Precinct is located on the site of the former Sydney Markets, while the Powerhouse Museum and Ian Thorpe Aquatic Centre are approximately 600 metres to the north and north east of the site.

Additional educational facilities are located to the west of the TAFE in Ultimo including the Sydney International School. Accommodation for students of universities in the area (including UTS) is also to the west of the site and to the east above UTS Building 6.

3.0 Description of the Development

This application relates to the extension of Building 1 podium (CB01) and redevelopment of Building 2 (CB02) at the City Campus, Broadway Precinct and is referred to as UTS Central.

More specifically, this SSDA seeks approval for the following components:

- Site preparation works, including demolition and clearance of existing Building 2 down to approximately ground level and associated tree removal;
- Retention and re-use for educational purposes of existing basement Level 1 and Level 2;
- Construction and use of a new podium building fronting Broadway (Building 1 extension and new Building 2);
- Construction and use of new floors above new Building 2 podium;
- Public domain improvements surrounding the site;
- Landscaping works to roof levels;
- Retention of existing vehicle access and parking arrangements; and
- Extension and augmentation of physical infrastructure / utilities as required.

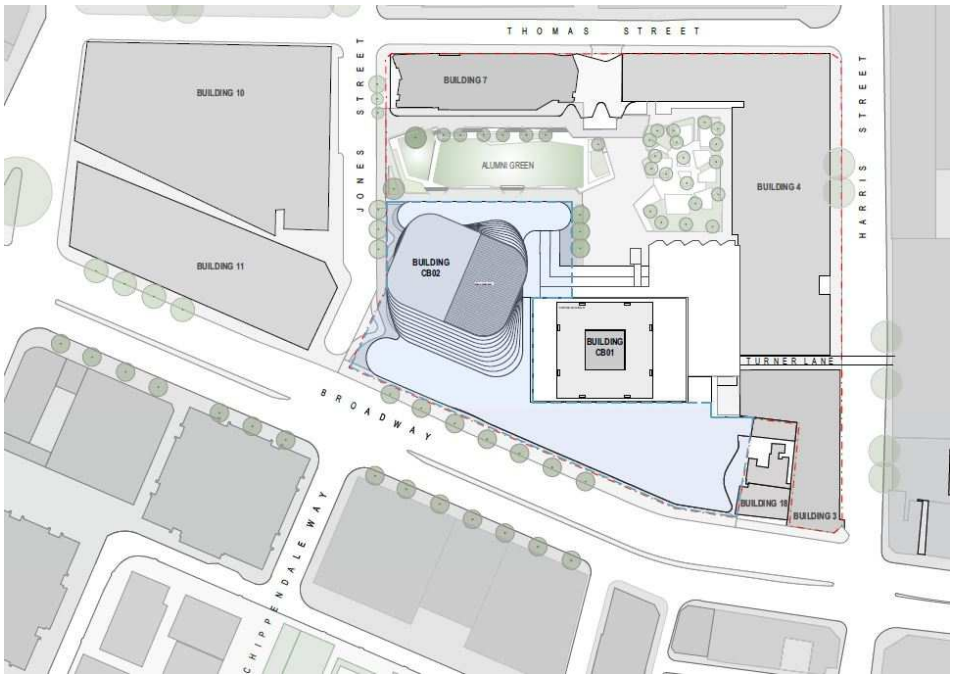

Figure 13 – Site Plan
Source: FJMT Architects

A set of Architectural Drawings prepared by FJMT Architects are submitted with this EIS at **Appendix B**.

Photomontages of the proposed development are shown at **Figures 14, 15 and 16**.

Figure 14 – Montage of the proposed podium expansion of CB01 as viewed from Broadway
Source: FJMT Architects

Figure 15 – Montage of the proposed view from Alumni Green
Source: FJMT Architects

3.1 Construction Staging

Whilst approval is sought for the complete scope of works, the Project will be delivered in two distinct phases to allow for the ongoing operation of the Campus with minimal disruption.

UTS Central is articulated in two main parts, a 4-5 storey podium and a 9 storey tower. Both parts are integrated at key locations.

Phase 1 Works – CB02 Tower

To deliver this component, the existing Building 2 will be demolished down to ground level. The demolition of Building 2 rather than retention and refurbishment allows for significant advantages and benefits, including enabling seamless interaction and connections with the existing Building 1 podium. Above the new Building 2 podium (the competition winning scheme as prepared by Lacoste +Stevenson), there are proposed to be nine (9) additional floors, accommodating a range of educational uses.

Phase 2 Works – CB01 Podium Extension

The Broadway podium façade and podium extension to CB01 is the competition winning scheme (Lacoste Stevenson) which establishes a clear design approach with the existing fabric of CB01 podium and the broader UTS Campus.

It is intended to stage the construction and occupation of the project. It is accordingly sought that a condition of consent reflecting the intended staging of the development be included in any approval, such as:

> *Notwithstanding any other condition of this consent, the consent permits separate Construction Certificates and Interim/Final Occupation Certificates to be issued, provided that all conditions of consent relevant to the development incorporated within each Stage have been complied with prior to the release of the Construction Certificate or Interim/Final Occupation Certificate for that Stage.*

3.2 Development/Urban Design Principles

To inform the development of the project from the initial concept design through to construction and ultimately completion, a set of Design Principles have been established with consideration of the UTS Brief and Masterplan objectives, which will be used to inform both the internal organisation and the overall final form of the proposal within the approved planning envelope.

The proposed Design Principles have been generated to integrate the key design quality controls from the Approved Concept Plan and important design opportunities that the site provides.

Place

A fundamental principle of the BVN 2008 Masterplan as identified in the Urban Design Principles is the creation of a new centre or heart for the campus.

> *"Establish the centre of the campus as its academic, social and ceremonial heart. It encompasses the learning commons, which accommodates an expanded library, Great Hall, student services and social facilities. Services for staff and students are to be integrated with the centre of the campus to provide linkages and reinforce UTS's core."*

The relationship of the proposed works to the existing CB01 tower and podium is very important and the new works are conceptually seen as a complimentary extension to the original concept for the Michael Dysart scheme.

The original ideas of "permeability", and "student movement" and a new model of a "dynamic atrium space" providing "a social meeting point" still resonate with the aspirations of the Master Plan and the brief for CB01/CB02, reinforcing the sense of place of the campus.

Campus Continuity and Integration

A key principle is achieving continuity and integration of the new Broadway facade with the broader UTS campus connecting Alumni Green and the Great Hall with the new CB02, existing CB01 podium and extension to CB01 podium.

Provision of a seamless connection between the existing CB01 and the new CB02. It is important that the integrity of CB01 is maintained and the new proposed CB02 and Broadway Facade extension is complementary to and enhances the current internal "public domain" of CB01.

The importance and grandeur within CB01 of the central atrium spaces and connectivity needs to be recognised and reinforced while also generating a new identity for CB02 and creating a new presence on Broadway, uniting the broader UTS campus.

Geometry and Scale

The geometry and scale of the new CB02 tower has taken into consideration the surrounding strong urban forms of the adjacent fabric - the dominant towers of Central Park, the singularity of CB01 and the sheer lines of the facade of Building 11.

Similarly with the relationship in height and scale between CB01 and the taller tower of No. 1 Central Park, the proposed form and height for CB02 has been considered in response to the lower tower of No.1 Central Park reinforcing the objective of creating a gateway to the CBD from the western entry.

UTS Central provides an opportunity for a new connection to the public domain of Alumni Green and the northern alignments of CB01 and the important address of Broadway.

Activation, Accessibility, Permeability and Connectivity

Activation, accessibility and connectivity will enable engagement for all users with the University and the broader community.

- New prominent entries from Jones Street, Broadway and Alumni Green will provide clear access and entry to major building frontages.
- The ground plane will provide a continuous physical connection between the interior and exterior, across the three major student focus levels through a series of broad public focussed stairs and internal escalators within voids and atriums.
- Transparency will be provided to express building uses and provide connections to Alumni Green, Jones Street and Broadway.
- The fine grain of the immediate context of lanes and streets that provide a continuous connection with the campus will be reinforced and revitalised.

Connected Courtyards

UTS is a very urban campus with minimal access to external landscaped public domain. Alumni Green is a new "green heart" for the campus and UTS Central

should reinforce this new space with new vertical courtyards -"Sky" Greens providing an opportunity for visual and physical connections to Alumni Green through elevated courtyards, terraces and roof terraces.

Amenity and Environmental

The new UTS Central directly improves the amenity of the public domain and the relationship to the Public Domain. The building addresses the local climatic conditions to provide comfort and protection within the public domain. The design provides a continuous awning along Broadway providing weather protection for pedestrians.

Campus Character

The UTS City Campus has been transformed over recent years by the completion of a number of new buildings which have helped redefine and unite the urban character and diversity of the campus. This character is defined by the relationship and interplay of the existing built form and fabric with the new.

The materiality of the existing built fabric as represented most significantly by CB01 is of a heavy masonry construction and rectilinear form while in contrast to this the new building typologies on campus are more curvilinear and varied in their use of materiality and expression.

The consistent concept generated on site however is a desire to reinforce permeability and student movement through the campus connecting the campus between the new and existing buildings.

CB02 is positioned central to the campus so a key factor is how this building form and character is complimentary to the new and evolving campus character and to reinforce the concept of a connected and permeable campus.

The rotated form of CB02 is generated from a simple rectilinear geometry with curved corners that adjusts in response to site constraints and opportunities while having a strong reference to the surrounding context of the adjacent campus buildings. The proposed materiality and form of CB02 has been represented as contrasting in character to CB01 while still referencing its rectilinear geometry and horizontal expression of individual floors.

3.3 Demolition

The proposed development requires the demolition and clearance of CB02 down to approximately ground level and associated tree removal (10 trees). The proposal facilitates the retention and re-use of existing basement Level 1 and Level 2 within the new design.

3.4 Landscaping and Public Domain

The proposed urban and landscape design creates a unique sense of place fully integrated with the nature of the architectural proposition, while remaining sensitive to the surrounding public realm and landscape character.

The design is based on a sequence of open spaces, which provide functionality for the University Campus and enhance connectivity generally. This series of spaces include:

- The Tower Building 1 Entry Plaza to Broadway;
- The new western entry and extended plaza to Building 2 on the corner of Broadway and Jones Street;
- The Stairway entry to Level 4 adjacent to Alumni Green;

- The upper outdoor terraces including level 8 and the level 17 summit rooftop gardens;
- Removal of 10 trees fronting CB01 and CB02; and
- Replanting of new trees to offset loss of vegetation.

The design has an emphasis on the public space on the ground plane and the integration with the current and long term view of the surrounding spatial environment. The design interfaces with existing streets and the existing University open spaces to create and enhance the existing network of public open space streets and squares.

Significant enhancements to the public domain beyond those envisioned on Broadway and Jones Street are incorporated into the design. The connection of Alumni Green to Level 4 of the new Learning Commons and Library via The Grand Stairway effectively enlarges Alumni Green and provides a north facing outdoor weather protected social gathering space.

Connectivity and activation along Alumni Green façade is provided by direct access through a series of doorways at Level 3 which enhances the activity and life of the Alumni Green.

A major initiative of this proposal is to provide an enhanced public space beyond that envisioned for the link between Level 4 of Building 2 and the newly completed Alumni Green. The enhanced public space will:

- Provide good solar access for pedestrians directly adjacent Alumni Green whilst providing shade and shelter from the elements in the protection of the building under-croft.
- The stairway is adjacent the key circulation route from Jones Street to the heart of the campus and provides a large outdoor space for seasonal weather protection.
- To ensure successful active frontages direct access from Level 3 to the Alumni Green is provided to enhance the seamless relationship between indoor and outdoor student activities.
- The stairway is lined with bleachers for seating which provides a wonderful opportunity for seating either for large scale events staged on The Green or for smaller groups or couples looking for time out or a people watching vantage point to observe the day today activity of the campus.
- The stairway provides an interesting arrival experience from The Green but also emphasises the green visual connection that extends through the buildings mid-level terraces and winter gardens to the small grove of deciduous trees located on the summit roof top garden.

Mid -Level Terraces have been located at Levels 5, 6, 7 and 8 corresponding with the top of the podium. Lift access throughout Building 2 provides point-to-point access to all outdoor spaces from commonly accessed external points either from Level 3 or the mid-level Foyer from Jones Street Plaza. The mid-level terraces will be landscaped to create an outdoor accessible space for student spill out and passive recreation.

The Level 17 courtyard terrace provides a summit experience that extends and showcases the built form geometry of Building 2. The raised flexible lawn becomes the centrepiece with lush planting terraces that frames the lawn and provides informal seating areas to appreciate the northern views over UTS to Sydney's CBD.

The impacts of the proposed loss of vegetation resulting from expansion of the podium at Broadway and Jones Street has been previously assessed under the Concept Plan Approval (MP 08_0116) and found to be reasonable and offset

through additional planting as outlined within the concept landscape plan prepared by FJMT Architects (**Appendix B**).

Figure 16 – Montage of the proposed view from Jones Street.
Source: FJMT Architects

3.5 Floor Space by Level

The proposed Gross Floor Areas for each level of CB01 and CB02 are outlined in **Table 2** below.

Table 2 –Proposed Area Schedule

Area Schedule CB01	
Level 04	1,397m²
Level 05	1,271m²
Level 06	1,946m²
Level 07	2,303m²
Total	**6,917m²**

Area Schedule CB02	
Level 01	3,083m²
Level 02	2,909m²
Level 03	3,163m²
Level 04	3,136m²
Level 05	3,524m²
Level 06	3,345m²

Level 07	3,393m²
Level 08	2,094m²
Level 09	2,018m²
Level 10	2,040m²
Level 11	1,963m²
Level 12	1,911m²
Level 13	1,774m²
Level 14	1,734m²
Level 15	1,613m²
Level 16	1,533m²
Total	**39,233m²**

3.6 Massing and Form

As articulated in MP 08_0116 Mod 5, the height and massing for the extension of the Building 1 podium (CB01) and redevelopment of Building 2 tower (CB02) were established under the Concept Plan Approval.

The proposed Podium Extension along Broadway creates a new University addition that is light, transparent, open and welcoming. The curvaceous, smooth façade is both playful and contemporary, a foil to the Brutalist style of the Tower above.

The architecture showcases the activity within. Planning allows the building on Level 4 to cater for both large and small scale events, presentations and market days with a generous, open floorplate ensuring maximum flexibility of use and activation of space along Broadway. Levels 5, 6 and 7 of the Podium Extension are open, flexible floorplates for contemporary teaching, learning and exhibition spaces.

The UTS Master Plan articulates specific aims for the extension of CB01 and CB02. The aims include an architecturally distinguished building at this gateway site, a new front door to the heart of the campus, increased permeability of the campus and transparency of buildings at their edge.

The proposed extension of CB01 and CB02 gives UTS a substantial physical presence as a part of the city at the larger scale, and a strong identity on Broadway in particular. The glass volume along Broadway responds to activities within. It establishes a formal entrance to UTS which has a scale and significance that befits its role.

In contrast to the defensive image of the CB01 Tower, the new podium intervenes as an undulating, transparent building enveloping the podium of CB01 and CB02 along Broadway.

Figure 17 – Transparent Building Envelope of Podium
Source: FJMT Architects

The CB02 podium addresses both the Broadway and the Campus grid. The northern facade follows the alignment of the existing Building 2 podium, terracing in response to the reference to Alumni Green. The western side of the podium aligns with the boundary on Jones Street and the eastern interfaces with the podium of the CB01 Tower. The gradually rotating form joins these two alignments with a gentler approach, providing a more open and accessible response to the final piece of the Broadway composition.

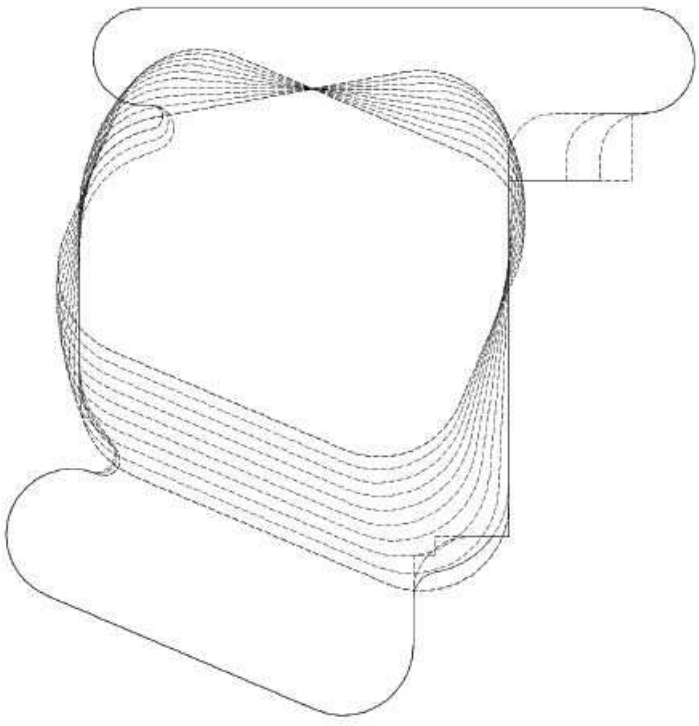

Figure 18 – Gradually rotating form of CB02
Source: FJMT Architects

The incremental, rotational setbacks of the CB02 tower form have been generated for the east, north and west elevations in specific response to each contextual reference, while the south facade steps back a constant distance for each level. The stepping back of each level as the building increases in height helps to more clearly define the podium height, scale and alignment in relation to Broadway, Jones Street and Alumni Green.

3.7 Building Setbacks

The south facade of the CB02 tower form is stepped incrementally to the north to minimise the overshadowing on the lower Central Park Tower and to maintain the prominence of the UTS tower on Broadway.

The form for CB02 is setback from CB01 to retain the prominence of CB01 as a single tower form and maintain amenity for CB01.

The podium form of CB02 along Jones Street has been established to reinforce the street alignment and references the height and scale of CB07 on Jones Street to the north. As the tower rises above the podium levels the west facade steps and rotates incrementally back from the Jones Street alignment to the last floor on level 17 which is perpendicular to the Broadway facade and grid alignment.

The podium facade to the north references Alumni Green and maintains the scale and form generated on Jones Street, reinforcing the intersection of Alumni Green and Jones Street. As the podium form extends east towards the centre of Alumni Green, the facade steps back to give a greater prominence and alignment to Alumni Green. As the building increases in height the facade continues to step and rotate back from the Alumni Green alignment, reducing the impact of the tower form on Alumni Green. The facade references the axis of the junction between CB10 and CB11.

To the east the tower form continues the geometry established to the west and north by incrementally stepping and rotating back as the tower increases in height. This adjustment provides an increased setback from CB01 reinforcing the prominence of CB01 as a single tower and improving the amenity of CB02. The increased setback from CB01 creates a reduced bulk at the top of CB02 and a wider gap between the two buildings which further improves the amenity on Alumni Green and views from the south.

3.8 External Materials and Finishes

UTS Central Project seeks to develop a material and character that is uniquely Sydney and generates a building that respects and responds to the urban context of UTS and the Broadway streetscape. The expression of the materiality will also reinforce the identity of sustainability and innovation relevant to UTS.

The tower form will appear as a light and uniform series of layers articulated at each floor. The clear glass facade with an integrated light louvre screen system will generate a veil-like delicacy to the surface while enhancing the performance of the facade system.

The ground plane facades for levels 3 and 4 are setback from the podium and are predominantly a clear glazed facade which creates a greater sense of transparency and connectivity between the Broadway, Jones Street and Alumni Green.

The podium levels 5 to 7 on Jones Street and partially returning to face Alumni Green are a glass facade with an integrated light louvre screen system which is a continuation of the tower facade.

The design of the facade for the UTS podium extension is in contrast to the solid tower that rises from it. The glass façade is a combination of flat and curved surfaces creating a light and fluid image. It is a single glazed system that is predominantly flat with 2-way curved glass to define the entrance. The structure supporting the façade is kept to a minimum with mullions widely spaced and running floor-to-floor. Continuous transoms are aligned with the joints of horizontal proportioned glass panels adding to the transparency.

A white ceramic frit is applied to the glass panels and patterns the façade. The proposed pattern is a forest of trees that provides dappled light inside the building reducing glare while retaining views out. The frit reinforces the gentle contrast of the new addition to the Brutalist tower. The frit stops at awning level with clear glass below the street awning to allow views into the building from Broadway.

3.9 Vertical Circulation

Two cores service CB02: a smaller core containing 2 larger sized lifts and associated services risers is located adjacent to the Jones Street Entrance; and the main core to service all levels.

The smaller core is used for immediate accessible access from the Jones Street entry to Levels 3 and 4. The smaller core serves Levels 3 - 8.

The main core services all levels and consists of 5 lifts, including 1 service lift, with associated egress stairs, amenities (to the tower levels) and services risers and rooms.

3.10 Car Parking, Loading and Access

3.10.1 Car Parking, Loading and Servicing

There is no car parking directly associated with the Project. The existing loading facility at Level 2 of CB01, accessed from Thomas Street, will be utilised for the new CB02 as further detailed within the Transport and Accessibility Assessment prepared by GTA included at **Appendix F**.

3.10.2 Vehicular Access

The proposed development will continue to utilise the existing arrangements for access to the site.

3.10.3 Pedestrian Access

The site will be accessible via new entrances proposed for CB01 and CB02:

- Entry from Broadway to the Podium Extension of CB01.
- Jones Street entrance which provides a vital link to three western UTS facilities and also the adjacent urban fabric.
- Alumni Green entrance, accessing either Level 3 or Level 4, a student focussed entrance.

A number of secondary entrances are associated with these entrances:

- Eastern entrance to CB01 from Turner Lane.
- Level 3 Entrance from Alumni Green adjacent to CB01.

3.11 Environmentally Sustainable Development

The building has incorporated Environmental 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. In order to ensure a high environmental outcome for the proposed Building1 and Building 2, the University has chosen to develop and implement a project-specific sustainability framework. The framework is outlined in the ESD Statement prepared by Steensen Varming (refer to **Appendix G**).

UTS Central is a significant project, forming one of the final parts of the UTS 2020 City Campus Masterplan and will see the extension and development of the very 'heart' of the UTS Campus.

The key Sustainable objectives for UTS Central include:

- The design must achieve the objectives set out in the UTS City Campus ESD Master Plan which aims to achieve an overall 30% reduction in operational greenhouse gas emissions by 2020/21;
- 5 Star Green Star Certified Design & As-Built Rating;
- A high quality and comfortable learning, teaching and office environment;
- 25% reduction in potable water consumption;
- Reduction of the environmental impacts of building materials for the whole building over its entire life cycle;
- Reduction of building emission impacts to the environment (such as light pollution and stormwater).

Key Strategies proposed for the project include:

- Greenhouse Gas Emission / Energy reduction will be achieved through the incorporation of a high performance façade system and high efficiency mechanical, electrical and hydraulic plant. Commissioning and building tuning will ensure the plant equipment operates at the optimal level of performance throughout the life of the system;
- A high quality internal environment will be achieved through a 50% improvement in ventilation rates, localised occupant controls, daylighting and views, avoidance of pollutant emitting materials (VOCs and Formaldehyde), and improved levels of thermal comfort;
- Potable water consumption will be reduced through strategies such as low flow/water efficient fixtures and fittings, rain water collection and re-use (toilet flushing and landscape irrigation), non-potable heat rejection water and capture and re-use of fire system test water;
- In addition to a 'Material Life Cycle Assessment', environmental impacts from materials will be reduced through strategies such as sourcing of environmentally preferable products (including preference for products with Environmental Product Declarations) and the reduction of demolition, construction and operational waste; and
- Reduction of building emissions will be achieved through minimising obtrusive external lighting designs, use of low ODP and GWP refrigerants and site drainage/storm water management systems.

3.12 Infrastructure and Services

3.12.1 Electrical and Communication

Electricity

The UTS Campus is adequately serviced by electrical connections. As part of the electrical supply investigations carried out by Erbas and JHA (**Appendix H**), we have confirmed the maximum demand assessment for the new development works.

Communications

Given the UTS Campus is adequately serviced by telecommunications carriers it is not proposed any new external connections will be established as part of the proposed UTS Central Project.

An Infrastructure Management Plan is submitted with this report at **Appendix I**.

3.12.2 Hydraulic Services

A Hydraulic Services Utilities and Infrastructure report has been prepared by Erbas (**Appendix J**) to identify an appropriate hydraulic services strategy for the upgrade and extension of UTS Central Buildings CB01 & CB02 with a focus on:

- Existing infrastructure capacity and redundancy;
- Existing infrastructure proximity to the extended footprint;
- Services augmentation or diversions that may be required.

The Water, Gas, Sewer and Stormwater infrastructure has been reviewed and the result of the investigations and enquiries outlined within the attached report is that there appears to be sufficient capacity in the surrounding infrastructure to support the Project without the need for augmentation or diversion of the surrounding supplies available to the campus.

A Stormwater Management Infrastructure Report has been prepared by Erbas Engineering and is submitted at **Appendix DD**.

Various temporary strategies for protection of utility infrastructure will need to be employed during construction. No services have been identified as traversing the site, or documented as encroaching on the property boundaries.

3.13 Water Cycle Management

Erbas has prepared a Water Cycle Management Report and Plans (**Appendix J**), outlining the proposed upgrades required for the system to ensure that adequate stormwater capacity and infrastructure to service the Project is available.

Stormwater connections and works as part of this application will be carried out in order to comply with the relevant Australian Standards.

3.14 Waste Management

A Waste Management Plan (WMP) has been prepared by UTS and Richard Crookes Constructions and is included at **Appendix K**.

3.15 Contributions

The SEARs identifies that the proponent should address development contributions in accordance with the Ultimo-Pyrmont Contributions Plan (UPCP)

which does not provide any exemptions to contributions. This has been assessed in detail within **Section 6.11** of this EIS.

4.0 Secretary's Environmental Assessment Requirements

In accordance with section 89G of the EP&A Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of the EIS on 9 December 2015. A copy of the SEARs is included at **Appendix A**.

Table 3 provides a detailed summary of the individual matters listed in the DGRs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 3 – Secretary's Environmental Assessment Requirements

Requirement	Location in Environmental Assessment	
General Requirements	**Report**	**Technical Study**
The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 the *Environmental Planning and Assessment Regulation 2000* (the Regulation). Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development. Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk 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. The EIS must be accompanied by a report from a qualified quantity surveyor providing: ▪ a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; ▪ an estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and ▪ certification that the information provided is accurate at the date of preparation.	**Pages i, ii, iii**	-
Statutory and Strategic Context	**Report**	**Technical Study**
Address the statutory provisions applying to the development contained in all relevant environmental planning instruments, including:	-	-
State Environmental Planning Policy (State & Regional Development) 2011	**Section 6.1**	-
State Environmental Planning Policy (Infrastructure) 2007	**Section 6.1**	-
State Environmental Planning Policy No.55 – Remediation of Land	**Section 6.1, 6.8**	**Appendix E**
Sydney Local Environmental Plan 2012	**Section 6.1, 6.2**	-
Permissibility Detail the nature and extent of any prohibitions that apply to the development. *UTS City Campus, Broadway Precinct Concept Plan 08_0116* In accordance with Schedule 6A of the *Environmental Planning and Assessment Act 1979,* demonstrate that the development is generally consistent with the terms of the approval of the concept plan for UTS City Campus, Broadway Precinct (MP 08_0116, as amended).	**Section 6.1,6.2**	-

Requirement	Location in Environmental Assessment	
Policies	**Report**	**Technical Study**
Address the relevant planning provisions, goals and strategic planning objectives in the following: ▪ NSW State Priorities; ▪ A Plan for Growing Sydney; ▪ Sustainable Sydney 2030; ▪ Sydney Development Control Plan 2012; ▪ NSW Long Term Transport Master Plan 2012; ▪ Sydney's Cycling Future 2013; ▪ Sydney City Centre Access Strategy 2013; ▪ Sydney's Walking Future 2013; and ▪ Healthy Urban Development Checklist, NSW Health.	**Section 6.1**	-
Built Form and Urban Design	**Report**	**Technical Study**
Demonstrate how the proposal exhibits design excellence in accordance with the requirements of Sydney Local Environmental Plan 2012.	**Section 6.2**	**Appendix B, Q**
Demonstrate how the proposal is consistent with the approved concept plan for the UTS City Campus, Broadway Precinct (MP 08_0116, as amended) and the Urban Design Principles and Design Quality Controls.	**Section 6.2**	**Appendix B, Q**
Demonstrate how the proposed design integrates with the Lacoste + Stevenson podium design.	**Section 6.2**	**Appendix B, Q**
Address the height, density, bulk and scale, setbacks of the proposal in relation to the campus and the surrounding development, topography and streetscape, in particular separation between the towers of Building 1 and 2 and relationship with the Former Sydney Technical College Building.	**Section 6.2**	**Appendix B, Q**
Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours and Crime Prevention Through Environmental Design Principles.	**Section 6.2**	**Appendix B, Q**
Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.	**Section 6.2**	**Appendix B, K**
Environmental Amenity	**Report**	**Technical Study**
Provide information detailing the provision of solar access and any overshadowing impacts, acoustic impacts, privacy impacts, view loss and wind impacts on Broadway, Jones Street and the Alumni Green. A high level of environmental amenity must be demonstrated.	**Section 6.3**	**Appendix B, G, Q, R, S, T, U, V, W**
Transport and Accessibility	**Report**	**Technical Study**
Include a transport and accessibility impact assessment, which details but is not limited to:	**-**	**-**
the existing pedestrian and bicycle movements, travel routes and facilities within the vicinity of the site;	**Section 6.4**	**Appendix F**
an estimate of the total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and cycle trips;	**Section 6.4**	**Appendix F**
the adequacy of public transport, pedestrian and bicycle provisions to meet the likely future demand of the proposed development and proposed measures to maintain road safety;	**Section 6.4**	**Appendix F**
impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site, including the CBD and South East Light Rail (CSELR) and future public transport options along Broadway in consultation with Transport for NSW, and measures to integrate the development with the transport network;	**Section 6.4**	**Appendix F**

Requirement	Location in Environmental Assessment	
measures to promote travel choices that support sustainable travel such as location-specific travel plan, end-of-trip facilities, green travel plan and wayfinding strategies;	**Section 6.4**	**Appendix F**
the daily and peak vehicle movements impact on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works (if required);	**Section 6.4**	**Appendix F**
the proposed access arrangements and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and cycle networks;	**Section 6.4**	**Appendix F**
proposed car and bicycle parking provision, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards;	**Section 6.4**	**Appendix F**
service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times);	**Section 6.4**	**Appendix F**
traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, including the construction of the CSELR; and	**Section 6.4**	**Appendix F**
how the construction impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport operations, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.	**Section 6.4**	**Appendix F**
Ecologically Sustainable Development	**Report**	**Technical Study**
Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development.	**Section 6.5**	**Appendix G**
Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice.	**Section 6.5**	**Appendix G**
Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.	**Section 6.5**	**Appendix G**
Consideration of the relevant policies and guidelines	**Section 6.5**	**Appendix G**
Heritage	**Report**	**Technical Study**
Include a Heritage Impact Statement that addresses the significance of, and provides an assessment of the impact on the heritage significance of heritage items on the site and in the vicinity and archaeologically significant areas, in accordance with the guidelines in the NSW Heritage Manual.	**Section 6.6**	**Appendix O,P**
Noise and Vibration	**Report**	**Technical Study**
Identify the main noise and vibration generating sources and outline measures to minimise and mitigate potential noise and vibration impacts on surrounding occupiers of land.	**Section 6.7**	**Appendix U**
Consideration of the relevant policies and guidelines	**Section 6.7**	**Appendix U**
Contamination	**Report**	**Technical Study**
Demonstrate that the site is suitable for the proposed use in accordance with SEPP 55	**Section 6.1, 6.8**	**Appendix E**
Consideration of the relevant policies and guidelines	**Section**	**Appendix E**
Utilities	**Report**	**Technical Study**
Preparation of an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any	**Section 6.9**	**Appendix I**

Requirement	Location in Environmental Assessment	
augmentation requirements of the development for the provision of utilities including staging of infrastructure.		
Preparation of an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.	**Section 6.9**	**Appendix J**
Contributions	**Report**	**Technical Study**
Address Council's relevant Section 94A Contribution Plan and/or details of any Voluntary Planning Agreement	**Section 6.11**	-
Flooding	**Report**	**Technical Study**
As assessment of any flood risk on site 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.	**Section 6.12**	**Appendix J**
Drainage	**Report**	**Technical Study**
Detail drainage associated with the proposal, including stormwater and drainage infrastructure.	**Section 6.13**	**Appendix J**
Waste	**Report**	**Technical Study**
Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	**Section 6.14**	**Appendix K**
Plans and Documents	**Report**	**Technical Study**
Architectural drawings		**Appendix B**
Site survey plan, showing existing levels, location and height of existing and adjacent structures/buildings		**Appendix C**
Site analysis plan		**Appendix B**
Stormwater Concept Plan		**Appendix J**
Sediment and Erosion Control Plan		**Appendix Y**
Shadow Diagrams		**Appendix S**
View Analysis/Photomontages, including along Balfour Street		**Appendix B, R**
Landscape Plan (identifying any trees to be removed and trees to be retained or transplanted)		**Appendix B**
Preliminary Construction Management Plan, inclusive of a Preliminary Construction Traffic Management Plan detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures;		**Appendix X**
Geotechnical and Structural Report;		**Appendix D, BB**
Accessibility Report;		**Appendix Z**
Arborist Report;		**Appendix M**
Acid Sulphate Soils Management Plan (if required); and		**-**
Schedule of materials and finishes.		**Appendix B**
Consultation	**Report**	**Technical Study**
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: ▪ City of Sydney Council; and ▪ CBD Coordination Office, Transport for NSW. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in	**Section 5**	**Appendix L**

Requirement	Location in Environmental Assessment	
response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.		

5.0 Consultation

In accordance with the SEARs issued for this project, consultation was undertaken with relevant public authorities, the community and the City of Sydney Council. This chapter provide a summary of the consultation undertaken.

Several consultants have undertaken additional consultation with relevant parties during the preparation of their reports.

It is noted that the Project 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.

A summary of communication and consultation has been prepared by KJA engaging solutions (**Appendix L**).

A summary of the consultation undertaken to-date is provided below.

5.1.1 Department of Planning & Environment

A meeting was held with the DP&E officers on 22 October 2015. The purpose of the meeting was to provide DP&E staff with an update of the proposed design of the buildings that relate to this SSDA and how the design had evolved to address issues and comments raised by the City of Sydney. The officers were generally supportive of the Project, however raised the issues identified within Table **4** to be addressed in the EIS.

Table 4 – Summary of Issues Raised and Response – DP&E

Key Issue	Response
The competition design of Building 1 and Building 2 Podium extension and ongoing design development.	As per the SEARs issued by DP&E on 9 December 2015, the formal requirement for a design competition has been waived being unreasonable or unnecessary. UTS Central does however exhibit design excellence as detailed within **Section 6.2** of this EIS.
Timing of the outcome of the Concept Plan Modification assessment and lodgement of the Development Application pre-Christmas 2015.	Modification No 5 (MP 08_0116 Mod 5) approval however given the level of assurance and certainty and receipt of the SEARs from DP&E, SSD 7382 has been lodged for formal review.
UTS's preferred program for demolition of the Building 2 (CB02) from June 2016 through to March 2017.	The importance of lodgement of SSD 7382 by the end of 2015 is to ensure exhibition, assessment and approval of the application is undertaken prior to December 2016 to allow commencement of the demolition of CB02 out of session to minimise the disruption for staff and students.
The refined building envelope in the schematic design compared to the envelope in Concept Plan modification, noting: ▪ the stepping form which reduces down draught; ▪ curved corners which also assist ameliorating wind; ▪ solar access for Apartments at No.1 Central Park and Block 1 whilst satisfactory in the Concept Plan Modification, is even better with the design as developed; ▪ transparency; ▪ green spaces; and ▪ activated ground plane.	As outlined in the architectural drawings prepared by FJMT Architects and submitted with this EIS at **Appendix A**, the final design outcome minimises amenity impacts associated with the additional built form as further detailed within **Section 6.3.**

5.1.2 Council Consultation

A meeting was held with the City of Sydney officers on 11 November 2015. The purpose of the meeting was to give a presentation and provide the City of Sydney with an update of the design to demonstrate how it had evolved to address issues and comments since the previous informal presentation to City of Sydney on 29 June 2015 and Council's subsequent correspondence dated 13 October 2015.
These issues raised by Council, along with where they have been addressed within this EIS and accompanying documentation are provided below in **Table 5**.

Table 5 – Summary of Issues Raised and Response – City of Sydney

Key Issue	Response
UTS' Objective: A balanced approach has been adopted arriving at an optimum development which satisfies the University's desire for large floor plates and gross floor area quantum within the local context, in particular responding to the scale and not exceeding the height, of the 1 Central Park development immediately to the south of Broadway.	As outlined in the architectural drawings prepared by FJMT Architects and submitted with this EIS at **Appendix A**, the final design outcome responds to the approved scale associated with 1 Central Park as further detailed within **Section 6.2.**
The west-east extent of the Lacoste + Stevenson competition design is proposed to be maintained, but set back approximately 1.5 metres from the Broadway frontage so as to increase the available space for foot traffic. At the western end, incorporation of screening within the ground storey is under investigation as a means to ameliorate wind conditions.	The proposed CB01 and CB02 podium fronting Broadway has been carefully design to ensure pedestrian movement is not hindered as a result of UTS Central. The west extent of the Lacoste + Stevenson competition design is maintained.
Flood profile of the site: UTS will undertake some investigations in relation to this and advise further.	The proposed is considered to be consistent with the Approved Concept Plan and will result in development above existing Campus building and infrastructure, it is not considered that the proposal will result in any additional flood risk to the UTS Campus or wider Precinct.
Landscape Masterplan: UTS are planning an extension of Alumni Green on to the Jones Street road reserve and this was included in the competition brief for Alumni Green. We are mindful of the connection along the Jones Street/Chippendale Way (formerly Balfour Street) axis north-south of the three spaces Central Park/Alumni Green/Mary Ann Park.	As outlined within the concept landscape plan prepared by FJMT Architects (**Appendix B**) the proposal has been designed to create a unique sense of place fully integrated with the nature of the architectural proposition, while remaining sensitive to the surrounding public realm and landscape character of Alumni Green.
Sustainability: UTS are targeting 5* Green Star for this building; also we are investigating linking to the Brookfield Multiplex thermal energy and recycled water facilities on Central Park which is subject of a current Development Application with the City (Number: D/2015/1450)	The University has a commitment to sustainability in the planning, design and management of all new buildings on Campus. In order to ensure a high environmental outcome for the proposed Building1 and Building 2, the University has chosen to develop and implement a project-specific sustainability framework. The framework is outlined in the ESD Statement prepared by Steensen Varming (refer to **Appendix G**).

5.1.3 Transport for NSW

A meeting was held with the Transport for NSW (TfNSW) officers on 16 December 2015. The purpose of the meeting was to brief TfNSW on the proposed UTS Central and discuss the potential impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site, including the CBD and South East Light Rail (CSELR) and future public transport options along Broadway, and measures to integrate the development with the transport network.
The officers were generally supportive of the Project.

The issues identified during discussion have been addressed within this EIS and accompanying documentation and are outlined below in **Table 6**.

Table 6 – Summary of Issues Raised and Response - TfNSW

Key Issue	Response
The importance of ongoing communication between the proponent and CBD Coordination Office and Transport for NSW during design and construction of the project was noted.	Noted.
The processes and proposals to address each item in the SEARS were generally supported.	Refer to Transport and Accessibility Assessment prepared by GTA Consultants and submitted at **Appendix F**.
The following two items were noted as requiring further assessment: ▪ Proposal in Draft Construction Management Plan for trucks to enter Jones Street from Broadway travelling east and possible effect on the Bus Lane ▪ The number of pedestrians crossing Harris Street at the intersection of Harris Street and Broadway and alternative pedestrian routes that avoid this intersection	Refer to Transport and Accessibility Assessment prepared by GTA Consultants submitted at **Appendix F** and Construction Traffic Management Plan (**Appendix W**).
It was noted that: ▪ UTS should continue communication with Transport for NSW regarding future transport options for Broadway (including those in the Sydney CBD to Parramatta Strategic Transport Plan) ▪ UTS should issue structural drawings of the proposal to Transport for NSW in the future UTS will update its existing Travel Access Guide to include the UTS Central Project when the UTS Central project is completed	Noted.

5.1.4 Precinct Stakeholders

As part of the preparation of the SSDA, UTS has undertaken communication and offered briefings to adjacent stakeholders and community groups including:

- Australian Broadcasting Corporation
- Chippendale Residents Interest Group
- Strata Managers for Central Park
- Frasers Property Group
- Haymarket Chamber of Commerce
- Powerhouse Museum of Applied Arts and Sciences
- Pyrmont Ultimo Chamber of Commerce
- TAFE NSW Sydney Institute

As detailed within the Community Consultation Statement (**Appendix L**), letter correspondence was issued to each of the above stakeholders with an offer for UTS to meet with the respective party and outline the detail of the proposed UTS Central Project. Where this offer was accepted, UTS received no negative comments in relation to the proposed development.

6.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the Project. It addresses the matters for consideration set out in the SEARs (see **Section 4**).The Mitigation Measures at **Section 9** complement the findings of this section

6.1 Relevant EPIs, Policies and Guidelines

The SEARs require the following legislation, strategies and planning instruments to be addressed:

- NSW State Priorities;
- A Plan for Growing Sydney;
- Sustainable Sydney 2030;
- Sydney Development Control Plan 2012;
- NSW Long Term Transport Master Plan 2012;
- Sydney's Cycling Future 2013;
- Sydney City Centre Access Strategy 2013;
- Sydney's Walking Future 2013;
- Healthy Urban Development Checklist, NSW Health.
- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Environmental Planning and Assessment Regulation 2000 (EP&A Reg);
- State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP);
- State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure);
- State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55); and
- Sydney Local Environmental Plan 2012.

The SSDA's consistency with the relevant strategic and statutory plans and policies is summarised in **Table 7** below. Variations to, and non-compliance with, the key standards and guidelines highlighted in the table are discussed in detail in the following sections of this EIS.

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in **Table 7**.

Table 7 – Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW State Priorities	NSW State Priorities are the new strategic vision recently announced (September 2015) by the NSW State Government, including 30 key reforms and 12 personal priorities of the Premier. Job creation, building infrastructure and delivering high-quality health and education services are high on the Premier's personal agenda. A key aspect of the State's priorities includes the delivery of Education, and a key component of this is improving access to post-school education and training. The Project is evidently consistent with the goals of the State Plan.
A Plan for Growing Sydney	The proposal will support Sydney's role as a strategic centre for education and health, promoting the development of education, research and development clusters in and around Universities. The Project also supports the desire to

Instrument/Strategy	Comments
	promote skills development, capacity for innovation and lifelong community learning, as put forward by the Plan.
Sustainable Sydney 2030	Sustainable Sydney 2030 is a vision for the sustainable development of the City to 2030 and beyond. It includes ten specific targets to achieve a sustainable Sydney, five (5) big moves, as well as 10 strategic directions to guide the future of the City. The Proposed modification application supports a number of relevant targets, big moves, and strategic directions, including: ▪ Target 5 - 97,000 additional jobs with an increased share in finance, advanced business services, education, creative industries and tourism sectors. – The application supports a boost in the employment capacity of the site, directly contributing to the jobs target ▪ Big Move 1 – a revitalised City centre at the heart of Global Sydney – The application will contribute towards a stronger City Centre economy, along with providing for a more lively (day and night) and people-friendly City landscape; ▪ Big Move 2 - An integrated Inner Sydney transport network – The application supports sustainable travel patterns through increasing density that is reliant upon public transport ▪ Big Move 4 - Activity Hubs as a focus for the City's Village communities and transport – The application (supporting an increase in students in the locality) further strengthens the Harris Street activity hub. ▪ Big Move 5 - transformative development and sustainable renewal – With Central Park and UTS Broadway Precinct raising the bar in terms of design and sustainability, the application is able to further reinforce this growing green transformer. ▪ Direction 1 - A Globally Competitive and Innovative City – The application will support a future high quality urban design outcome that will provide new employment and learning opportunities. The investment into the site will help contribute to make Sydney attractive to global investors. ▪ Direction 2 - provides a road map for the City to become A Leading Environmental Performer – The application will support a more ecologically sustainable development on the site, with a target of achieving a minimum Greenstar rating of 5 stars. ▪ Direction 3 - Integrated Transport for a Connected City – The application will take advantage of the close proximity of existing heavy rail train stations, future light rail, a significant number of high frequency bus and ferry routes and the growing number of students choosing to live in the City. ▪ Direction 5 - A Lively and Engaging City Centre – The mix of uses expected to be accommodated on the site will improve the levels of activation in this part of the City. ▪ Direction 6 - Vibrant local communities and economies – The application supports a network of Activity Hubs as places for meeting, creating, learning and working for local communities. ▪ Direction 9 - Sustainable Development, Renewal and Design – The application will support a future development that is expected to include a range of sustainable building features. – The application is also consistent with the principle of Transit Orientated Development (TOD) in that new employment/education is provided in a highly accessible location thus reducing reliance on the private motor vehicle.
Sydney Development Control Plan 2012	In accordance with Clause 11 of the SRD SEPP and Planning Circular PS 11-019, DCPs do not apply to SSD.
NSW Long Term Transport Master Plan 2012	The NSW Long Term Transport Master Plan provides a framework for delivery of and integrated and modern transport systems. The master plan identifies the challenges and needs and the actions proposed to address these challenges. Given the proximity of the site to existing and planned public transport services, the Project will support the proposed actions contained within the Plan, as well as encouraging a model shift away from private vehicle use.
Sydney's Cycling Future 2013	Sydney's Cycling Future was released in December 2013 to outline the intent to create a safer and easier bicycle riding experience for the people of Sydney. Given the exclusion of any additional car parking on the site, and maintaining the existing bicycle infrastructure across the campus supports the objective of improving

Instrument/Strategy	Comments
	the bicycle riding experience of students and staff. Improvement to surrounding connections, including site entries will also further encourage bicycle use to the site. See **Section 6.4** for further discussion. The Project supports the key intent of Sydney's Cycling Future to increase bicycle usage by providing no additional on-site car parking, and maintaining the numerous bicycle parking space and end of trip facilities on the campus.
Sydney City Centre Access Strategy 2013	▪ The Sydney City Centre Access Strategy will deliver a fully integrated transport network in Sydney's city centre that puts the customer first and meets the growing transport task. It will mean more people use public transport to access the city centre and it will change the way people move around within it. ▪ The site is located in close proximity to Central Railway Station and bus services at Broadway. ▪ The proposal does not provide additional on-site car parking, prioritising public transportation as the appropriate means of commuting for staff and students in accordance with the Strategy.
Sydney's Walking Future 2013	The Governments initiative to promote walking for transport, connecting people to places through safe walking networks around centres and public transport interchanges and engaging with partners to maximise effectiveness aligns with the UTS Central Project. Formalised pedestrian facilities are provided on all road frontages in the vicinity of the UTS Central Campus and include footpaths and ramps. Safe crossing points in the vicinity of the site include two pedestrian crossing at the frontage of Building 2 of the Chippendale Way/Broadway intersection and all legs of the George Street/Harris Street/Regent Street intersection. Within the Campus, UTS has proposed and implemented several pedestrian links as part of the original City Campus Master Plan to enable the connection of key hubs across it City Campus. The Master Plan included the plan to close Jones Street to vehicular traffic from Broadway, which has been implemented.
Healthy Urban Development Checklist, NSW Health	The Project involves the redevelopment of an existing education facility to provide improved functionality and capability to the University, whilst improving efficiency. The Project is considered to be consistent with the intent of the Healthy Urban Development Checklist by providing a new development well connected t existing and future public transport, contributing to social infrastructure in the locality and region, and encouraging non-car transport modes by not providing any additional car parking on-site.
State Legislation	
EP&A Act	The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the assessment framework for State Significant Development. Under Section 89D of the EP&A Act the Minister for Planning is the consent authority for State Significant Development. Section 78A(8A) requires that a development application for SSD is to be accompanied by an Environmental Impact Statement (EIS). Under the EP&A Act (Clause 3B of Schedule 6A - Transitional arrangements—repeal of Part 3A) the Concept Plan Approval is a "Transitional Part 3A project" on the basis that it is a project that is the subject of an approved concept plan (whether approved before or after the repeal of Part 3A). The Concept Plan Approval (MP 08_0116) therefore continues to have substantial weight and force. The following clauses also collectively have the effect of reinforcing the terms of the approval of the Concept Plan (Schedule 2 of the Concept Plan Approval) and confirm that they prevail despite anything to the contrary in an environmental planning instrument or development control plan. *3B Provisions applying with respect to approval of concept plans* *(1) This clause applies to development (other than an approved project) for which a concept plan has been approved under Part 3A, before or after the repeal of Part 3A, and so applies whether or not the project or any stage of the project is or was a transitional Part 3A project.*

Instrument/Strategy	Comments	
	(2) After the repeal of Part 3A, the following provisions apply (despite anything to the contrary in section 75P (2)) if approval to carry out any development to which this clause applies is subject to Part 4 or 5 of the Act: *...* *(c) any development standard that is within the terms of the approval of the concept plan has effect,* The maximum gross floor area, building height, land use, and other controls specified in the Concept Plan Approval (Schedule 2) function in effect as development standards and therefore continue to apply to the site and future development applications. *(d) a consent authority must not grant consent under Part 4 for the development unless it is satisfied that the development is generally consistent with the terms of the approval of the concept plan,* This subclause reiterates that consistency with an approved Concept Plan is required and paramount. *(f) the provisions of any environmental planning instrument or any development control plan do not have effect to the extent to which they are inconsistent with the terms of the approval of the concept plan,* In the hierarchy of legislation, the EP&A Act takes precedence over lower order environmental planning instruments including State instruments (State Environmental Planning Policies - SEPPs) and local instruments (Local Environmental Plans – LEPs). This means that the EP&A Act's Transitional arrangements—repeal of Part 3A (and consequently the Concept Plan Approval) prevail over existing local instruments (i.e. Sydney LEP 2012) in the event of an inconsistency.	
EP&A Regulation	The EIS has addressed the specification criteria within clause 6 of Schedule 1. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle, which assesses the threats of any serious or irreversible environmental damage. Clause 7(1)(d)(v) of Schedule 2 has been considered, noting that no further approvals are required	
SRD SEPP	The aim of this policy is to identify development that is State Significant Development (SSD). Pursuant to the SEPP SRD a project will be a SSD if it falls into one of the classes of development listed in Schedule 1 of the SEPP. 'Educational establishment (including associated research facilities)' with a CIV of $30 million or more are identified as SSD and are considered to be development of State significance. A Quantity Surveyor's certificate prepared by Wilde and Woollard confirming the total CIV of the proposal exceeds $30 million.	
SEPP 55	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. The SEPP specifies when consent is required for remediation of contaminated land. As detailed in **Section 6.8** of this report, a Preliminary Site Investigation has been prepared by Douglas Partner (**Appendix E**).	
SEPP (Infrastructure)	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 Project will involve referral to the RMS under the provisions of Schedule 3 of the SEPP.	
Local Planning Instruments and Controls		
Sydney LEP 2012	Clause 2.1 - Land Use Zones	The site is zoned B4 Mixed Use LEP 2012. 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 Project is therefore permissible within the zone.

Instrument/Strategy		Comments
	Clause 5.9 – Preservation of trees or vegetation	The Project seeks approval for the removal of 10 trees in total as set out in **Section 6.3** below and the attached Arboriculture Report (**Appendix M**).
	Clause 5.10 – Heritage Conversation	Although the proposed works do not seek approval for demolition or alteration of a heritage item, the SEARs issued in relation to UTS Central have identified that a Heritage Impact Statement be prepared that addresses the significance of, and provides an assessment of the impact on the heritage significance of heritage items on the site and in the vicinity and archaeologically significant areas. A Heritage Impact Statement was prepared by GML (**Appendix O**) and submitted as part of the Concept Approval. Given the nature of the proposed works outlined for UTS Central, the proposal will not result in any additional impact on the heritage significance of heritage items on site and in the vicinity.
	Clause 6.21 – Design Excellence	UTS submitted a waiver request to DP&E in relation to a competitive design process for the proposed UTS Central Project. The Department has accepted that under the circumstances it would be unreasonable and unnecessary to require that a competitive design process be undertaken and site specific development control plan (DCP) be prepared for the proposed UTS Central Building, pursuant to clauses 6.21 of Sydney Local Environmental Plan 2012 (SLEP). The Department has acknowledged that the University has selected a reputable firm with a record of design excellence. The University has also demonstrated that it is committed to ensuring design excellence is delivered through its recent development across the campus. The Department has acknowledged that a competitive design process for the design of the Building 1 and 2 podium extension was held and that the UTS Central design would need to integrate with the winning Lacoste + Stevenson podium design as well as address the spatial and functional site constraints (**Section 6.2**). Demonstration of design excellence in accordance with the criteria identified within Clause 6.21 is provided in **Section 6.2**.
	Clause 7.14 – Acid Sulfate Soils	The objective of this clause is to ensure that development does not disturb, expose or drain acid sulfate soils and cause environmental damage. The proposed UTS Central will not disturb any virgin soil, being constructed entirely upon the existing CB01 and CB02 Buildings. An Acid Sulfate Soils Management Plan is not required for the proposed works.
	Clause 7.15 – Flood Planning	The Project has suitably considered the objectives and provision of this control under the Concept Approval. Given the nature of the UTS Central Project, no additional flood risks are associated with the proposed works.
	Clause 7.20 – Development requiring or authorising preparation of	UTS submitted a waiver request to DP&E in relation to the preparation of a development control plan for the proposed UTS Central Project.

Instrument/Strategy	Comments	
	a development control plan.	The Department considers that the approved concept plan under the former Part 3A essentially duplicates the requirements of the site specific development control requirements and therefore a further site specific development control would be unreasonable and unnecessary.
Development Control Plan		
Sydney Development Control Plan 2012	In accordance with Clause 11 of the SRD SEPP and Planning Circular PS 11-019, DCPs do not apply to SSD. In order to undertake a thorough assessment of the potential impacts resulting from the proposed UTS Central Project, an assessment against the relevant provisions of the Sydney Development Control Plan 2012 is detailed below.	
Section 2 – Locality Statements	2.12.4 – Student Precinct. *(a) Development must achieve and satisfy the outcomes expressed in the character statement and supporting principles.* The proposed UTS Central is achieves and satisfies the outcomes and principles for the Student Precinct. *(b) Provide high quality design solutions to the UTS tower and its Broadway frontage.* As detailed within this EIS, the proposed UTS Central demonstrates design excellence, particular with regard to its relationship with the existing UTS Tower and Broadway Frontage as detailed in **Section 6.2**. *(c) Articulate buildings along Broadway to reduce bulk with openings, pedestrian connections, modulations and material quality.* As detailed within this EIS, the proposed UTS Central demonstrates design excellence, particular with regard to its relationship with the existing UTS Tower and Broadway Frontage as detailed in **Section 6.2**. *(d) The height of buildings is to respond to the established building height and scale including the elevation detail.* The proposed building height is consistent with the Concept Plan as modified and is an appropriate height and scale for the locality. *(e) Protect heritage buildings and encourage adaptive re-use.* The proposed UTS Central has been designed to minimise impact on the heritage fabric of the locality as outlined in **Section 6.6**. *(f) Development is to align and address the street and have easily identifiable building entries.* The proposed alignment and entries are consistent with the Concept Plan as modified and provide ground floor activation and appropriately addresses the street frontage. *(g) Activate the ground floor with student shopfront facilities and retail.* The proposal will result in ground floor activation directly relating to student facilities in accordance with the principles. *(h) Provide east-west connections between Harris Street and Bijou Lane to improve pedestrian and bike connectivity with railway square and the Ultimo Pedestrian Network.* As demonstrated within the Traffic Impact Assessment (**Appendix F**), the proposal has been designed to improve connectivity for pedestrians and bicycles. *(i) Provide passive surveillance with active frontages on the Ultimo Pedestrian Network ensuring pedestrian activity at street level.* The proposal will result in improved street activation and improved passive surveillance. *(j) Provide pedestrian and bike connections through sites between Harris Street and Jones Street, and Broadway and Jones Street.* As demonstrated within the Traffic Impact Assessment (**Appendix F**), the proposal has been designed to improve connectivity for pedestrians and bicycles.	
Section 3 – General Provisions	3.1 - Public Domain Elements	

Instrument/Strategy	Comments
	The proposed UTS Central has been designed in accordance with the Concept Plan as modified and is considered to make a positive contribution towards the public domain at Broadway and Alumni Green. 3.3 – Design Excellence and Competitive Design Processes The design excellence provisions at Clause 6.21 of Sydney LEP 2012 and the DCP seek to deliver the highest standard of architecture and urban design, and apply to development involving the construction of a new building, as well as external alterations to an existing building. As detailed in Section 6.2, UTS went through a competitive design process for the Building 1 and Building 2 Podium Extension project, with Lacoste + Stevenson in association with Darryl Jackson Robin Dyke Architects (Lacoste + Stevenson) awarded the design commission in 2010. The proposed UTS Central is considered to achieve design excellence. The UTS Precinct Concept Plan has been reviewed against the Public Art Strategy. 3.5 – Urban Ecology As detailed within the Arborist Report (**Appendix M**) and Concept Landscape Plan (**Appendix B**), the proposal is consistent with Chapter 3.6 of the DCP. 3.6 – Ecologically Sustainable Development. As detailed within **Section 6.5** and the ESD Report (**Appendix G**), the proposal meets the ESD requirements of the DCP. 3.7 – Water and Flood Management As detailed within the Water Cycle Management Plan (**Appendix J**), the proposal meets the water and flood management requirements of the DCP. 3.9 – Heritage As detailed within the Heritage Impact Statement (**Appendix O**), the proposal meets the heritage conservation requirements of the DCP. 3.11 – Transport and Parking As detailed within the Transport Impact Statement (**Appendix F**), the proposal does not propose any additional parking. The provision of bicycle parking and end of trip facilities are consistent with the requirements of the DCP.

6.2 Built Form and Urban Design

A Design Statement has been prepared by FJMT Architects and is included at **Appendix P**. As outlined within the SEARs relating to UTS Central Project, the EIS is required to consider the following:

Demonstrate how the proposal exhibits design excellence in accordance with the requirements of Sydney Local Environmental Plan 2012

The design excellence provisions at Clause 6.21 of Sydney LEP 2012 seek to deliver the highest standard of architecture and urban design, and apply to development involving the construction of a new building, as well as external alterations to an existing building.

Background to Design Excellence at UTS

The achievement of design excellence for new development across the Broadway Precinct (and Haymarket Precinct) has been an important theme since the master planning process first started back in the 2000s, and is clearly linked to the long term strategic vision for UTS which is 'to be one of the world's leading Universities of Technology'.

UTS is committed to design excellence for new development approved under the Concept Plan. A mix of techniques are being utilised to achieve design excellence.

Design competitions have been undertaken to deliver (amongst other facilities):

- The Faculty of Engineering and IT Building – refer to **Figure 3**;
- Alumni Green – refer to **Figure 4**; and
- The Faculty of Science and Graduate School of Health Building – refer to **Figure 6**.

With completion of all of these projects it is abundantly clear that UTS's Broadway Precinct is a campus raising the bar and at the forefront of achieving design excellence.

Background to Design Excellence for UTS Central Project

UTS went through a competitive design process for the Building 1 and Building 2 Podium Extension project, with Lacoste + Stevenson in association with Darryl Jackson Robin Dyke Architects (Lacoste + Stevenson) awarded the design commission in 2010 (refer to **Figure 7**).

The competitive design process involved the Capability Assessment Panel, comprised of Marc Treble (nominee of UTS Deputy Vice-Chancellor (Resources)), Robert Kelly (Director, UTS Facilities Management Unit), and Clive Gunton (Manager, UTS Campus Development & Planning and Design Review) establishing the assessment criteria. Applicants were advised their capability would be assessed against the following eight selection criteria:

- Experience in the building type [5 marks] - recent experience and success of the Consultant and nominated individuals in the building type.
- Project delivery [15 marks] - identify the consultant's suitability and experience in delivering projects by this method.
- Innovation [35 marks] - ability to develop creative solutions and approaches.
- Knowledge of UTS [5 marks] - knowledge and understanding by the Consultant of UTS and its operational and physical environment.
- Understanding of Scope of Work [15 marks] - understanding of the Brief, all stakeholder interests, budget constraints and program objectives.
- Proposed Methodology [15 marks] - proposed methodology for the execution of the services; strategies for ensuring project requirements are fully met.
- Proposed resource allocation [5 marks] - number and type of staff proposed, time allocation for each team member.
- Principal's Involvement [5 marks] - Proposed amount of time for "hands on" involvement of principals from consultants firm.

The Panel reviewed the 34 Capability Statements and met on 4 December to finalise their short-list.

The Capability Assessment Panel comprised Ross Milbourne (Vice-Chancellor, UTS), Desley Luscombe (Dean, UTS Faculty of Design, Architecture & Building) and Anthony Burke (Head, UTS School of Architecture). The Panel reviewed the 27 Concept Submissions anonymously on 2 December 2009.

The top-rated firms on the basis of their Concept design were:

- DesignInc
- Hames Sharley

- Lacoste and Stevenson (with Daryl Jackson Robin Dyke)
- Durbach Block

On 14 December 2009 each short-listed finalist was invited to the second stage via a Letter of Engagement, which offered an honorarium of $40,000 on receipt of the stage two submission.

The five finalists presented their stage two concept designs to the second stage jury on 25 February 2010.

The second stage jury comprised:

- Professor Ross Milbourne, Vice Chancellor, UTS.
- Professor James Weirick, Director, Master of Urban Development and Design, UNSW.
- Graham Jahn, Director City Planning and Regulatory Services, City of Sydney.
- Giovanni Cirillo, Executive Director, Urban Renewal & Major Sites, NSW Department of Planning.
- Gabrielle Morrish, Principal, GMU Architects and Urban Designers.
- Robert Kelly, Director, UTS Facilities Management Unit.

Following the presentations on 25 February the jury was unanimous in selecting Lacoste and Stevenson (with Daryl Jackson Robin Dyke) as the preferred proponent.

Since then, it has become clear that the Broadway Precinct needs to accommodate an additional 4,500 students by 2020. With the Concept Plan clearly well progressed in its delivery, there remains realistically only one site left capable of accommodating the increased student load, being the Building 2 site.

With UTS's desire to deliver on the vision and concept of the winning Lacoste + Stevenson podium design, the opportunity to meet educational demands presents itself in providing additional floors above the Building 2 podium.

When selecting the architect for the new scope for Building 2, UTS was mindful of the need to select a firm that was compatible with the winners of the Building 1 and Building 2 Podium Extension Competition – Lacoste + Stevenson, and included as key criteria for selection:

- Methodology for collaboration with Lacoste + Stevenson;
- Adoption and full integration with the Lacoste + Stevenson scheme;
- Experience with University work; and
- Philosophy regarding contemporary library design.

A public expression of interest was accordingly launched in January 2014, with 22 submissions received. From these 22, six (6) firms were invited to participate in a Request for Tender (RFT) process/stage.

Evaluation of the RFT submissions resulted in the short listing of four (4) firms, with inspections subsequently undertaken by UTS of completed buildings by these firms. Ultimately, the selection panel were of the collective opinion that FJMT Architects were the most suitable practice with a clear workable synergy with Lacoste + Stevenson and an exemplary record of design excellence.

Whilst UTS has not undertaken a competitive design process for this aspect of the UTS Central project, UTS and its design team is committed to achieving design excellence in accordance with Clause 6.21(4) of Sydney LEP 2012.

When selecting the architects for the new scope of Building 2, UTS was mindful of the need to select a firm that was compatible with eh winners of the Building 1 and 2 Podium Extension Competition – Lacoste + Stevenson with DJRD – and included as key criteria for selection:

- Methodology for collaboration with Lacoste + Stevenson with DJRD;
- Adoption and full integration with the Lacoste + Stevenson with DJRD scheme;
- Experience with university work;
- Philosophy regarding contemporary library design.

A public expression of interest was launched in January 2014. 22 submissions were received and from this six firms (BVN, FJMT, Hassell, Lahz Nimmo, Lyons and Woods Bagot) were invited to participate in the Request for Tender (RFT) stage. Evaluation of the RFT resulted in the short listing of 4 of the practices and inspections were carrier out of completed building by these practices. The selection panel were of the collective opinion that FJMT were the most suitable practice with a clear workable synergy with Lacoste + Stevenson and an exemplary record of design excellence. It is submitted that this a valid and appropriate method of selecting the architect in this instance where it is necessary for the integration of the competition winning podium into the whole UTS Central Project.

Since the modification application was lodged in July 2015, the proponent and its consultant team have been further testing and developing its concept design through to schematic design (within the parameters set by the proposed amended concept plan envelope).

As is the nature of going from concept to schematic design, the parameters of the overall envelope have provided the framework in which the building design is being developed. During the development of the design there have been a number of refinements being considered by UTS which will result in a building form that will sit well within the envelope.

The indicative design scheme importantly addresses the key issues and comments raised by the City of Sydney within its submission on the modification application.

The process of developing the detailed design has also included review and input from the UTS Central Project Control Group (PCG). The purpose of the PCG includes review in regard to meeting Design Excellence requirements and maintaining the standard of design achieved in the three major buildings recently completed on the UTS City Campus (being the Faculty of Science and Graduate School of Health Building, The Dr Chau Chak Wing Building, and the Faculty of Engineering and IT Building). The PCG meets bi-monthly, and membership includes representatives of the UTS Executive and Professor Desley Luscombe[2] -

[2] *Desley Luscombe is Professor and Dean of the Faculty of Design, Architecture and Building at the University of Technology, Sydney. As Dean, in the past ten years Desley has refocused the Faculty at UTS leading the staff in the development of a unique vision as a research and creative practice collaborative. Her teaching crosses the disciplines of the history of twentieth-century architecture, design studio, and architectural drawing. Her research focuses on the politicising of architecture through its drawn representation. She is currently completing a book on the use axonometric drawings in the late twentieth century.*

In parallel and from 1977-2003, as Founding partner and Consultant of Campbell Luscombe Architects of Sydney, she collaborated in the design and presentation of architectural projects winning several national architectural and industry awards. Campbell Luscombe Architects is a group having developed significant expertise in aged care and seniors living.

In combining her academic and professional roles she served as a Councillor for the Royal Australian Institute of Architects (1992-2002), Member of the NSW Council of Professions

Dean UTS Faculty of Design Architecture and Building. Outside of the PCG process, Professor Luscombe has also provided additional review and guidance to the design team.

It is considered that this approach of directly appointing/selecting the architect (FJMT Architects) in this instance is valid and appropriate where it is necessary for the integration of the competition winning podium scheme into the broader UTS Central project.

In establishing design excellence, the proposal has addressed the criteria as outlined within the Sydney LEP 2012 below:

Whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved

As demonstrated in the Architectural Drawings (**Appendix B**) and Architectural Design Statement (**Appendix P**), the design, material selection and detailing of the Project is high quality, and considerate of the context and proposed uses.

Whether the form and external appearance of the proposed development will improve the quality and amenity of the public domain

The form of the additional building elements have been carefully considered and designed by FJMT Architects and Lacoste + Stevenson / Daryl Jackson Robin Dyke.

The Project will significantly improve the public domain experience, permeability of the site, and streetscape of Broadway and Jones Street and Alumni Green as the gateway to the UTS Campus.

Whether the proposed development detrimentally impacts on view corridors

As demonstrated within the Visual Impact Assessment prepared by Architectus (**Appendix R**) the Project does not detrimentally impact any existing view corridors or landmarks.

The impact of the proposal on public domain views when compared with the approved Concept Plan will be negligible from all locations. The most important view location which will be affected is Chippendale Green because it will be possible to view the proposal from a stationary location attributed to it being open space.

The requirement for view sharing needs to be based on what is reasonable. Within a context such as Central Sydney CBD and given the location of the site in close proximity to Central Railway Station and strategic bus services, it would be unreasonable to expect that views from most adjoining residences should remain unobstructed. Furthermore, there needs to be an acceptable level of impact from the proposal, and the overall public interest of the proposal needs to be ascertained.

It is therefore considered that the overall visual impact of the proposal on public and private views is acceptable.

The suitability of the land for development

The UTS Campus is suitable for the Project and has been considered from an operations perspective as well as from a site capacity and environmental

(2000-2002), Editor of The Architecture Bulletin (1992-1995), Chair of the State Education Board of the RAIA (1997-1998) and State Representative and Deputy Chair of the National Education Committee RAIA (1999-2001), President of the Society of Architectural Historians Australia and New Zealand (1995-1997), Editor of Fabrications: JSAHANZ (1988-1992), and a Member of the Editorial Boards for Architectural Theory Review (1997-1999) and the Journal of Potential Architecture (2000-present).

perspective under the Concept Approval. The site is considered suitable for the proposed development for the following reasons:

- it is within the UTS Campus and is co-located with other key supporting education services;
- the Project will further support and strengthen the facilities available on the Campus and within the broader education precinct; and
- the area, shape and topography of the site allows for the provision of a new built form that meets the design requirements of the UTS, whilst not resulting in any significant adverse impacts on the use of surrounding buildings or the amenity of adjoining occupants.

The existing and proposed uses and use mix

The continued use of the UTS Campus as a key education precinct will be maintained by the proposed UTS Central Project.

Any heritage issues and streetscape constraints

The proposal has been designed to ensure the heritage significance of nearby heritage items is protected. Whilst the UTS Campus does contain items of local heritage significance, the Concept Plan Approval sought to retain and reuse the items where possible. The proposal is consistent with the Concept Approval.

UTS Central is unlikely to have adverse impacts on heritage items and streetscapes in the vicinity of the site as the dominant streetscape at the eastern end of Broadway will remain unchanged, and the impact on views of the Campus from the Railway Square Special Area will be negligible.

There is little potential for any indigenous or archaeological relics to have survived on the site.

The location of any tower proposed, having regard to the need to achieve an acceptable relationship with other towers (existing or proposed) on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form

The tower at its upper most level is rotated to address Broadway. The top level is a simple rectangular form with rounded corners to a consistent radius of 5m.

From this upper most level, aligning with the Broadway Grid the tower gradually rotates to align on the western, northern and eastern sides with the campus grid. The southern side is gradually stepped back at equal intervals to address solar access to the adjacent Central Park.

This rotation increases access to views from both the Central Park site to the north and improves the openness of the site when viewed from Alumni Green. The upper most level to the east (adjacent to Building 01) is offset by an average of 14m.

An important consideration is the potential overshadowing of both the Central Park residential developments. In order to align with the approved envelope and the impact of its overshadowing to the south, the podium form has been maintained at its approved height while the tower form has been set back from the alignment with CB01 and the form manipulated. Each floor plate of the proposed CB02 Tower sequentially steps back from the lowest level of the tower to the top floor. The south facade of the CB02 Tower is aligned parallel to Broadway with the west and north facades positioned parallel to the Campus Grid - Jones Street and Alumni Green respectively.

The south east corner of the proposed form for CB02 progressively steps away from CB01 as the building increases in height further improving solar access to the Central Park residential developments and reducing the overall tower form as the building increases in height.

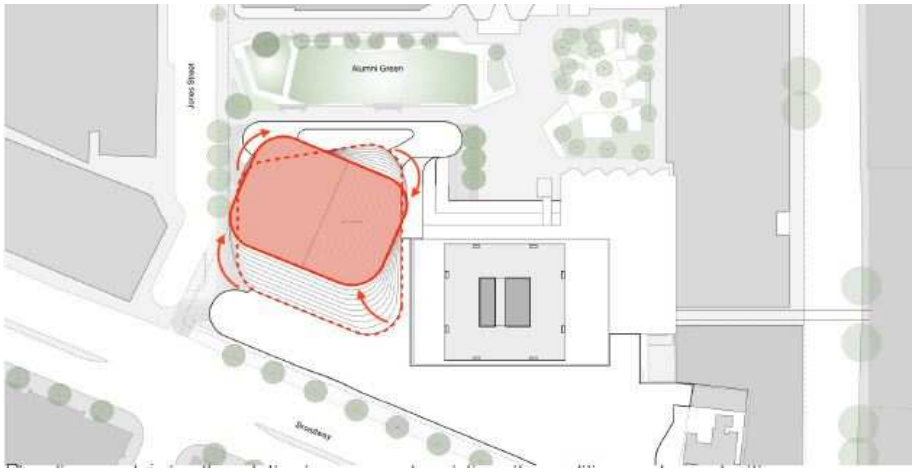

Figure 19 – Plan diagram showing the rotation in response to existing site conditions and opportunities
Source: FJMT Architects

The bulk, massing and modulation of buildings

As demonstrated in **Figure 20** below, UTS Central and in particular the tower above podium at CB02 have taken into consideration the surrounding strong urban forms of the adjacent fabric, the dominant towers of Central Park, the singularity of CB01 and the sheer lines of the façade of Building 11.

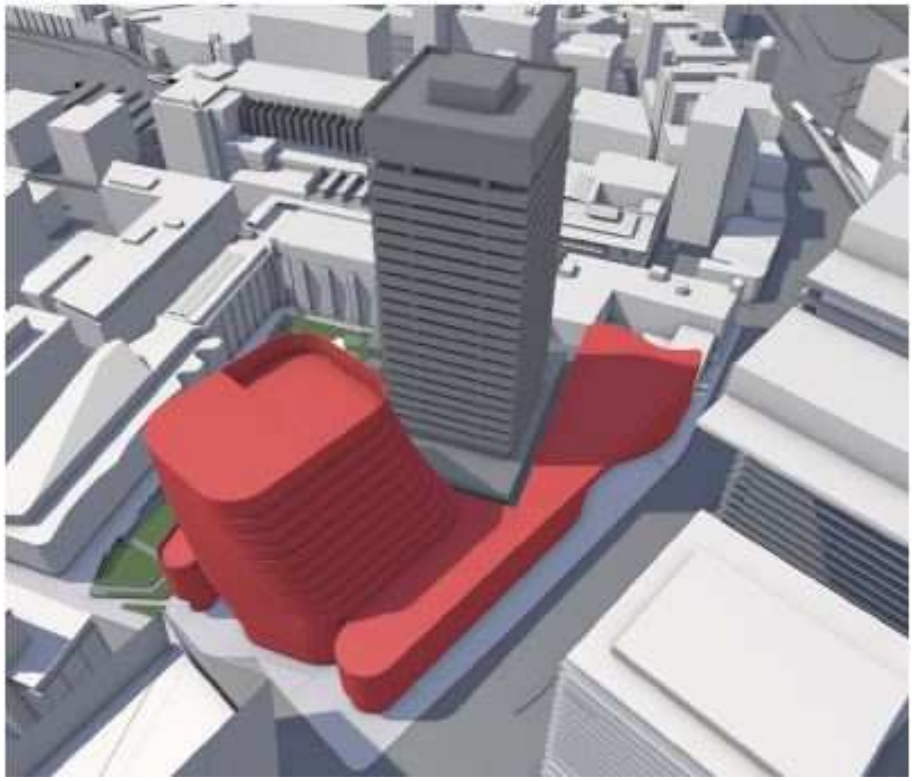

Figure 20 – Aerial view from the south west showing overall massing
Source: FJMT Architects

Similarly, as detailed within **Figure 21** below, with the relationship in height and scale between CB01 and the taller tower of No. 1 Central Park, the proposed form and height for CB02 has been considered in response to the lower tower of Block 1 of Central Park reinforcing the objective of creating a gateway to the CBD from the western entry.

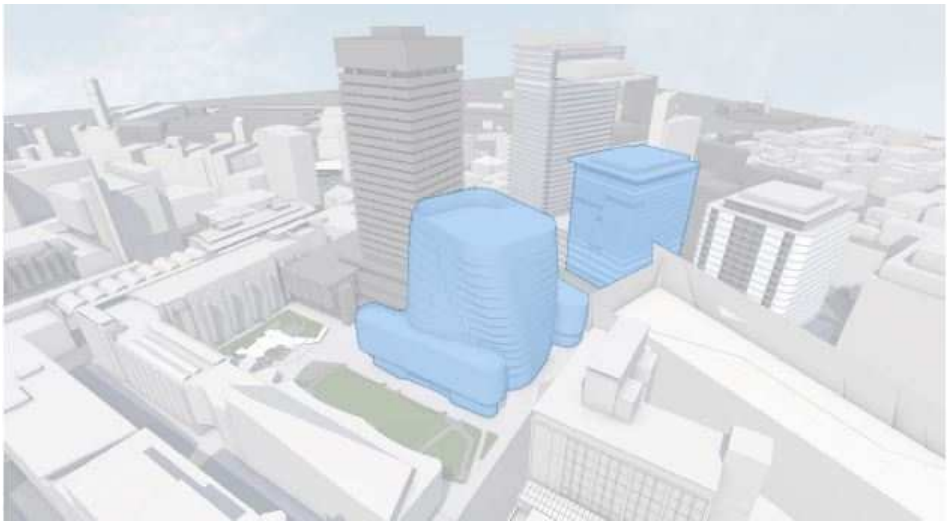

Figure 21 – Aerial view from the north west showing the massing relationship between CB02 and No.1 Central Park
Source: FJMT Architects

Street frontage heights
The podium form of CB01 and CB02 along Broadway and Jones Street has been established to reinforce the street alignment and references the height and scale of CB07 on Jones Street to the north of UTS Central, providing the development with a human scale to interact with the Broadway environment.

Environmental impacts, such as sustainable design, overshadowing and solar access, visual and acoustic privacy, noise, wind and reflectivity
As further detailed in **Section 6.3**, UTS Central has been designed to minimise environmental impacts within the locality. ESD, shadowing, solar access, visual impact, acoustic privacy, noise, wind and reflectivity have all been carefully considered and found to have negligible impact as a result of the proposal.

The achievement of the principles of ecologically sustainable development
As discussed in detail in **Section 6.5** of this EIS, the proposal has been assessed by Steensen Varming with regard to ESD (**Appendix G**) and the 4 principles of ecologically sustainable development, being:

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

UTS Central has been found to achieve the above principles.

Pedestrian, cycle, vehicular and service access and circulation requirements, including the permeability of any pedestrian network

- Pedestrian – UTS Central provides a unique opportunity for activation, accessibility and connectivity that will enable engagement for all users with the University and the broader community. New prominent entries from Jones Street, Broadway and Alumni Green will provide clear access and entry to major building frontages. The ground plane will provide a continuous physical connection between the interior and exterior, across the three major student focus levels through a series of broad public focussed stairs and internal escalators within voids and atriums.
- Cycle – Adjoining UTS Central is a dedicated cycle way in the form of the 4m wide shared path along Jones Street between Broadway and Mary Ann Street (as part of the Chippendale/Ultimo Cycleway Network). Bicycle parking

facilities are provided throughout the UTS City Campus with the nearest facilities to the site located at Building 10 car park (entrance located at the corner of Thomas Street and Jones Street) which currently accommodates 288 bicycle parking spaces, 260 lockers, 14 toilets and 28 male and female showers. These bicycle parking spaces are an initiative of the original Concept Plan to provide staged increases in bicycle parking provision at UTS.

- Vehicle and Service Access – There is no additional car parking directly associated with the Project and as such the existing loading facility at Level 2 of CB01, accessed from Thomas Street, will be utilised for the new CB02. The proposed development will continue to utilise the existing arrangements to access the site.

The impact on, and any proposed improvements to, the public domain
UTS is a very urban campus with minimal access to external landscaped public domain. Alumni Green is a new "green heart" for the campus and UTS Central reinforces this new space with new vertical courtyards - "Sky" Greens providing an opportunity for visual and physical connections to Alumni Green through elevated courtyards, terraces and roof terraces.

The new UTS Central will directly improve the amenity of the public domain and the relationship to the Public Domain. In accordance with the Consolidated Approval Concept Plan, the proposal provides pedestrian protection along the length of Broadway in form of an awning.

The building will address the local climatic conditions to provide comfort and protection within the public domain. For example, the extension of Broadway facade west will assist in the reduction of wind impacts on Jones Street from the prevailing winds from Chippendale Way (Balfour Street). Clearly defined entrances will establish clear relationships of the major building entries to building uses.

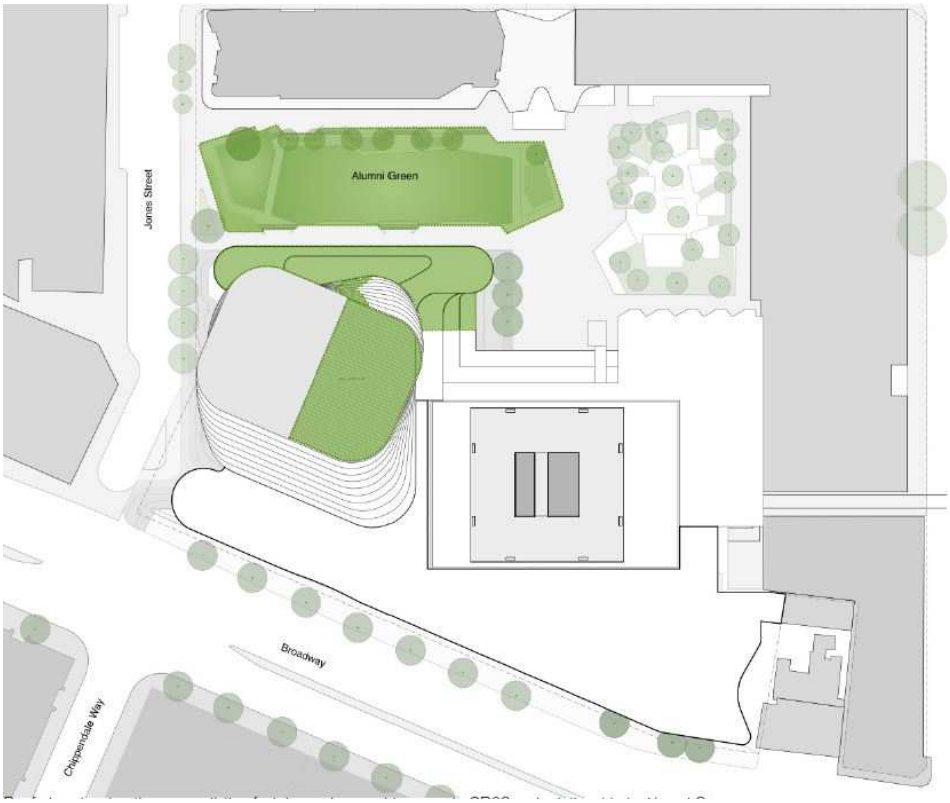

Figure 22 – Roof plan showing the connectivity of wintergardens and terraces to CB02 and relationship with Alumni Green

Source: FJMT Architects

An important consideration of UTS Central is the potential overshadowing on public domain. The podium facade to the north aligns Alumni Green and maintains the scale and form generated on Jones Street, reinforcing the intersection of Alumni Green and Jones Street. As the podium form extends east towards the centre of Alumni Green, the facade steps back to give a greater prominence and alignment to Alumni Green. As the building increases in height the facade continues to step and rotate back from the Alumni Green alignment, reducing the impact of the tower form on Alumni Green.

The impact on any special character area

UTS Central is located in close proximity to the Railway Square/Central Station, identified in SLEP 2012 as a Special Area. Railway Square and streets within that area, including Broadway near Harris Street, are considered to contribute to the heritage value of the precinct.

Given the set back of the CB02 Tower from the CB01 Tower from Harris Street and its distance from Broadway there negligible impacts on the heritage value of the Railway Square Special Area.

Achieving appropriate interfaces at ground level between the building and the public domain

UTS Central will improve the Broadway frontage to the site with public domain treatments. New prominent entries from Jones Street, Broadway and Alumni Green will enable activation, accessibility and connectivity for all users within the University and broader community.

Excellence and integration of landscape design

As outlined within the Design Statement prepared by FJMT Architects, an integrated concept landscape plan has been prepared demonstrating how the design articulation and the careful considered design approach enables an integrated campus. To reinforce the connectivity of CB02 to Alumni Green the following key elements have been considered and integrated on the north facade:

- Terraces on lower levels of the podium orientated toward Alumni Green.
- Interconnected winter gardens.
- Orientation to reinforce relationship to Alumni Green.
- Facade type change to enhance transparency and visual connectivity from Alumni Green.

Demonstrate how the proposal is consistent with the approved concept plan for the UTS City Campus, Broadway Precinct (MP 08_0116, as amended) and the Urban Design Principles and Design Quality Controls

The proposal is generally consistent with the approved Concept Plan (as modified). The proposal's consistency with the approved Concept Plan (as modified) is discussed below.

Concept Plan Approval (MP 08_0116) included:

- New Broadway Building and Thomas Street Building with a combined gross floor area (GFA) of 44,650m^2;
- Expansion of Buildings 1 and 2 with a combined additional GFA of 10,800m^2;
- Expansion of Building 6 for the provisions of student housing with an additional 25,250m^2 GFA;
- Modifications to Buildings 3, 4 and 10;

- Modifications to Alumni Green with a new Multi-Purpose Sports Hall and book vault beneath; and
- Public domain improvements to Broadway and Thomas, Harris, Wattle and Jones Streets.

The Minister also granted Project Approval for the following works:

- Construction of a new underground Multi-Purpose Sports Hall; and
- Demolition of Buildings 11, 12 and 13.

UTS has subsequently modified the Concept Approval, with Modification 5 being the latest amendment seeking approval to an increase in the approved additional GFA for Building 2 to 38,261m^2 (comprising an increase of 31,511m^2), along with an expansion and amendment to the approved building envelope for Building 2 resulting in a maximum building height of 64.5 metres at Broadway (comprising an increase of 34.41 metres).

Land Use

The Concept Plan identified CB01 and CB02 as being educational establishment uses. The proposal is consistent with this aspect of the Concept Pan.

Building Envelope and Height

In light of Modification 5, as outlined in **Figures 23**, **24**, **25**, **26** and **27**, the proposed built form (height and massing) associated with UTS Central is entirely consistent with the Concept Approval. The Approved Concept Plan Envelope (as per Modification 5) is shown in the figures below in red. The proposed UTS Central development is well within the approved envelope.

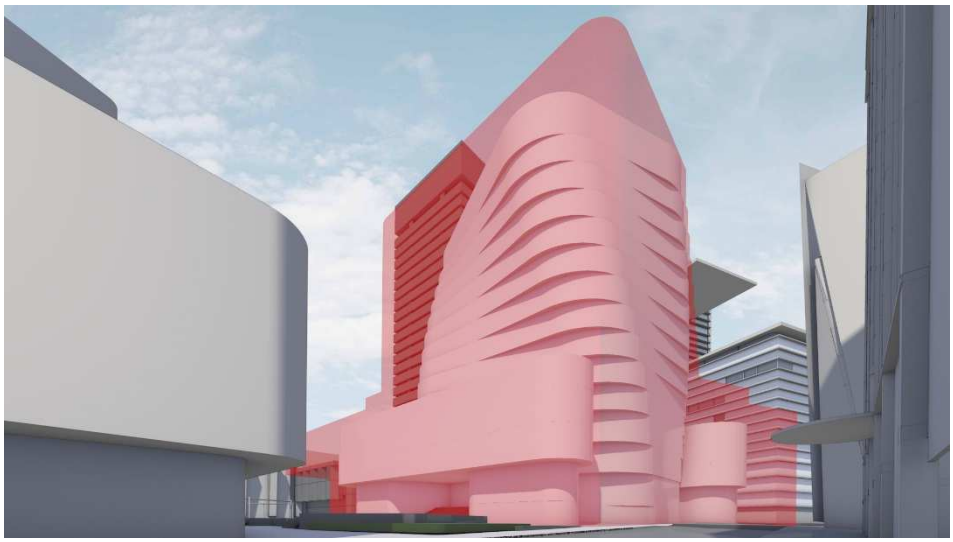

Figure 23 – Approved building envelope framing CB02 Tower as seen from Jones Street
Source: FJMT Architects

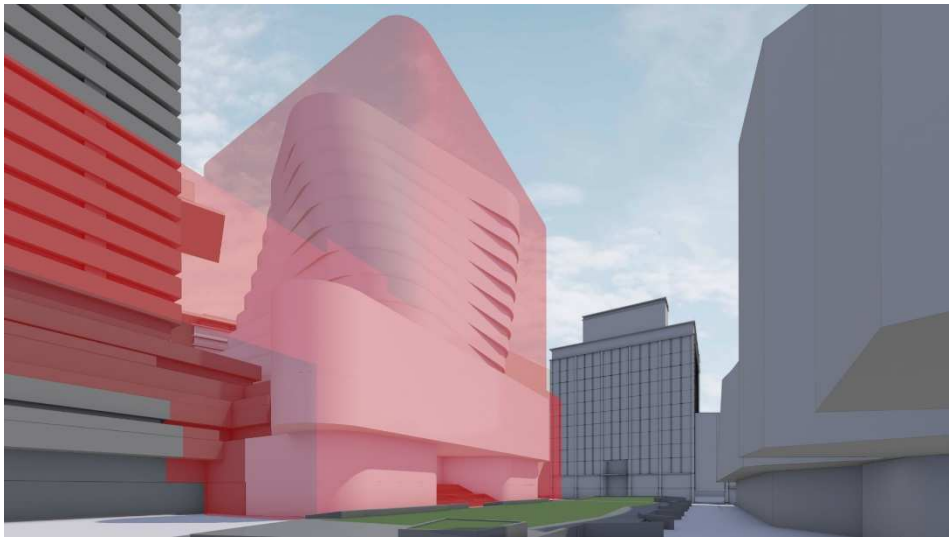

Figure 24 – Approved building envelope framing CB02 Tower as seen from Alumni Green
Source: FJMT Architects

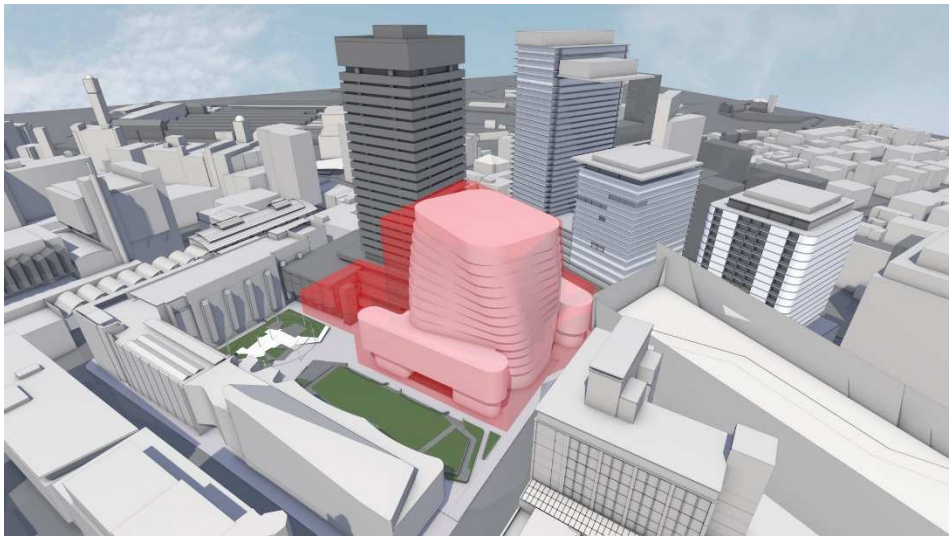

Figure 25 – Aerial Image of the approved building envelope framing CB02 Tower
Source: FJMT Architects

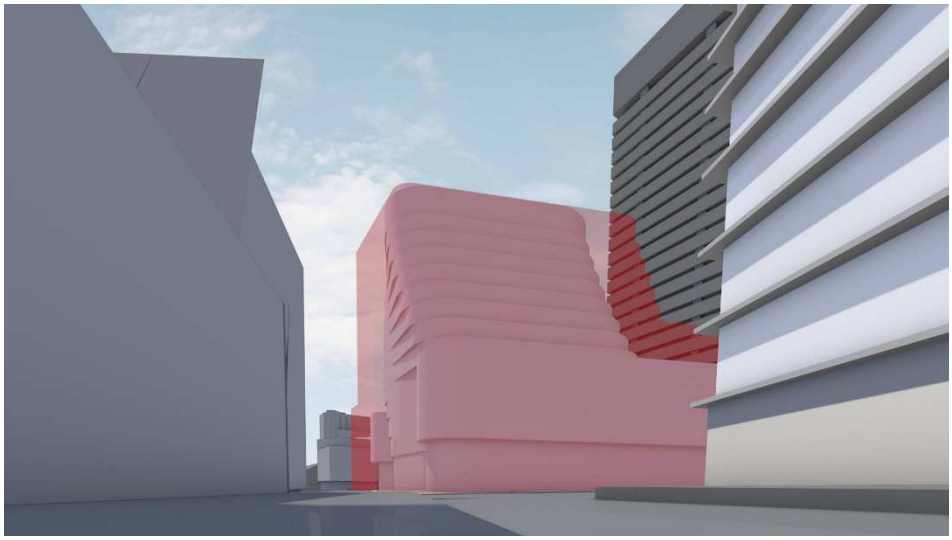

Figure 26 – Approved building envelope framing CB02 Podium and Tower as seen from Chippendale Way
Source: FJMT Architects

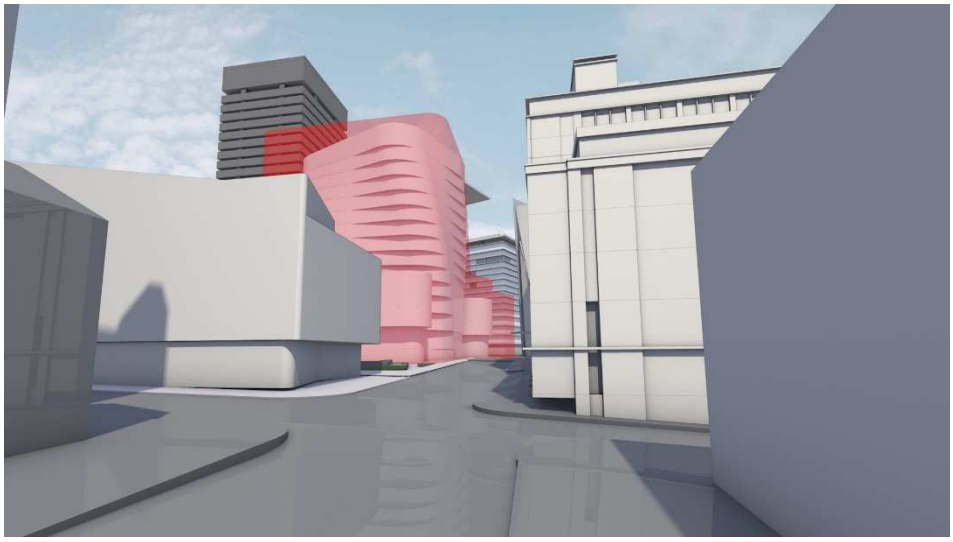

Figure 27 – Approved building envelope framing CB02 Podium and Tower as seen from Jones Street
Source: FJMT Architects

Footprint
The proposed footprint of UTS Central is consistent with the approved concept plan (as modified).

Gross Floor Area
MP 08_0116 Modification 5 sought an increase in the approved additional GFA for Building 2 to 38,261m^2, comprising an increase of 31,511m^2.

As per the modified Concept Plan, Condition A1 reads:

Except as modified by this approval, Concept Plan approval is granted only to the carrying out of development solely within the Concept Plan area as described in the document titled "Environmental Assessment Report UTS City Campus Broadway Precinct Concept Plan" dated May 2009, as amended by the "Preferred Project Report UTS City Campus, Broadway Precinct Concept Plan" dated October 2009, as modified by "Environmental Assessment Report UTS City Campus, Broadway Precinct Modification to Concept Plan" dated July 2015, and as amended by the "Response to Submissions" dated November 2015 prepared by JBA Planning Consultants, including:

(a) New Broadway Building and Thomas Street Building, with a combined GFA of 44,650m^2;

(b) Expansion of Building 1 podium and new Building 2, with a combined GFA of 64,407m^2;

(c) Expansion of Building 6 for the provision of student housing, with an additional 25,250m^2 GFA;

(d) Modifications to Buildings 3, 4 and 10;

(e) Modifications to Alumni Green, with a new Multi-Purpose Sports Hall and book vault beneath;

(f) Public domain improvements to Broadway and Thomas, Harris, Wattle and Jones Streets.

The proposal seeks approval for 39,636m² of GFA as part of the CB02 works and 6,917m² of GFA as part of the CB01, with a total of 46,547m² of GFA proposed as part of UTS Central Project.

The proposed GFA is consistent with the Concept Plan (as modified) being significantly less than the approved maximum GFA of 64,407m² for Building 1 and Building 2.

Design Principles

The Concept Plan Approval (as modified) establishes the planning and development framework to guide future development on the site and articulates the University's objectives and goals. The following urban design principles were established under the Concept Plan Approval to guide the future built form on the site:

- High quality design – Achieve excellence in architectural design through a design competition process.
- Multiple development opportunities – Transform multiple, disparate development sites into new education facilities that meet UTS's long-term needs.
- Improve permeability – Capitalise on the site's urban character and maintain the informal transition between the campus and the remainder of the city by creating multiple entrances to the site, rather than a single front door.
- The centre of the campus – Establish the centre of the campus as its academic, social and ceremonial heart.
- New identity and entrances – Transform the current Broadway frontage of the site into a new "front door" to the campus.
- Integration and connection – Improve the legibility of the campus by locating and emphasising major gateways and creating new internal and external streets.
- Cultural and recreational hubs – Locate new cultural and recreational hubs across the campus.
- Improved open spaces – Create new, useable open spaces that will receive solar access throughout the year.
- Maximise sustainability – Achieve a high level of environmental performance for new and existing buildings on the site.
- Access – Capitalise on the site's excellent connections to public transport and pedestrian links to locality and beyond.

UTS Central has been designed in accordance with the above principles as established under the Concept Approval. The extension of Buildings 1 and 2 was envisaged under the Concept Plan Approval to:

> *"create a new multi storey entrance to the campus. Active uses at and below ground level will invite the community into the campus. A new building will be constructed along Broadway between Jones and Wattle Streets to create a new identity for UTS on Broadway: of the University's 320 metre street frontage to Broadway, 230 metres will be new or refurbished".*

The UTS Central Project is part of the realisation of this vision.

Design Quality Controls

UTS Central has been designed in accordance with the approved Design Quality Controls

Table 8 – Design Quality Controls

Controls	Compliance
Building 1 Podium	
Limit the height of the podium extension to 28.67 metres from ground level (including plant).	✓
Refurbish the existing Building 1 forecourt and entry at Broadway to create a major new entrance to the campus.	✓
Provide a multi storey atrium with internal garden at the entry.	✓
Provide pedestrian entries off Broadway, Alumni Green and Turner Lane.	✓
Provide pedestrian protection along the length of the Broadway frontage.	✓
Maximise the extent of permeability of the ground plane at the Broadway and Alumni Green entries through retail and student union shop fronts and student and public facilities.	✓
Consider an element of transparency in the building design to express functions within.	✓
Provide screening to the existing northern terraces to create new sheltered outdoor spaces and activate the northern edge of the building at all levels	✓
Incorporate design solutions to address wind conditions in the locality.	✓
Building 2	
Limit the height of the podium building to 30 metres from ground level (including plant) at Broadway.	✓
Limit the height of the additional floors above the redeveloped podium to 64.5 metres from ground level (including plant) at Broadway.	✓
Provide permeability of the ground plane along Jones Street and Alumni Green	✓
Provide activation and pedestrian movement between Building 1 and Building 2, supporting a truly integrated campus.	✓
Provide prominent and clear pedestrian entries off Jones Street and Alumni Green.	✓
Provide pedestrian protection along the length of the Broadway frontage.	✓
Provide a weather proof pedestrian connection near the northern edge of the building with connections to Jones Street and Alumni Green.	✓
Consider an element of transparency in the building design to express functions within.	✓
Incorporate design solutions to address wind conditions in the locality.	✓
Minimise overshadowing impacts on the public domain and adjacent residential development.	✓
Maximise opportunities for view sharing where feasible within the limits of the site's Global Sydney CBD location.	✓
Explore opportunities to provide visual extensions to Alumni Green through the provision of green spaces on upper level terraces and roof spaces.	✓
Respect the existing Building 1 tower.	✓
Provide additional floors above the redeveloped Building 2 podium that are setback from the Broadway Street wall, integral with the podium and positively contribute to its surrounds.	✓
Establish an appropriate relationship and setback to Building 1 tower to support its appreciation and setting from wider viewpoints. Minimum setbacks of approximately 10.5m – 13m at Level 9 and approximately 14m – 19m at Level 17 to be provided to Building 1 tower	✓
Respond to the scale of existing buildings along Jones Street through progressively stepping the building form away from the street wall.	✓
Respond to the importance of the Balfour Street view corridor (within the context of addressing environmental factors, such as wind conditions) through: ▪ preserving the openness of the corner of Broadway and Jones Street; materiality; and ▪ progressively stepping the building away from Jones Street above the podium.	✓

Consistency with Consolidated Commitments

In accordance with Part 3A of the EP&A Act, the following are the commitments made by UTS to manage and minimise potential impacts arising from the proposal (as amended).

- Design Excellence

As outlined earlier in Section 6.2, the proponent has demonstrated design excellence for the UTS Central Project through the appointed of Lacoste + Stevenson and FJMT Architects and ensuring the key criteria of the Sydney LEP Clause 6.21 are met.

- Heritage

To minimise impacts on the heritage significance of buildings on and around the site. As outlined within the Heritage Impact Statement (**Appendix O**), during the design development of the proposal careful consideration has been given so that the proposed built form will not impact on the heritage of any heritage items on site or in the vicinity of the UTS Campus.

- Traffic, Transport and Access

As outlined within the attached Transport Impact Assessment (**Appendix F**), the proposal will remain consistent with the commitment use of public transportation for staff and students.

- Visual Impacts

The proponent has undertaken a reflectivity assessment of the architectural feature proposed for the Broadway Building during detailed design (**Appendix U**).

- Solar Access

The proponent has undertaken a detailed shadow impact study of the Broadway Building during detailed design (**Appendix R**).

- Wind

A Wind Impact Assessment is submitted at **Appendix T**.

- Landscape Design

An Arborist Report has been prepared with this application and is submitted at **Appendix N**.

- Contamination

A Preliminary Site Investigation has been prepared by Douglas Partners and is included at **Appendix E**.

- Ecologically Sustainable Development

An ESD Report has been prepared by Steensen Varming and is included at **Appendix G**.
As outlined above, the UTS Central Project is considered to be consistent with the relevant commitments (as amended) for MP08_0116.

Demonstrate how the proposed design integrates with the Lacoste + Stevenson podium design

The Broadway facade and podium extension to CB01 is the competition winning scheme which establishes a clear design approach to the integration with the existing fabric of CB01 podium and the broader UTS campus. It identifies the very rectilinear and Brutalist architecture of the CB01 tower and offers an approach that is organic and undulating as a counter point.

It is this approach established for the Broadway facade and podium extension that has been embraced in the design development of CB02, generating a unified and collaborative approach to the evolving character of the UTS campus.

The Podium Extension proposal maintains the competition-winning scheme. It has been adapted internally to suit change of brief with the replacement of Building 2.

Buildings 1 and 2 Podium Extension to the Broadway frontage creates a unique opportunity for UTS to reimagine the entry to its most prominent landmark and in doing so reimagine the university's public perception.

The proposed Podium Extension along Broadway creates a new University addition that is light, transparent, open and welcoming. The curvaceous, smooth façade is both playful and contemporary, a foil to the Brutalist style of the Tower above. The architecture showcases the activity within.

Planning allows Level 4 of UTS Central to cater for both large and small scale events presentations and market days with a generous, open floorplate ensuring maximum flexibility of use and activation of space along Broadway. Levels 5, 6 and 7 of the Podium Extension are open, flexible floorplates for contemporary teaching spaces.

UTS is an urban campus embedded in the city. The entry to the campus embraces its relationship to the city whilst promoting the values and creativity of the university. The new UTS Podium Extension marks the entrance not only to the landmark UTS Tower, it becomes a celebrated front door to the campus itself, leading directly into the ceremonial heart of the university; the foyer of Building 1, The Great Hall, Chancellery and through to Alumni Green.

The UTS Master Plan articulates specific aims for the extension of Buildings 1 and 2. The aims include an architecturally distinguished building at this gateway site, a new front door to the heart of the campus, increased permeability of the campus and transparency of buildings at their edge.

The proposed extension of Buildings 1 and 2 gives UTS a substantial physical presence as a part of the city at the larger scale, and a strong identity on Broadway in particular. The glass volume along Broadway responds to activities within. It establishes a formal entrance to UTS which has a scale and significance that befits its role. The elegant, 4-storey sweep of the glass curtain back into the body of the building creates a welcoming and clear point of entry to the campus which is on axis with the impressive foyer of Building 1. The glass façade is transparent at street level to reveal the activity and occupation within. The glass wall guards against the noise and pollution of Broadway.

In contrast to the defensive image of the Tower, the new podium intervenes as an undulating, transparent building enveloping the podium of Buildings 1 and 2 along Broadway. It appears soft and almost pliable like a curtain; its smooth surface arching inward dramatically to mark the entrance.

The scale and grandeur of the Tower Building foyer is carried through into the new extension of the podium building yet the materiality of the addition is strikingly contrasted. A void at the entrance provides a double height space façade.

The design of the facade for the UTS podium extension is in contrast to the solid tower that rises from it. The glass façade is a combination of flat and curved surfaces creating a light and fluid image. It is a single glazed system that is predominantly flat with 2-way curved glass to define the entrance. The structure supporting the façade is kept to a minimum with mullions widely spaced and running floor-to-floor. Continuous transoms are aligned with the joints of landscape formatted glass panels adding to the transparency.

A white ceramic frit is applied to the glass panels and patterns the façade. The proposed pattern is a forest of trees that provides dappled light inside the building reducing glare while retaining views out. The frit reinforces the gentle contrast of the new addition to the Brutalist tower. The frit stops at awning level with clear glass below the street awning to allow views into the building from Broadway.

The eastern end of the Podium Extension adds to and reinforces the aim for student amenity in a possible future laneway network of cafes and bars which are protected from the Broadway and the traffic. The student forum on Level 4 opens up to the Loft Bar courtyard as a first step towards a bars and lanes precinct for students. Sunlight is allowed to penetrate into the space during the middle of the day. Further potential for Loft Lane to connect to Turner Lane on 2 levels is maintained for future development.

Address the height, density, bulk and scale, setbacks of the proposal in relation to the campus and the surrounding development, topography and streetscape, in particular separation between the towers of Building 1 and 2 and relationship with the Former Sydney Technical College Building

As detailed within **Figure 29** below, UTS Central has been designed with close consideration of its relationship in height and scale between CB01 and the taller tower of No. 1 Central Park; along with the form of the lower tower of No.1 Central Park. In doing so the proposal reinforces the objective of creating a gateway to the CBD from the western entry.

Figure 28 – Aerial view from the north west showing the massing relationship between CB02 and No.1 Central Park
Source: FJMT Architects

In light of Modification 5, as outlined in **Figure 29** below, the proposal is entirely consistent with the height, density, bulk, scale and setbacks under the Concept Approval.

Figure 29 – Aerial image of the approved building envelope framing CB02 Tower
Source: FJMT Architects

The proposal has been carefully designed and orientated to minimise amenity impact on existing Campus buildings and adjoining development and is suitably separated to ensure the internal amenity of CB01 tower is maintained.

The proposal has considered it relationship with the former Sydney Technical College Building at the corner of Thomas Street and Jones Street and due to its distance away from this intersection and location to the south the proposed UTS Central is not considered to result in any adverse environmental amenity impacts on the building.

Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours and Crime Prevention through Environmental Design Principles

The design quality principles, as established under the Concept Plan Approval (MP08_0116) have been fundamental to the design outcome achieved for the UTS Central Project.

The Level 17 roof terrace is located to the east of the site, adjacent to CB01 which provides protection. The activated terrace will reinforce the relationship between the building form and Alumni Green, reinforcing the principle of "Connected Courtyards" and will provide a termination to the sinuous winter gardens which are generated up the north facade of CB02.

The new CB02 tower form will appear as a light and uniform series of layers articulated at each floor. The clear glass facade with an integrated light louvre screen system will generate a veil-like delicacy to the surface while enhancing the performance of the facade system. This approach has been formulated to provide an appropriate transition from the podium to the tower.

The objectives of the CPTED have guided the design of UTS Central to create a safe, crime free environment that:

- Increases detection and apprehension of offenders,
- Maximises efforts required to commit crime,
- Minimises environments and conditions which may instigate unacceptable behaviour, and
- Reduces the actual and perceived benefits of crime.

The "Safer by Design" guidelines have been adopted following the following design principles:

Surveillance

Natural and technical surveillance are important and focus on ensuring that people can see what other people are doing. Typically public areas need to be over viewed by others with clear sight lines from private to public areas, effective lighting of public places and landscaping which does not provide areas for people to hide or entrap victims.

Electronic surveillance is used both as a further deterrent, particularly effective where cameras are visible, for broader surveillance where natural surveillance cannot be achieved, as well as an evidence tool used by police.

The following provide an assessment of the proposed facility against the surveillance principle:

- Clear sightlines have been provided between public external to public internal spaces at ground level, from Broadway, to Jones Street and Alumni Green. The facade at ground level is also highly transparent to further reinforce visual connectivity.
- Internal and external pathways and circulation areas are wide and open. Constrained corridors are minimised.
- Terrace access on levels 5-7 allow for surveillance for users of Alumni Green.
- External lighting will be consistent along pathways with increased lighting at entries.
- Egress paths will be open and integrated into the overall design.
- CCTV cameras will provide additional active surveillance to deter unacceptable behaviour.

Access Control

Public areas and facilities need to be clear in their definition of where people can and cannot go and to define boundaries.

The use of physical barriers (e.g. screens, walls and locked doors) and symbolic barriers (e.g. landscaping and changes in level) are important in access control. This is equally important for primary and ancillary areas.

The following provide an assessment of the proposed facility against the access control principle;

- Cleat and prominent entries to CB01 and CB02 providing public surveillance.
- Landscaping design responds to pedestrian movement paths and guides people to entries and public spaces. The existing landscaping in Alumni Green enhances pathway boundaries and provides an elevated grassed area providing a clear delineation of the footpath.
- Lift orientation is restricted to within the building and is visible from both Jones Street and Broadway.
- External and internal way finding signage will assist in access legibility and pathways.

Territorial reinforcement

Areas that are well-maintained and well-used generate a feeling of "ownership" and thus reduce opportunities for criminal activity. Public areas need to clearly define their intended use and encourage community activity.

The following provide an assessment of the proposed facility against the territorial reinforcement principle;

- Consistent maintenance, graffiti and damage monitoring and management will be provided.
- Designated open spaces both externally and internally allow for gathering within the building and landscape extents. Activated open landscape spaces and external seating as part of Alumni Green reinforce connectivity and surveillance between the ground plane and levels 3 and 4.

Space management

Areas need to be inviting and well-maintained with regular removal of waste, mowing, removal of graffiti, repair of vandalism and the refurbishment of equipment/furniture. This applies to both public and student areas.

The following provide an assessment of the proposed facility against the space management principle;

- Management methodologies have an emphasis on damage, graffiti and maintenance management to ensure the facility presents a clean, cared-for environment.
- Selection of materials, furniture, fitments and fittings will have an emphasis on reducing vandalism to assist in space management.
- External open spaces will be integrated into the design, minimising vandalism. On the terraces, lighting will be further integrated into the planter seating edges to provide a discrete utility provision.

Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development

The building design has allowed for an integrated response to services. A Hydraulic Services Utilities and Infrastructure report has been prepared by Erbas (**Appendix I**) to identify an appropriate hydraulic services strategy for the upgrade and extension of UTS Central Buildings CB01 & CB02 with a focus on:

- Existing infrastructure capacity and redundancy;
- Existing infrastructure proximity to the extended footprint;
- Services augmentation or diversions that may be required.

The Water, Gas, Sewer and Stormwater infrastructure has been reviewed and the result of the investigations and enquiries outlined within the attached report is that there appears to be sufficient capacity in the surrounding infrastructure to support the Project without the need for augmentation or diversion of the surrounding supplies available to the campus which allows for an integrated response with existing Campus Infrastructure.

The general and recyclable waste storage spaces provided for the UTS Central Project will effectively serve all building uses and will be sufficiently sized to accommodate the storage of recyclable material. There will be not general waste compactor installed in the UTS Central Project. However, there is an existing 'Hungry Giant' polystyrene compactor located in the adjoining basement of Building 1 (CB01) which will be used by the UTS Central Project and is currently used by Buildings 1, 2, 3, 4 and 7.

Where possible the general waste and recycling storage area for the UTS Central Project will be located adjacent to the existing Building 1 (CB01) loading dock. The waste and recycling space will be located within easy, level access of the goods lift servicing the UTS Central Project. They will be designed to huddle

around the loading dock area for easy access of the goods lift servicing the UTS Central Project.

6.3 Environmental Amenity

An assessment of the potential environmental impacts associated with the UTS Central Project has been undertaken by the UTS Project Team. As outlined within the SEARs relating to UTS Central Project, the UTS Central Project was required to consider the following:

- *Provide information detailing the provision of solar access and any overshadowing impacts, acoustic impacts, privacy impacts, view loss and wind impacts on Broadway, Jones Street and the Alumni Green. A high level of environmental amenity must be demonstrated.*

Solar Access and Overshadowing

Extensive shadow analysis for the proposed UTS Central Project has been prepared by FJMT Architects (**Appendix S**) illustrating the shadows cast from the proposed development.

UTS Concept Plan MOD 5

An Environmental Assessment Report (EAR) for modification to the approved Concept Plan at UTS City Campus, Broadway Precinct was publically exhibited for a period of 48 days inclusive between the 27 August 2015 and 12 October 2015 (MP08_0116 MOD 5).

MOD 5 sought to limit the height of the podium building of Building 2 to 30 metres from ground level (including plant) at Broadway and to limit the height of the additional floors above the redeveloped podium to 65.5 metres from ground level (including plant) at Broadway. The massing form and suitability within the surrounding context were assessed within the EAR, along with a detailed analysis of the proposed additional shadows cast from the amended Building 2 envelope. The form and massing of the amended Building 2 envelope was strongly influenced by the key principle adopted by UTS and the project team to minimise overshadowing impacts on the adjacent residential dwellings within Central Park.

The importance of minimising overshadowing impacts was also recognised with an additional Design Quality Control proposed to be added to the Concept Plan for Building 2.

MOD 5 concluded that potential overshadowing impacts to Central Park would not be significant.

UTS Central SSDA 15_7382

Detailed elevational shadow diagrams for Central Park (One Central Park and Block 1) have been prepared by FJMT for June 21 (7.30am to 3pm) illustrating:

1. Existing building shadows;
2. Shadows cast by the approved Concept Plan
3. Shadows Cast by the modified Concept Plan (MOD 5 envelope);
4. Shadows cast by UTS Central SSDA.

One Central Park

The detailed analysis undertaken by FJMT demonstrates that:

- The additional shadows cast by the UTS Central Project for the most part fall onto non-residential floors/uses of One Central Park or are contained within the shadows cast by the approved Concept Plan envelopes.
- The additional shadows cast are reduced compared to the MOD 5 envelope for Building 2.

The approval of One Central Park was based on the acceptance that more than 70% of apartments received solar access on June 21, utilising the Cox/Tzannes method. The carefully considered design approach for the Building 2 above podium building ensures solar access to residential dwellings is maximised at One Central Park and that there is no change to the approved level of solar access that this building (residential dwellings) receives.

The additional overshadowing impacts resulting from the UTS Central Project on One Central Park is therefore considered to be negligible.

Block 1

The detailed analysis undertaken by FJMT demonstrates that:

- The shadows cast are reduced compared to the MOD 5 envelope for Building 2.
- The proposed UTS Central Project will result in overshadowing of apartments at the lower levels of Block 1 between 9am and midday on 21st of June.

The shadow cast from the proposed UTS Central Project has been analysed by JBA and FJMT and found to be limited to 16 residential apartments, including; L2-06 and L2-07; L3-10 and L3-11A; L4-13, L4-14, L4-15 and L4-16A; L5-13, L5-14, L5-14 and L5-16A; L6-13, L6-14, L6-15 and L6-16A.

Block 1 with a total of 364 apartments was approved based on achieving 2 hours of solar access to 37% of apartments (135) utilising the Cox/Tzannes method. Based on FJMT's modelling of the UTS Central Project, Block 1 will achieve a revised figure of 33% of apartments (119) achieving 2 hours of solar access utilising the Cox/Tzannes method.

The overshadowing impacts resulting from the UTS Central Project on Block 1 at Central Park is therefore considered to be reasonable.

Overall and in light of the results of the detailed shadow analysis undertaken by FJMT, the following key points reinforce the appropriateness of the UTS Central Project and demonstrate impacts associated are acceptable:

- Substantial setbacks of the Building 2 tower form have been adopted in a direct response to mitigating overshadowing impacts. These setbacks are substantially greater than what is typically required in a CBD context (min 17m proposed compared to 8m typical) and illustrate the commitment of UTS to be a good and respectful neighbour.
- It is unreasonable to expect that the lower podium levels of a predominantly residential building (i.e. Block 1 Central Park) on the fringe of Global Sydney would not be affected by surrounding development in terms of overshadowing.
- The shadow cast by the proposed UTS Central Project and that of a 'compliant' Sydney LEP 2012 building height (i.e. 45m) are comparable and

will result in approximately the same impact on the lower north facing apartments of Block 1.

- It is understood that Block 1 at Central Park as a predominantly residential building was approved on the basis of taking a holistic approach to amenity. Solar access was deemed to not be the defining factor for the development in terms of establishing whether high quality amenity would be achieved. Therefore, a slight reduction in the percentage of units achieving solar access is considered reasonable. The key consideration is that the building on balance has a range of other amenity attributes that compensate for its limited amount of solar access.
- In terms of the project involving the delivery of critical social infrastructure, some impacts on surrounding development are considered to be reasonable. The UTS site is constrained and there are limited opportunities left to cater for the substantial growth in student numbers that UTS and other Sydney tertiary institutions are experiencing.

Acoustic and Noise

A noise and vibration assessment has been prepared by Acoustic Architects and is included at **Appendix S**.

At this stage, final mechanical plant selections have not been made; therefore a detailed assessment has not been able to be carried out. A preliminary review has been carried out based on the most restrictive criteria. Based on this preliminary assessment, noise emissions from rooftop plant shall be limited to 75 dBA at 1 metre from the plant room boundaries. Noise controls will be incorporated within the design of the rooftop plant room and any other plant located outdoors or on other levels of the proposed building to ensure that the cumulative noise output from plant at the nearest affected receivers is within the allowable limits. General design consideration and controls implemented will typically include; strategic selection and location of plant and/or acoustic noise control measures such as enclosures, barriers, acoustic louvres, sound absorptive panels, etc.

No adverse impacts are anticipated in relation to traffic noise given the proposal will not result in significant changes to traffic flows. Acoustic Architects has carried out a high level review of traffic noise impacts and identified that the southern façade (fronting Broadway) and parts of the western façade (fronting Jones Street with line of site to Broadway) of the new building will require a design performance of approximately RW 40 with consideration of low frequency performance for heavy vehicles such as buses.

There will be a limited number of people in the external roof top areas at any given time and activities are not expected to give rise to excessive noise levels. Use of the rooftop terraces should be managed to ensure that adverse noise impacts are avoided at all times of the day and night.

Continuous construction noise associated with demolition, refurbishment and new build works is expected to comply with stated criteria for nearest residential and educational receivers when these activities occur indoors.

However, there will be times / situations when demolition and new-build works are likely to exceed stated criteria, particularly when works occur in the areas closer to sensitive receivers

If, during construction works, an item of equipment exceeds the stated airborne noise criteria at any sensitive location, additional noise control measures together with construction best practices shall be considered to minimise the noise impacts on the neighbourhood.

Privacy

The proposed development will not result in any unreasonable impacts on any nearby residential properties by way of overlooking being suitably separated to any sensitive land uses.

The building has been designed that the upper storeys are setback from Broadway and the height similar to the mid-rise No. 1 Central Park building on the opposite side of Broadway and this will minimise resulting privacy impact.

Visual Impact

As demonstrated within the Visual Impact Assessment prepared by Architectus (**Appendix R**) the Project does not detrimentally impact any existing view corridors or landmarks.

The impact of the proposal on public domain views when compared with the approved Concept Plan will be negligible from all locations. The most important view location which will be affected is Chippendale Green because it will be possible to view the proposal from a stationary location attributed to it being open space.

The impact of the proposal on private views in Central Park East is negligible or low beneficial when compared to the approved Concept Plan. However when compared to the existing view the impact on some views is high. This is because the view from these apartments towards the site provides expansive city views, inclusive of the horizon in many instances, and with distant views of parts of Sydney Harbour and the Anzac Bridge in some instances.

The highest impact on views (high when compared to the existing view) is noted for 51 apartments in Central Park East and 15 within the approved Block 1. Of these only 14 in each of Central Park East and Block 1 do not have an alternative aspect. For all of these locations the impact is negligible or low beneficial when compared to the approved Concept Plan.

The impacts of the proposal on views from the public domain and private views are acceptable. This is because the building form is similar to the approved Concept Plan and its form and scale approximates other buildings in the vicinity.

The requirement for view sharing needs to be based on what is reasonable. Within a context such as Central Sydney CBD and given the location of the site in close proximity to Central Railway Station and strategic bus services, it would be unreasonable to expect that views from most adjoining residences should remain unobstructed. Furthermore, there needs to be an acceptable level of impact from the proposal, and the overall public interest of the proposal needs to be ascertained.

It is therefore considered that the overall visual impact of the proposal on public and private views is acceptable.

Wind

Cermak Peterka Petersen (CPP) has been engaged by UTS to provide an opinion based assessment of the impact of the proposed development on the wind conditions at pedestrian level in an around the proposed UTS Central development (**Appendix U**).

It is useful to appreciate the interaction of prevailing Sydney winds with existing buildings through the UTS Precinct prior to predicting the wind interaction with the proposed scheme. The wind conditions in this area have changed with the relatively recent introduction of One Central Park to the south and UTS Building 11 to the west. The site is relatively exposed to winds from the west and south at present. Uncomfortable wind conditions are known to occur at some locations

throughout the Precinct, most noticeably on Broadway in the vicinity of the existing CB01 Tower under the action of winds from the west.

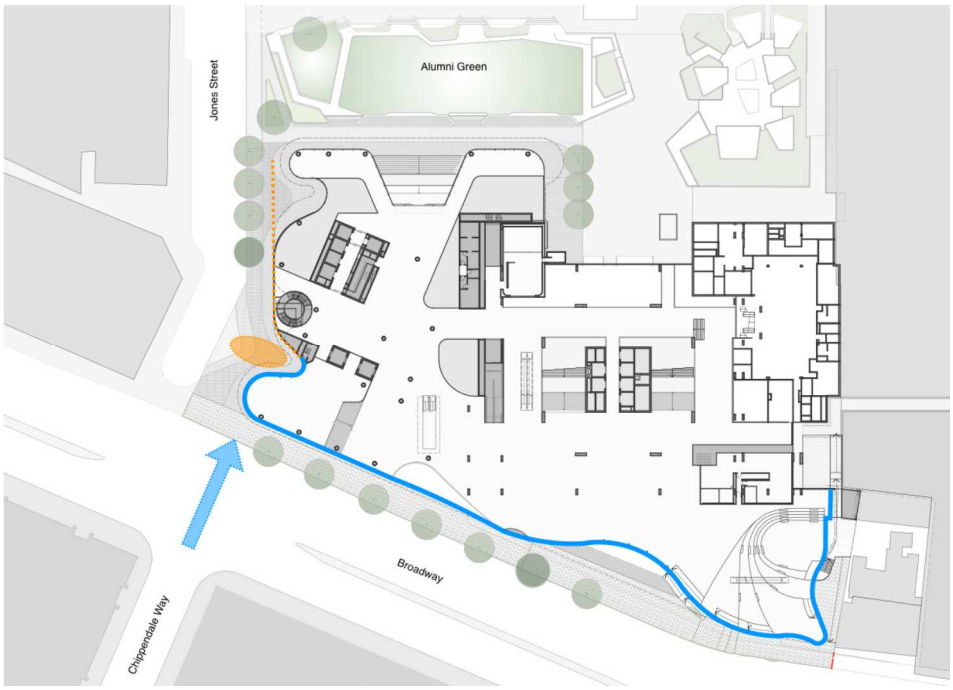

Figure 30 – Level 4 showing response to wind conditions from Chippendale Way (Balfour Street)
Source: FJMT Architects

As outlined within the attached assessment, due to the size and location of the proposed building on the block relative to the surrounding building, wind conditions at pedestrian level around the site are not expected to be significantly affected by the increase in building massing. Wind conditions at most locations around the site are expected to remain suitable for pedestrian standing and walking from a comfort perspective, and pass the distress criterion. The exception may be wind conditions on Broadway and Jones Street and to quantity the advice, for a development of this size and location, wind tunnel testing would be recommended during detailed design development.

Reflectivity

A Reflectivity Report has been prepared by Surface Design and is provided at **Appendix U**. The report refers to the assessment undertaken for the original UTS concept plan massing geometry, and considers the amendments to UTS Central as part of this proposal.

Given the articulated nature of the façade and the various materials used, this is considered to temper any reflectivity. Additionally, the proposed addition of shadowing devices (as shown on the architectural plans at **Appendix A**) will significantly reduce the potential for specular reflections.

The reflectivity report also considered that the proposed materials and articulation will have a reflectivity coefficient of 20% or less. Accordingly, the proposal will meet the DCP requirements in relation to reflectivity.

Tree Removal

The Arborist Report at **Appendix M** identified that 3 trees of low retention value, 6 trees of moderate retention value and 6 trees of high retention value would likely be removed as a result of the Proposal.

6.4 Transport and Accessibility

A Transport and Accessibility Impact Assessment has been prepared by GTA Consultants and is included at **Appendix F**.

As outlined within the SEARs relating to UTS Central Project, the transport and accessibility assessment was required to consider the following:

- *the existing pedestrian and bicycle movements, travel routes and facilities within the vicinity of the site; an estimate of the total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and cycle trips; the adequacy of public transport, pedestrian and bicycle provisions to meet the likely future demand of the proposed development and proposed measures to maintain road safety;*
- *impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site, including the CBD and South East Light Rail (CSELR) and future public transport options along Broadway in consultation with Transport for NSW, and measures to integrate the development with the transport network;*
- *measures to promote travel choices that support sustainable travel such as location-specific travel plan, end-of-trip facilities, green travel plan and wayfinding strategies;*
- *the daily and peak vehicle movements impact on nearby intersections, with consideration of the cumulative impacts from other approved the daily and peak vehicle movements impact on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works (if required);*
- *the proposed access arrangements and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and cycle networks;*
- *proposed car and bicycle parking provision, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards;*
- *service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times);*
- *traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, including the construction of the CSELR; and*
- *how the construction impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport operations, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.*

A summary of the assessment and proposed mitigation measures are provided below.

Traffic Generation

Journey to Work data from census data indicates that there is a high percentage of public transport usage in the travel zone containing UTS. The 2011 census shows an increase of 6% in the mode share for public transport since the 2006 census, and a corresponding reduction in car usage.

The public transport network surrounding the site is extensive and would have capacity to accommodate the marginal increase in trip generation relating to the expansion of CB02 and extension to CB01. Proposed upgrades to the public transport network as part of the strategic long term planning of the City will provide additional capacity to accommodate trip generation from CB02 and from the overall UTS City Campus.

Vehicle Parking and Access

The development does not include any additional on-site parking and would not include change to vehicle access arrangements.

Bicycle Parking

Bicycle parking facilities are provided throughout the UTS City Campus with the nearest facilities to the site located at:

- Building 10 car park (entrance located at the corner of Thomas Street and Jones Street)
- Tower Building 1, Level 3A (behind stairwell at entrance to Building 1 from Alumni Green)
- Multi-Purpose Sports Hall.

The Building 10 car park currently accommodates 288 bicycle parking spaces, 260 lockers, 14 toilets and 28 male and female showers. These bicycle parking spaces are an initiative of the original Concept Plan Approval to provide staged increases in bicycle parking provision at UTS.

UTS developed a bicycle parking strategy for staff and students. The '*Cyclist Facility Strategy*' was prepared by Halcrow in September 2011 and approved by the DP&E as part of the Approved Concept Plan.

The strategy determined the future bicycle parking requirements of the Campus based on Council parking rates as stipulated in the Development Control Plan and the future on-site population of the Campus.

Surveys of the existing Campus population were carried out and indicated that approximately 40 per cent of the Campus EFTSL was on-site at any one time. It was assumed that staff population on site would also be equivalent to 40% and would be consistent for students and staff in future years.

The results of study determined that 1,008 bicycle parking spaces would be required for the whole City Campus which includes 890 spaces for students and 118 spaces for staff.

The provision of 1,008 spaces is considered to be appropriate for the Broadway Precinct of UTS. It would meet the future expected bicycle parking demand on site exceeding the future anticipated transport modal split for bicycles.

It is noted that UTS is committed to the overall objectives and targets of sustainability. In respect of this, UTS will continue to monitor the usage of bicycle facilities and will increase the supplies of bicycle parking spaces and associated facilities as the demand for these also grow.

Whilst the expected student loading for 2020 has increased, regular surveys of bicycle parking occupancy indicates that demand for bicycle parking has not increased over the years and in 2015 was on average, 33% occupied and the demand bicycle parking rate was surveyed to be two spaces per 100 students/staff on site. Given the low demand for bicycle parking, additional parking provision from the approved concept plan is not deemed to be necessary at this point.

Instead, UTS intends to continue monitoring of its bicycle parking demand and provide additional parking as required. This monitoring and management of UTS bicycle parking is to be carried out by UTS' Sustainability Group.

Loading and Deliveries

In general, the proposed redevelopment of CB02 will retain the existing loading arrangements. This includes utilisation of the existing loading docks associated within the basement of CB01 and CB02.

The basement level loading areas have recently been expanded to include a new loading area for use by the new Library Retrieval System. This loading dock would also be accessible for CB02 loading operations.

The CB01 loading docks are accessed from Thomas Street.

Construction Traffic

GTA in collaboration with Richard Crookes Construction have prepared a Construction Traffic Management Plan (**Appendix W**) to document the associated construction traffic management measures necessary to facilitate the proposed construction works at the UTS Building 2 site.

Based on the findings of the report, it is concluded that:

- Construction of Building 2 and the new podium would commence in June 2016 and will take approximately 33 months to complete.
- Jones Street, south of Thomas Street is proposed to be closed to traffic and converted to a works zone for construction activities.
- Richard Crookes, the appointed contractor will utilise one-way entry (from Broadway) and egress (to Thomas Street) routes through the site works zone to reduce traffic congestion on the surrounding roads. However, small vehicles such as utility vans, would be permitted to enter Jones Street from the north (Thomas Street) to allow the temporary Broadway entry to be closed during quiet periods.
- Vehicle access to the construction site includes entry from eastbound Broadway into Jones Street, and exit from Jones Street into Thomas Street.
- Construction routes would not adversely affect the safety of motorists, pedestrians, cyclists and the amenity of local residents.
- Class A hoarding will be installed around the works zone to protect pedestrians from construction activities.
- Traffic controllers would be present to ensure safe pedestrian passage past the entry and egress access to the works zone. Extendable barriers would be utilised along Broadway during the entry of a construction vehicle to prevent vehicle and pedestrian conflict.
- Average construction vehicle movements to and from the site can be satisfactorily accommodated by the surrounding road network.
- Construction activities are to be undertaken during approved working hours.
- Large, medium and small rigid trucks up to 12.5m long will be required to access the site.
- Emergency vehicles will have access to the site via all existing roads. Where emergency access on Jones Street is required, construction vehicles would be cleared off the site.

Overall, the construction traffic arrangements are considered to be acceptable for this project.

6.5 Ecologically Sustainable Development

An ESD Report has been prepared by Steensen Varming and is included at **Appendix G**. As outlined within the SEARs relating to UTS Central Project, the ESD assessment was required to consider the following:.

- *Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development.*
- *Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice*
- *Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.*
- *Consideration of the relevant policies and guidelines*

Assessment

UTS has a strong focus on sustainability, and this has been noted as a key project priority for the design team. This report presents a concise summary of the design decisions made during the Schematic design stage, and outlines the key ESD opportunities and initiatives that are likely to be implemented on the project.

The strategies presented in the ESD report are based on the current architectural design developed by FJMT Architects and Lacoste Stevenson and Darryl Jackson Robyn Dyke Architects.

To ensure a sustainable outcome, following are some of the key strategies being addressed by the proposed design:

- Incorporate a high-performance building envelope, to ensure energy efficiency as well as occupant comfort (including thermal, visual and acoustic comfort).
- Incorporate appropriate passive and active design strategies to ensure a low energy as well as low-maintenance outcome.
- Adopt water sensitive urban design principles, such as rainwater and stormwater capture and reuse;
- Adopt practices to minimise demolition, construction and operational waste including recycling at least 80% of demolition and construction waste; and
- Undertake a whole-building life-cycle assessment to ensure efficient use of materials with a reduced-environmental impact.

To benchmark the environmental performance of the building, UTS is aspiring to utilise the Green Star Design and As-Built (DAB) V1.1 tool developed by the Green Building Council of Australia.

For Building 2, a formal certification of 5 Star Green Star DAB rating is being targeted. For the extension to the Building 1 podium on the Broadway frontage, there is no formal target. However, the principles of Green Star will be incorporated (the reason for this approach is because Green Star ratings can only be achieved for a complete building, whereas the proposed works to CB01 only involves partial refurbishment of an existing building).

Mitigation Measures

Sustainable building design involves a holistic and integrated design approach, which builds on an increased awareness of site opportunities, form and function,

to encompass and target a broad range of sustainable design initiatives, specifically targeted at:

- Energy and water conservation
- Material selection
- Emissions reduction; and
- Waste reduction.

Proposed approach to sustainability and energy related systems is based on applying an "energy hierarchy" methodology.

The energy hierarchy methodology has the reduction of energy use as its first priority, and then seeks to meet the remaining energy demand by the most efficient means available, before the inclusion of on-site generation and importation of green power. The following initiatives are being considered for the proposed design:

- High performance façade comprising of effective double glazing and interstitial shading devices to provide solar and noise, while maintaining a visual connection to the external environment.
- Zoning of HVAC and lighting services will be incorporate to avoid energy wastage.
- Enhanced commissioning of building services, along with quarterly fine tuning to ensure systems perform to their optimal capacity.
- Efficient lighting controls with preference given to the installation of LEDs or equivalent energy efficient lighting and controls.
- Connection to an existing underground thermal labyrinth to facilitate pre-tempering of outside air.

Water efficiency is another key aspect of sustainable design. For the proposed UTS Central Project, the following strategies will be implemented to reduce water consumption:

- Installation of high-efficiency fixtures and fittings, within one star of the best available WELS rating.
- Landscaping to consist of low-water demand species and xeriscaping.
- Rainwater collection and reuse systems is being considered.
- Incorporation of efficient HVAC systems with a reduced water demand, where feasible.
- Water reuse strategies such as condensate recovery and fire-system test water will be considered where feasible.

Selection of environmentally-preferable materials is a key priority for the project, because building materials consume energy and natural resources during its manufacture and for their transportation to the construction site. Preference will be given to materials that are non-toxic, contain high-recycled content and/or highly recyclable. The following strategies are being considered:

- VOC off-gassing from internal materials and finishes is very harmful to occupant health and productivity. The design team will ensure that flooring, paints, adhesives and sealants are specified to meet low VOC requirements (as per Green Star VOC targets).
- All engineered wood products will be specified to either have low formaldehyde emissions or contain no formaldehyde.
- All thermal insulation products (used within both HVAC ductwork and building envelope) will be specified to be of zero ODP type. (i.e. avoid the

use of ozone depleting substances in both its manufacture and composition).

- Preference will be given to locally manufactured products wherever feasible, in order to reduce their embodied energy and associated GHG emissions.

Proposed design aims to ensure reduction of all forms of emissions, including watercourse pollution, light pollution and ozone depletion. The following initiatives are being considered to preserve site quality and reduced stormwater pollution:

- A storm water pollution prevention plan will be developed and implemented. This would contain measures to prevent storm water contamination, control sedimentation and erosion during construction and operation of the building.
- Pollution of night sky will be minimised by ensuring that the electric lighting within the site will not cause any direct beam of light into the night sky. Light pollution can disturb the habitat of migratory birds and impacts the behaviour of nocturnal animals in the site vicinity.
- Emissions from HVAC refrigerants and insulation products have the capacity to damage the ozone layer. For the proposed design, refrigerants with low ODP will be specified and installed within all the proposed HVAC systems.

The following initiatives are being considered to minimise waste during construction and operation phases:

- Construction waste management - During the construction phase, a project specific construction waste management plan (WMP) will be developed and implemented by the Head contractor. This is to ensure that recycling of waste from demolition and construction is maximised, and that the volume of demolition and construction waste ending up in landfill is minimised. The sub-contractors will be instructed to send the recyclable resources recovered from demolition and construction back to their manufacturers and suppliers for recycling / reuse where possible.
- Operational waste management - To ensure recycling of operational waste, a dedicated storage space will be provided for locating recycling bins. The University implements sustainable waste management principles, in the following order of priority, to avoid, reduce, reuse, recycle and finally dispose of remaining non-recyclable and hazardous waste in a responsible way.

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.

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:

- maintaining heritage listed items for future generations to appreciate and enjoy;
- implementing safeguards and management measures to protect environmental values.
- facilitating job creation and the provision of housing in close proximity to public transport; and
- Improving the public domain and amenity in The Haymarket precinct.

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.

6.6 Heritage

A Heritage Impact Statement was prepared by GML during the preparation of the Concept Plan Approval (MP08_0116) and subsequent modifications.

The Heritage Impact Statement and the Aboriginal and Archaeological Assessment prepared by Godden Mackay Logan for the Broadway Precinct Concept Plan in 2009 retain currency. The following minor changes have occurred:

- Building CB08 – The Terraces (9-13 Broadway) has been renumbered CB18.
- Building CB11 – The Bradshaw Building (81 Broadway) has been demolished.

- Building CB12 – former Muzak Building (113-115 Broadway) has been demolished.
- Building CB13 – former Regent Hotel (117-121 Broadway) has been demolished.
- The new Faculty of Engineering and Information Technology building fronting Broadway between Wattle Street and Jones Street has taken the number CB11.

In the design development of UTS Central careful consideration has been given so that the proposed built form will not impact on the heritage significance of any heritage items on site or in the vicinity of the UTS Campus.

A copy of the HIS prepared by GML is included at **Appendix N**.

As outlined within the SEARs relating to UTS Central Project, the heritage impact assessment was required to consider the following:

- *Include a Heritage Impact Statement that addresses the significance of, and provides an assessment of the impact on the heritage significance of heritage items on the site and in the vicinity and archaeologically significant areas, in accordance with the guidelines in the NSW Heritage Manual.*

6.6.1 Indigenous Heritage

Available evidence indicates that the Cadigal (or Gadi or Gadigal) people occupied the land comprising the site prior to, and following, the arrival of European people in Sydney. These people were amongst the first to make contact with European settlers, and consequently encountered competition for land and resource use.

A search of the Aboriginal Heritage Information Management System (AHIMS), consultation with the Metropolitan Local Aboriginal Land Council (MLALC), and a field survey of the site did not identify any Aboriginal objects or places, due to the long history of disturbance and construction on the site. In addition, the cultural, scientific / archaeological, aesthetic and educational Aboriginal significance of the site was assessed using criteria developed by the NSW Heritage Office, in consultation with the MLALC.

As outlined with the Concept Plan, the Campus works have resulted in significant and widespread disturbance across the site, including landscaping, and excavation for basements.

Although the surveys and assessment of significance conducted for the site have indicated there is little potential for any relics to remain on the site or in topsoil deposits, it is possible that some may remain. However, should any relics be uncovered, they are likely to be of low scientific or cultural significance. As a consequence, GML considers that the Concept Plan would be unlikely to impact upon the indigenous cultural values of the site.

GML notes that future development of the site would not require a permit to disturb or destroy Aboriginal archaeology under Part 6 of the *National Parks and Wildlife Act 1974*.

Should unexpected or significant Indigenous remains not previously identified in GML's assessment be discovered during excavation at the site, all works are to cease and a nominated archaeologist and the MLALC be contacted to assess the finds. In addition, pursuant to section 91 of the *National Parks and Wildlife Act 1974*, the Department of Environment and Climate Change will also be notified of the discovery.

A copy of the Aboriginal and Archaeological Assessment prepared by GML is included at **Appendix O**.

6.6.2 Non-Indigenous Heritage

As illustrated in **Figure 34**, the site includes the following items of local heritage significance:

- 1-7 Broadway (Building 3);
- 9-13 Broadway (Formerly Building 8, now Building 18); and
- 81 Broadway (Building 11 – now demolished).

In addition, there are also a few other buildings on the site which were constructed more than 50 years ago.

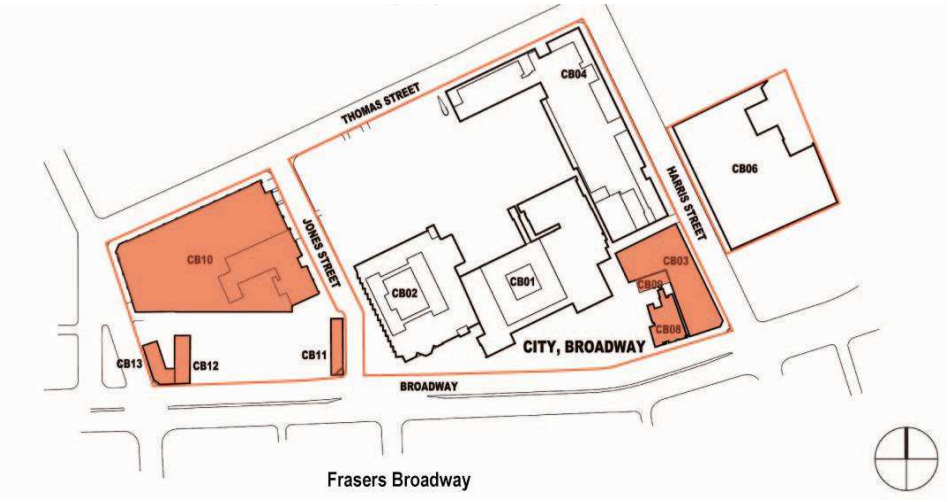

Figure 31 – Items of heritage significance or more than 50 years old
Source: GML

The site originally formed part of the Ultimo Estate which was purchased by John Harris between 1803 and 1818. The estate occupied up to 233 acres at its greatest extent, however it was subdivided on many occasions and had many owners over the following 150 years.

Over that time, the site was occupied by industrial and retail premises and small terrace houses, and John Fairfax & Sons purchased the land bounded by Jones, Thomas and Wattle Street and Bishop Lane in 1954. From the 1940s, the NSW Government, through the Department of Public Instruction commenced purchasing land along Broadway between Harris and Jones Streets, with an educational institute commencing operation shortly thereafter. The educational institute gradually evolved into UTS, which has occupied all buildings on the site since the late 1990s.

Since the early 1800s, Broadway, previously known as Parramatta Street and Parramatta Road, has been an important east-west link between the Sydney CBD and suburbs to the west. Although the alignment of the road has been modified slightly over time, it has remained generally unchanged over the past 200 years.

Several of the buildings comprising the UTS Campus are identified as either having local heritage significance in SLEP 2012, were constructed more than 50 years ago, or have other significance.

GML undertook a detailed assessment of the heritage significance of each of these buildings in the context of the Concept Plan Approval. The proposed UTS

Central is considered to be consistent with the Concept Plan and as such the assessment prepared by GML at the time of Concept Plan Approval remains relevant.

6.7 Noise and Vibration

A noise and vibration assessment has been prepared by Acoustic Studio and is included at **Appendix T**. As outlined within the SEARs relating to UTS Central Project, the acoustic assessment was required to consider the following:

- *Identify the main noise and vibration generating sources and outline measures to minimise and mitigate potential noise and vibration impacts on surrounding occupiers of land.*
- *Consideration of the relevant policies and guidelines*

A summary of the assessment and proposed mitigation measures are provided below.

Assessment

The acoustic report includes a noise and vibration assessment that has been undertaken to establish the potential impacts of operational noise, including mechanical services impacts, and construction noise and vibration of the proposed UTS Central Project.

The existing noise environment has been established based on long-term and short-term monitoring data. Appropriate criteria for both noise and vibration have been discussed and set according to established guidelines and standards including:

- NSW Industrial Noise Policy 2000
- Interim Construction Noise Guideline 2009
- Assessing Vibration: A Technical Guideline 2006
- Relevant documentation from the City of Sydney Council including - City of Sydney Construction Hours / Noise within the Central Business District – Code of Practice (CoS-CP).

Based on the preliminary assessment with respect to offensive noise:

- The primary noise emissions from the proposed building will be mechanical plant. This will be designed to meet the relevant criteria, which will ensure that the noise emitted is not loud in an absolute sense and not loud relative to the pre-existing ambient and background noise levels that surround the site.
- Noise from mechanical plant is generally broadband, and will be controlled so that there are no characteristics that will make it particularly irritating.
- Noise from associated with the operation of the new building may operate up to 24 hours per day however the type of noise emitted is typical for the area.
- By controlling noise emissions (associated with the operation of the proposed development) in accordance with the relevant criteria, amenity of noise sensitive receivers will be maintained and noise emissions should not be intrusive, therefore it is not expected that people and noise sensitive receivers will be adversely affected by the development.

The outcomes and recommendations of the noise and vibration assessment are as follows:

Operation Noise

- Mechanical Plan

At this stage, final plant selections have not been made; therefore a detailed assessment has not been able to be carried out. A preliminary review has been carried out based on the most restrictive criteria. Based on this preliminary assessment, noise emissions from rooftop plant shall be limited to 75 dBA at 1 metre from the plant room boundaries.

Noise controls will be incorporated within the design of the rooftop plant room and any other plant located outdoors or on other levels of the proposed building to ensure that the cumulative noise output from plant at the nearest affected receivers is within the allowable limits. General design consideration and controls implemented will typically include; strategic selection and location of plant and/or acoustic noise control measures such as enclosures, barriers, acoustic louvres, sound absorptive panels, etc.

- Traffic Noise Generation

No adverse impacts are anticipated given the proposal will not result in significant changes to traffic flows. Acoustic Studio has carried out a high level review of traffic noise impacts and identified that the southern façade (fronting Broadway) and parts of the western façade (fronting Jones Street with line of site to Broadway) of the new building will require a design performance of approximately RW 40 with consideration of low frequency performance for heavy vehicles such as buses.

- Rooftop Terraces

There will be a limited number of people in these external areas at any given time and activities are not expected to give rise to excessive noise levels. Use of the rooftop terraces should be managed to ensure that adverse noise impacts are avoided at all times of the day and night.

Construction Noise

Continuous construction noise associated with demolition, refurbishment and new build works is expected to comply with stated criteria for nearest residential and educational receivers when these activities occur indoors.

However, there will be times / situations when demolition and new-build works are likely to exceed stated criteria, particularly when works occur in the areas closer to sensitive receivers

If, during construction works, an item of equipment exceeds the stated airborne noise criteria at any sensitive location, additional noise control measures together with construction best practices shall be considered to minimise the noise impacts on the neighbourhood.

Mitigation Measures

- Noise controls will be incorporated within the design of the rooftop plant room and any other plant located outdoors or on other levels of the proposed building to ensure that the cumulative noise output from plant at the nearest affected receivers is within the allowable limits. General design consideration and controls implemented will typically include; strategic selection and location of plant and/or acoustic noise control measures such as enclosures, barriers, acoustic louvres, sound absorptive panels, etc.
- Acoustic Studio has carried out a high level review of traffic noise impacts and identified that the southern façade (fronting Broadway) and parts of the western façade (fronting Jones Street with line of site to Broadway) of the new building will require a design performance of approximately RW 40 with consideration of low frequency performance for heavy vehicles such as buses.

- It is recommended that a precautionary approach for managing vibration-induced damage be taken for this project, whereby conservative vibration criteria are adopted in the first instance. It would be possible to relax these criteria if required, subject to review of specific buildings by a structural engineer and a regime of vibration monitoring. The recommended precautionary criteria are:
  - 3 mm/s (130 dB re 10^{-6} mm/s) for buildings surrounding the project site identified as "sensitive". At this stage no structures at or surrounding the site have been identified as particularly sensitive to vibration induced damage.
  - 5 mm/s (134 dB re 10^{-6} mm/s) for residential dwellings.
  - 20 mm/s (146 dB re 10^{-6} mm/s) for UTS and TAFE classrooms, non-precision laboratories, commercial premises.

Construction noise shall be managed by implementing the strategies listed below:

- Plant and equipment
  - Use quieter methods.
  - Use quieter equipment.
  - Operate plant in a quiet and effective manner.
  - Where appropriate, limit the operating noise of equipment.
  - Maintain equipment regularly.
  - Where appropriate, obtain acoustic test certificates for equipment.
- On site noise management
  - Strategically locate equipment and plant.
  - Avoid the use of reversing alarms or provide for alternative systems.
  - Maximise shielding in the form of existing structures or temporary barriers.
  - Schedule the construction of barriers and structures so they can be used as early as possible.
- Consultation, notification and complaints handling
  - Provide information to neighbours before and during construction.
  - Maintain good communication between the community and Project staff.
  - Have a documented complaints process and keep register of any complaints.
  - Give complaints a fair hearing and provide for a quick response.
  - Implement all feasible and reasonable measures to address the source of complaint.
- Work scheduling
  - Schedule activities to minimise noise impacts.
  - Ensure periods of respite are provided in the case of unavoidable maximum noise levels events.
  - Keep truck drivers informed of designated routes, parking locations and delivery hours.
- If, during construction, an item of equipment exceeds ether the noise criteria at any location or the equipment noise level limits, the following noise control measures shall be considered to minimise the noise impacts on the neighbourhood.
  - Schedule noisy activities to occur outside of the most sensitive times of the day for each nominated receiver. For example, residential receivers

are likely to be more sensitive to noise before 9 am than the UTS and TAFE campus receivers.

- Consider implementing equipment-specific screening or other noise control measures recommended in Appendix E of AS2436.
- Limit the number of trucks on site at the commencement of site activities to the minimum required by the loading facilities on site.
- When loading trucks, adopt best practice noise management strategies to avoid materials being dropped from height into dump trucks.
- Avoid unnecessary idling of trucks and equipment.
- Ensure that any miscellaneous equipment (extraction fans, hand tools, etc) not specifically identified in this plan incorporates silencing/shielding equipment as required to meet the noise criteria.

6.8 Contamination

A Preliminary Site Investigation has been prepared by Douglas Partners and is included at **Appendix E**. As outlined within the SEARs relating to UTS Central Project, a contamination assessment is required to consider the following:

- *Demonstrate that the site is suitable for the proposed use in accordance with SEPP 55.*
- *Consideration of the relevant policies and guidelines.*

A summary of the assessment and proposed mitigation measures are provided below.

Assessment

On the basis of the result of the Preliminary Site Investigation, the main contamination risks are considered to be associated with the decommissioned fuel storage tanks in Room 216 of Building 2 and the storage of other various dangerous goods within the laboratories in areas of the site which are not proposed for demolition. As the facility is currently an operational University it is assumed that the operation procedures for handling and storing dangerous good are adequate.

The Preliminary Site Investigation indicates that the potential for contamination to be present within the development areas is low. There is nothing to suggest that the site is unsuitable for the proposed redevelopment and continued use as an educational facility. The site is therefore considered to be suitable, or could be made suitable, for the proposed redevelopment provided that the recommendations made above are actioned during the works.

Mitigation Measures

Hazardous building materials will need to be considered in the demolition activities proposed for the site. It is understood that a Hazardous Building Materials consultant has been appointed to the project team and will advise on this issue.

It is recommended that the former fuel storage tanks in Building 2 be inspected and ultimately removed from the site as part of the redevelopment works. Any remediation of contaminated rock or spilled product can be undertaken following tank removal and a validation certificate supplied by an Environmental Consultant. Any other dangerous goods in the areas to be demolished should be removed and stored/disposed of in an appropriate manner prior to demolition.

6.9 Utilities

An Infrastructure Management Plan and an Integrated Water Management Plan have been prepared by Erbas and is included at **Appendix I and Appendix J** respectively.

In accordance with the SEARs, the UTS Central Project is required to undertake:

- *Preparation of an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure.*
- *Preparation of an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.*

A summary of the assessment and proposed mitigation measures are provided below.

Electrical and Communication

As part of the electrical supply investigations carried out by JHA (**Appendix H**), we have confirmed the maximum demand assessment for the new development works. The resultant consolidate maximum demand assessment for the project was determined to be in the order of 1,400KVA (approximately 2,000 amps).

Given the UTS Campus is adequately serviced by telecommunications carriers it is not proposed any new external connects will be established as part of the proposed UTS Central Project.

Hydraulic Services

A Hydraulic Services Utilities and Infrastructure report has been prepared by Erbas (**Appendix J**) to identify an appropriate hydraulic services strategy for the upgrade and extension of UTS Central Buildings CB01 & CB02 with a focus on:

- Existing infrastructure capacity and redundancy;
- Existing infrastructure proximity to the extended footprint;
- Services augmentation or diversions that may be required.

The Water, Gas, Sewer and Stormwater infrastructure has been reviewed and the result of the investigations and enquiries outlined within the attached report is that there appears to be sufficient capacity in the surrounding infrastructure to support the Project without the need for augmentation or diversion of the surrounding supplies available to the campus.

Various temporary strategies for protection of utility infrastructure will need to be employed during construction. No services have been identified as traversing the site, or documented as encroaching on the property boundaries.

6.10 Water Cycle Management

Erbas Hydraulic Engineers have prepared a Water Cycle Management Report and Plans (**Appendix J**), outlining the proposed upgrades required for the system to ensure that adequate stormwater capacity and infrastructure to service the Project is available.

Stormwater connections and works as part of this application will be carried out in order to comply with the relevant Australian Standards.

6.11 Contributions

The SEARs identifies that the proponent should address development contributions in accordance with the Ultimo-Pyrmont Contributions Plan (UPCP).

It is noted that it has been accepted that no contributions were warranted on all previous major stages of development identified under the Concept Plan Approval.

There are a number of reasons why the UTS Central Project should be exempt from contributions under the Ultimo-Pyrmont Contributions Plan - notwithstanding that the plan does not make provision for exemptions. These are set out in this section of the report.

It should be noted that the approved Concept Plan for the UTS Broadway Precinct demonstrated that the additional social infrastructure provided in the Concept Plan was expected to be sufficient to cater for demand associated with the increase in staff (and student) numbers. It should be further noted that there is reciprocal access for the community to UTS's services and facilities, so reducing demand on the City of Sydney's facilities.

Previous use of the site

The proposed building is to occupy land currently occupied by a building owned and staffed by UTS (CB01 and CB02).

In accordance with paragraph 14.2 of the Ultimo-Pyrmont Contributions Plan there was thus a pre-existing population of 2300 on the site (staff/students). The population forecasts that some 700 new staff and new students will be accommodated in the building - resulting in a new population of 3000.

Accordingly, if contributions were to be levied on the development it would be based on this reduced population. Notwithstanding this information, it is the proponent's firm position that the proposal should not be subject to any contributions at all - as explained below.

Nexus

It is contended that there is no causal, physical or temporal nexus between the proposed UTS Central and the facilities and infrastructure whose provision is being levied under the UPCP. An education use falls within the 'Other Uses' category within the Plan and an examination of the UPCP reveals that 'other development' related (at the time that the Plan was prepared in 1994) primarily to tourist development such as the Casino and other cultural, tourism and entertainment facilities around Darling Harbour and Pyrmont. The similarity between a University building and 'other development' (mostly now complete) in Ultimo-Pyrmont is highly tenuous.

The nominated facilities and infrastructure for which contributions are being levied are located largely within the Pyrmont area well removed from the UTS site in the southern part of Ultimo. Accordingly, the prospect of UTS staff employed in the Broadway Precinct utilising them is very low. Thus the physical nexus between the proposed development and the demand for services is weak. Given that contributions for open space constitute nearly two-thirds of the contribution and that the workers in UTS Central are highly unlikely to utilise these facilities provides further grounds for the development being exempt from contributions.

The application of causal nexus is based on the principle that an increase in population as a result of development will place greater demand on existing public facilities or require the provision of new public facilities.

A detailed examination of the schedule of works in the UPCP indicates that, by and large, the nominated new facilities will not be utilised by staff in the CB01 and CB02 Buildings. Accordingly the development does not present a causal nexus for contributions, as explained below:

- **Open Space (major parks; local parks and squares; street closures):** The new parks are generally located some considerable walking distance from the Broadway Campus and are unlikely to be used during work hours. Moreover, as part of the redevelopment of the campus a large area of landscaped open space (approximately 7000sqm) has been provided (Alumni Green) for use by staff and students alike. This area, adjoining CB02, is likely to prove more convenient for, and of greater utility to, staff in the building.
- **Child care facilities:** UTS currently operates two child care facilities (within walking distance of UTS Central) providing daily capacity for 111 children of staff and students at the UTS City Campus, with unused places available for non UTS parents.

  Further places are planned as part of the enlargement of the UTS Blackfriars facility. As the demand for places from the UTS student body is low, the quantum of provision for staff is deemed adequate to cater for any additional demand likely to arise from the relatively small number of new staff to be employed in the UTS Central. Moreover, an examination of enrolment data reveals that the local community and employees of the ABC form a substantial proportion of the users of both facilities. Given the adequacy of provision and the fact that these two UTS-operated facilities are available to, and used by, the local resident and worker community, there appears little justification for UTS to make contributions for the provision of childcare facilities.
- **Community/recreation facilities:** It is considered highly unlikely that staff in Building 1 and 2 would use the community facilities listed in the UPCP as UTS provides considerable similar facilities on campus specifically for use by students and staff, and has made significant investments in this area over the past few years. The on-campus facilities include the 1700²m gym in Building 4 and the recently completed multi-purpose sports hall adjacent to the gym providing an additional 1800m² of recreation space for sports such as basketball, badminton and the like. The University also has a number of off-campus sports facilities. In addition, should a member of staff require a hall or similar for a social activity, numerous such spaces are available for use by staff. Similarly, UTS space is available to external bodies and community groups.
- **Roads and associated infrastructure:** UTS is committed to reducing dependence on private vehicles, and to this end, the development does not involve the provision of any car parking for staff. Therefore, the workers within building will not place any demand on the road system in the locality. There is thus no causal nexus between the development and the proposed road infrastructure. In addition, a considerable proportion of the levy for roads is for works associated with the Foreshore Promenade in Pyrmont. There is no discernible physical nexus between these works and the UTS Central Project.
- **Stormwater drainage:** The development provides on-site detention and involves an extensive green roof which will utilise some stormwater. Thus the amount of run-off from the building will be negligible and certainly less than that from the previous building on the site. At this stage it is intended that the building will be connected to Sydney Water stormwater infrastructure and not to the City's system. The proponent is only prepared to make a contribution towards the stormwater infrastructure component of the UPCP if a nexus can

be demonstrated based on detailed design, and only if it connects to the City's network.

Public services and facilities

Notwithstanding that the UPCP does not exempt education facilities from the payment of a levy it is generally accepted that one public institution - in this case a not-for-profit University - should not be paying development contributions to another public service - in this case the Council. In its role as an education and research institution UTS provides an essential public service to the community and its facilities are available for use by the public, in general, and the Ultimo community, in particular. This contribution should be considered sufficient to off-set any perceived demand from the development of UTS Central on the City's services and infrastructure in the Ultimo-Pyrmont locality.

'Circular No.D6 - Crown Development Applications and Conditions of Consent' issued by the former Department of Urban Affairs and Planning is relevant in this regard as it allows for development by the Crown under Part 4 or Part 5A of the EP&A Act to be exempt from Section 94 contributions. UTS is a Crown Authority (in accordance with clause 226(1)(c) of the *Environmental Planning and Assessment Regulation 2000*). It is acknowledged that as the UTS Central Project is not a Crown application lodged under Part 4 or Part 5A, Circular D6 does not strictly apply, however, the principles are relevant and should apply to this proposal.

In relation to education services, Circular D6 indicates that contributions should only be sought for drainage and specific local road upgrades and traffic management. Circular D6 recommends that no contributions should be levied for open space, community facilities, parking, and general local and main road upgrades. The Circular further states that there must be a nexus between the proposed development and the demonstrated need for additional public facilities arising from the development. As detailed above there is no nexus between the facilities the UPCP proposes and UTS Central. The Circular further states that 'Crown activities providing a public service lead to significant benefits for the public in terms of essential community services and employment opportunities' ... and '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'.

UTS Central involves the redevelopment of an existing site within a well-established University campus in accordance with an approved Concept Plan. The development will have no significant impact on local infrastructure and facilities and the nexus for local road upgrades cannot be established. Any nexus with additional drainage may be demonstrated later depending on the detailed design of stormwater drainage.

In view of the information provided in this report, it is considered that no contribution levy apply to this Project Application and that the Minister consider imposing no conditions in relation to contributions.

6.12 Flooding

As part of the Approved Concept Plan, the wider UTS Campus has been assessed in terms of potential flood risk.

The SEARs issued in relation to UTS Central have identified that an assessment of any flood risk on site be considered, including the potential effects of climate change, sea level rise and an increase in rainfall intensity.

However, given that the proposal is considered to be consistent with the Approved Concept Plan and will result in development above existing campus

buildings and infrastructure, it is not considered that the proposal will result in any additional flood risk to the UTS Campus or wider Precinct. Existing stormwater and drainage systems can accommodate expected flows from the new development, and will be augmented to provide connections to new buildings on the site.

6.13 Drainage

The Approved Concept Plan adopted specific strategies to address impacts on the water cycle, including drainage, stormwater. An addendum to these strategies in relation to UTS Central has been prepared by Erbas Hydraulic Engineers is included at **Appendix J**.

As outlined within the SEARs relating to UTS Central Project, *Detail drainage associated with the proposal, including stormwater and drainage infrastructure* needs to be considered.

Existing stormwater and drainage systems can accommodate expected flows from the new development, and will be augmented to provide connections to new buildings on the site. As well as adopting the principles of water sensitive urban design across the site, a comprehensive water balance report will be prepared to determine the size and location of stormwater retention and detention systems.

Rainwater capture and storage with dual reticulation are proposed to be installed in new and refurbished buildings; stormwater collected from the Roof Garden will be stored for irrigation and other non-potable uses across the Precinct.

6.14 Waste

A Waste Management Plan has been prepared by Richard Crookes Constructions and UTS and is included at **Appendix K**. A summary of the assessment and proposed mitigation measures are provided below.

- *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.*

The statement provides details in relation to the waste generated during construction and operation of the proposed development.

The statement makes an assessment against the legislative requirements including the *Protection of the Environment Operations Act, 1997*; *Waste Avoidance and Resource Recovery Act, 2001*; *NSW Waste Reduction and Purchasing Policy, 2007*; and *Council of the City of Sydney Policy for Waste Minimisation in New Developments, 2005*; as well considers Green Star requirements.

Assessment

Operational Waste

The general and recyclable waste storage spaces proved for the UTS Central Project will effectively serve all building uses and will be sufficiently sized to accommodate the storage of the following recyclable material as a minimum:

- Paper and cardboard;
- Glass;
- Plastics;

- Metals;
- Used cooking oils;
- Organic materials.

There will be not be a general waste compactor installed in the UTS Central Project. However, there is an existing 'Hungry Giant' polystyrene compactor located in the adjoining basement of Building 1 (CB01) which will be used by the UTS Central Project and is currently used by Buildings 1, 2, 3, 4 and 7.

Where possible the general waste and recycling storage area for the UTS Central Project will be located adjacent to the existing Building 1 (CB01) loading dock. The waste and recycling space will be located within easy, level access of the goods lift servicing the UTS Central Project. They will be designed to huddle around the loading dock area for easy, easy access of the goods lift servicing the UTS Central Project.

The service vehicles will access the existing CB01 loading dock via the existing ramp from Thomas Street. The minimum vertical clearance within the existing CB01 tower dock and car park area is 3.5 metres. UTS ensures that its Waste Contractor Services' vehicles have been sized to comply with the minimum 3.5 metre vertical clearance within the existing CB01 loading dock area, and sized to ensure that the vehicles can enter and exit the basement in a forwards direction. There is no vehicle turntable.

UTS undertakes regular 10 day operation waste recycling audits of all waste collected from the University's City Campus. The audit is overseen by a National Australian Built Environment Rating System (NABERS) Accredited Assessor. The 2013 audit undertaken in March 2015 indicated that 83.3% of UTS's waste is recycled and diverted from landfill.

Construction Waste

The management of the waste during the construction period will be overseen by the building contractor once details of the quantities generated and handling methods are known. Notwithstanding this, a Preliminary Construction Management Plan has been prepared by Richard Crookes and is included at **Appendix X**.

The purpose of this plan is to ensure that waste generated on site during construction will be minimised. The attached WMP includes details on how all generated waste will be monitored, which types of waste will be collected for recycling or for re-use on site, how recycling will occur and who will be responsible for various aspects of the waste management process.

Richard Crookes Construction's overall objective is to recycle or reuse at least 80% of the construction waste generated on site. The aim of this strategy is to achieve compliance with the Man-7 Waste Management credit of the Green Star Education V1 rating tool. To demonstrate compliance with the Green Star requirements, Richard Crookes will implement the following:

- Advise all sub-contractors to adhere to the provisions of the attached WMP.
- Retain waste records and submit quarterly reports to UTS.
- Achieve a minimum of 80% (by mass) of the total construction waste generated on site to be reused or recycled.

6.15 Construction Impacts

A Preliminary Construction Management Plan (CMP) has been prepared by Richard Crookes (RCC) Constructions and is provided at **Appendix X**.

The CMP is to be read in conjunction with the Construction Waste Management details contained within the Waste Management Plan prepared by RCC and provided at **Appendix K** and the Construction Traffic Management Plan prepared by GTA and RCC (**Appendix W**). The CMP addresses the following issues:

- Noise and vibration;
- Air quality;
- Soil and water management;
- Traffic management; and
- Safety management.

The CMP will be revised and issued to the Private Certifying Authority prior to the commencement of the works.

6.15.1 Construction Traffic

The traffic arrangements associated with constructing UTS Central would be subject to a Construction Traffic Management Plan prepared by a suitably RMS qualified transport planner / traffic engineer. This report would be prepared at the time of preparing the Construction Certificate (CC) application once construction methods approach for the development have been finalised.

6.15.2 Cumulative Construction Impacts

Consideration has been given to the cumulative construction impacts likely to occur on the UTS Campus and surrounding precinct. In particular, additional consideration is to be given to the location of access and egress of cars and construction vehicles. Appropriate management and mitigation is included within the CTMP and will be appropriately conditioned by the DP&E, with input from City of Sydney Council.

6.15.3 Construction Noise and Vibration

During construction, noise and vibration will be managed in accordance with the Preliminary CMP prepared by RCC and provided at **Appendix X**.

Based on typical construction practices and equipment used, it is anticipated that the principal source of noise emissions during the construction process will be generated during the ground excavation phase including from jack hammering and piling works.

Noise management will include noise and vibration monitoring, carrying out of works during approved hours and minimising the duration of high noise activities, and a register of noise complaints will be maintained.

6.15.4 Construction Waste and Traffic

Construction waste and a CWMP are detailed in the Waste Management Statement prepared by RCC and provided at **Appendix K**.

Construction of the proposed development is likely to generate excavation and construction waste streams, with natural materials, concrete, steel reinforcement, plastics and recyclable materials likely to comprise the greatest volume. The primary goal for waste management in the construction phase is to ensure at least 80% of waste is recycled or reused, which also supports Green Star goals.

During construction, suitable areas on- and/or off-site will be provided and will include adequate space and access for:

- Storage of building materials;
- Storage of demolition and construction waste;

- Sorting of demolition and construction waste; and
- Removal of demolition and construction waste for recycling, re-use or landfill.

6.15.5 Erosion and Sediment Control Plan

As per the statement prepared by AECOM and submitted at **Appendix Y**, the SEARs request for a Site Sediment and Erosion Control Plan is not considered applicable to the UTS Central Project, as discussed below:

- There are no earthworks or excavation proposed.
- The lower level of the existing building are to be retained and the building works are above ground.
- The existing connection to the building hydraulics within Level 1 and Level 4 and stormwater connections will be retained and the proposed works do not impact these connections.
- During the works, RCC will need to manage stormwater within the site and prevent sediment inflows into the hydraulic system however this is not relevant to, and would not be detailed within a Site Sediment and Erosion Control Plan.
- Proposed truck movement entrance and exit points will likely require some localised sediment and erosion control measures however this will be addressed within the final Construction Management Plan as a condition of consent.

6.16 Access

An Access Report has been prepared by Accessibility Solutions, included with this EIS at **Appendix Z**, which considers the following legislation, planning instruments and standards pertaining to access for people with disabilities:

- Parts D3, E3.6, F2.4 of the Building Code of Australia (BCA 2015)
- DDA Premises Standards
- SEARS for UTS Central (SSD 7382) Broadway Precinct, UTS City Campus
- Sydney Development Control Plan (2012)
- Australian Standard AS1428.1 (2009) – Design for Access and Mobility: General Requirements
- Australian Standard AS1428.4.1 (2009) – Tactile Ground Surface Indicators.
- Australian Standard AS1735.12 (1999) – Lifts for people with disabilities
- UTS Accessible Environments Policy

In review of the plans and site conditions it is the opinion of Accessibility Solutions that the proposed development will provide enhanced access to and within the existing buildings and the new building works will comply with all aspects of the aforementioned Assessment Criteria and SEARS.

6.17 Building Code of Australia

An assessment of the proposal against the Deemed to Satisfy (DtS) provisions of the Building Code of Australia 2015 has been undertaken by Steve Watson & Partners (**Appendix AA**). The Assessment identifies the proposed UTS Central is capable of compliance with the BCA 2015.

6.18 Geotechnical Assessment

A desktop geotechnical assessment has been undertaken by Douglas Partners (**Appendix D**) for the UTS Central Project to provide information on expected subsurface conditions to aid the approvals process. The assessment included a review of information from previous investigations, published information on the geology of the area and a site inspection by geotechnical engineer.

The site is underlain by Hawkesbury Sandstone which typically comprises medium to coarse-grained quartz sandstone with minor shale and laminate lenses. The groundwater table is likely to be well below the bedrock surface. Near-surface Hawkesbury Sandstone and Ashfield Shale generally exhibit low permeabilities which result in very low ground water yield.

The existing Building 1 and Building 2 are likely to be founded on sandstone bedrock of at least high strength. This has been confirmed in the geotechnical assessment undertaken by Douglas Partners through inspection of exposed rock. As the UTS Central Project is wholly above the existing basement areas, the new structures will also be founded on sandstone bedrock either on existing footings ,or where required, on new footings.

On the basis of the attached geotechnical assessment, the site is suitable for the proposed redevelopment from a geotechnical perspective. The new structures are likely to be founded below the existing basement levels and advice on foundation capacity has been provided with the Concept Plan Approval (MP 08_0116).

6.19 Structural Adequacy

AECOM Australia Pty Ltd has been appointed to carry out Structural Engineering design for the proposed UTS Central project. The Structural Statement submitted at **Appendix BB** outlines the proposed structural works associated with the proposal. Initial Structural investigations have been carried out to assess the capacity of existing columns and footings.

Building CB02 redevelopment will comprise the reuse and strengthening (where required) of the existing structure on Levels 01, 02 and 03; and the construction of new structure for the additional levels from Level 04 to Level 17.
The proposed new structure typically consists of one way post-tensioned slabs supported by post-tensioned band-beams supported on reinforced concrete columns and walls. The building stability for lateral loads will be provided by the concrete core walls.

Investigations of the existing structure have been carried out and preliminary calculations have been prepared to assess the capacity of the existing structure and identify a number of existing columns that are likely to require strengthening. AECOM have carried out preliminary structural modelling, analysis and design and provided structural scheme design information to the FJMT Architects for inclusion in their final design, including sizing and layout of main structural elements such as columns, walls, slabs and beams.

The proposed structural arrangement is feasible and will comply with relevant sections of the BCA and relevant Australian Standards. The information and practices/ standards noted within the Structural Statement have formed the basis of the structural design which has been incorporated into the final design by FJMT Architects.

6.20 Fire Engineering

A Statement of Fire Engineering for the UTS Central development has been prepared by ARUP and is included at **Appendix CC**. The fire safety aspects of the proposed design are identified as Deemed to Satisfy (DtS) compliant.
The statement identifies proposed fire engineering alternative solutions however there are no issues identified that would affect the building layout arising from fire safety and no impediment to DP&E issuing development consent.

6.21 Social and Economic

UTS has engaged experts HillPDA to prepare a Social Impact Statement (SIS) in support of the most recent modification application.

The SIS was been prepared having regard to the original Director General Requirements (DGRs) that were issued for the Concept Plan application which called for a need to demonstrate appropriate provision of social infrastructure and services to support the expected population increase.

As noted, the existing student population (17,100 EFTSL) already exceeds the population planned for within the Concept Plan (15,000 EFTSL). The projected student population will see this number increase again (to 19,500 EFTSL). Staff numbers (Full Time Equivalent) are correspondingly expected to increase (from 2,540 in 2014/15) to 2,915 by 2020 (across the wider UTS Campus).

In summary, Hill PDA advise the following:

- The additional floorspace and building envelope aims to better cater to the existing and forecast growth of students and staff on the Broadway Campus.
- Education is an important social benefit that enhances the economic and social well-being of individuals whilst also supporting the economic growth of NSW in accordance with the objectives of the State Government's Industry Action Plans.
- The future architecturally designed Building 2 forms part of the broader campus reinvigoration and enhances a range of services on campus.
- The redevelopment of Building 2 has also been designed to positively contribute to the public domain by responding to the new development at Central Park and adjoining UTS buildings; thereby also creating a greater walking experience for pedestrians through the city domain.
- The inner city nature of the campus may be considered a constraint to the University's ability to provide all of the necessary services and facilities on site compared to some more suburban locations, however, the inner city location is also a significant positive in complementing and enhancing the quantum and range of social infrastructure provided on campus.
- Considering each of these factors the proposed modification to Building 2 is considered a positive change that would enhance educational and employment opportunities for a broader range of students and staff within a highly accessible and well serviced location of Sydney.

It is expected that the podium extension and tower relating to CB02 will generate in the order of 209 Full Time positions in consultancy and construction activities for a 30 month period and an additional 46 Full Time positions associated with the podium extension to CB01. Once construction is completed, further employment will be created during the operation phase of UTS Central.

Overall, this is considered to result in a positive economic and social impact within the City of Sydney and the broader Sydney Area.

6.22 Cumulative Impacts

The environmental assessment demonstrates that the Project will not have any negative environmental impacts, whether considered along, or in conjunction with other recent approvals in the vicinity of the site. Any potential impacts will be mitigated by the Mitigation Measures at **Section 8** and suitable conditions of approval.

6.23 Public Interest

In summary, UTS Central will:

- facilitate a significant boost in the capacity of UTS to provide tertiary education to meet the growing needs and demands of Sydney, NSW, Australia and the world more broadly;
- create additional jobs/workers;
- support a more skilled workforce; and
- pave the way for a further 'iconic' building to be delivered at UTS.

The provision of additional jobs and educational uses at UTS Broadway Precinct is consistent with all the relevant strategic planning documents established to guide the growth of Sydney, including the NSW 2021: A Plan to Make NSW Number One and A Plan for Growing Sydney. The proposal has significant planning merit and is consistent with these strategies as it will:

- Reinforce the Sydney CBD as a global city with world class services and infrastructure.
- Contribute to the delivery of a vibrant and liveable CBD through integrating land use planning with transport infrastructure. The UTS Broadway Precinct is highly accessible as it is located close to a train station, light rail and benefits from connections to a large number of bus services to the key destinations such as the Sydney CBD. The provision of additional capacity at UTS Broadway Precinct will allow more people to learn in such a highly accessible location, contributing to making Sydney connected through reducing travel times, growing patronage on public transport and providing people with easy access to alternative modes of transport.
- Contribute to providing additional capacity within the tertiary education sector.
- Contribute to providing new employment to meet the State Government's new jobs target, which requires over 34,000 new jobs to be created every year.

7.0 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 UTS Central Project has been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

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

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

The Risk Assessment Matrix at **Figure 33** 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.

Figure 32 – Risk Assessment Matrix

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)

Table 9 – Environmental Risk Assessment

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Key: C - Construction O - Operation						
Noise and Vibration	C + O	▪ Increase in noise and vibration levels during construction activities ▪ Increase in noise levels during the operation	▪ Implementation of Construction Noise and Vibration Measures which considers the construction methodology and details specific mitigation measures in accordance with the DECCW Interim Construction Noise Guideline. ▪ Appropriate mitigation measures to be implemented to ensure vibration levels will not compromise human comfort or result in building damage. ▪ Appropriate sound minimisation measures to be incorporated within the plant and mechanical areas.	C = 3 O = 1	C = 2 O = 2	C = 5 (low/medium) O = 3 (low)
Traffic and Parking	C + O	▪ Increase in construction traffic on local roads ▪ Increase in traffic and parking on local roads during operation	▪ No additional parking is proposed. ▪ A Construction Traffic Management Plan has been prepared detailing measures to minimise any adverse impacts arising from construction traffic.	C = 3 O = 2	C = 3 O = 1	C = 6 (medium) O = 3 (low)
Heritage	O	▪ Potential to impact on heritage significance in the Precinct. ▪ Potential for vibration to impact the structural integrity of the site's heritage item.	▪ The new works have been designed to have a negligible impact on the local heritage items. ▪ The works are sufficiently separated from the heritage structure to avoid any potential vibration impacts during construction.	O = 1	O = 1	2 (low)
Visual and Built Form	O	▪ Visual impact of the development when viewed from the public domain.	▪ The building has been sited and incorporates design mechanisms to reduce bulk. ▪ Measures have been incorporated to reduce the visual impact of the development when viewed from Broadway and Alumni Green.	O = 3	O = 2	5 (low/medium)
Amenity	C + O	▪ Potential privacy impacts on adjoining properties. ▪ Potential overshadowing of adjoining properties.	▪ The building has been designed to limit privacy and overlooking of the adjoining properties. ▪ The design and orientation of the building looks to minimise shadow impacts.	C = 4 O = 4	C = 2 O =1	C = 6 (medium) O =4 (low/medium)

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Air and Water Quality	C	▪ Potential for reduced air and water quality during construction	▪ A detailed Construction Environmental Management Plan will be developed to implement measures to ensure that air and water quality are maintained.	C = 2	C = 2	4 (low/medium)

8.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the Project are detailed in **Table 8** below. These measures have been derived from the previous assessment in **Section 6** and those detailed in appended consultants' reports.

Table 10 – Mitigation Measures

Mitigation Measures
Environmentally Sustainable Development ▪ Design will incorporate the Environmental Sustainable Design Principles outlined in the ESD Report prepared by Steensen Varming.
Building Code of Australia (BCA) ▪ The recommendations of the BCA Report prepared by Steve Watson and Partners are to be employed before detailed design and the release of a Section 109R Crown Certificate.
Preliminary Construction Management Plan ▪ A detailed construction management plan will be prepared in accordance with the preliminary Construction Management Plan prepared by Richard Crookes Construction prior to the release of a Section 109R Crown Certificate.
Contamination ▪ It is recommended that the former fuel storage tanks in Building 2 be inspected and ultimately removed from the site as part of the redevelopment works.
Wind ▪ To quantity the wind advice, for a development of this size and location, wind tunnel testing would be recommended during detailed design development in accordance with the Wind Assessment.
Tree Removal ▪ Trees to be retained are to be protected in accordance with the recommendation of the arborist report.
Noise and Vibration ▪ Construction noise measures will be implemented in accordance with the recommendations of Acoustic Logic. ▪ The recommendations of the Acoustic Report prepared by Acoustic Logic relating to the operation of the building will be adopted to ensure compliance with the relevant noise controls.

9.0 Conclusion and Justification

This EIS has been prepared to consider the environmental, social and economic impacts of the Project at the UTS Central Campus, Broadway.

The EIS has addressed the issues outlined in the SEARSs (**Appendix A**) 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.

It is considered the Project warrants approval for the following reasons:

- the Project is consistent with the principles of ecological sustainable development as defined by Schedule 2(7)(4) of the *EP&A Regulation* as well as Section J of the BCA;
- The proposal is consistent with the Concept Plan (as modified MP08_0116);
- It has been prepared having regard to Council's planning policies and generally complies with the aims and objectives of the planning controls for the site including the Sydney LEP 2012;
- The proposed development is of a high quality in terms of built form, bulk and architectural treatment and responds positively to proportions of adjoining development. The proposal will make a positive contribution to the built form of the UTS Campus and exhibits design excellence;
- The proposal does not have any unacceptable off-site impacts on adjoining or surrounding properties or the public domain, in terms of traffic, social and environmental impacts;
- The Project will not have a significant impact on the traffic generation or parking, and will support the University's objectives of encouraging higher use of public and active transport and decreasing the use of cars;
- The Project will not have a significant impact on the quantities of general waste generated by the University; and
- The new floor space will accommodate a range of educational and ancillary educational uses, such as:
  - Library.
  - Research.
  - Teaching Space.
  - Informal Learning Space.
  - Student Centre.
  - Student Union Spaces.
  - Food and Beverage Outlets.
- The UTS Central project responds to a series of the strategic drivers outlined in the Master Plan including:
  - Accommodating further growth as a result of projected increases in staff/student numbers expected to occur over the next 6 years in the Library, general teaching spaces (GTS), academic, research, cultural and informal recreation areas.
  - Providing new modes of student-centred, collaborative and individual learning in the spaces.
  - Revitalising the heart of UTS by developing a Learning Commons as a centre for the city campus.
  - Activating the campus as a living laboratory for sustainability.

- Maximising capacity and development potential of the Building 1 (CB01) and Building 2 (CB02) sites.
- Addressing the objectives of the City of Sydney's Sustainable Sydney 2030 vision.

Given the planning merits described above, and significant public benefits proposed, it is requested that the Minister approve the SSDA.