

**STATE SIGNIFICANT DEVELOPMENT
DEVELOPMENT APPLICATION
ENVIRONMENTAL IMPACT STATEMENT**

**MACQUARIE UNIVERSITY ARTS PRECINCT PROJECT
SSD 8388**

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SUBMITTED TO
NSW DEPARTMENT OF PLANNING & ENVIRONMENT
ON BEHALF OF



MACQUARIE
University

OCTOBER 2017

STATEMENT OF VALIDITY

This EIS has been prepared in support of the Macquarie University Arts Precinct Project (MUAPP) consistent with the requirements of Schedule 2 – Environmental Impact Statements of the *Environmental Planning and Assessment Regulation 2000*.

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APPLICANT ADDRESS	MQU North Ryde Campus
DESCRIPTION OF DEVELOPMENT	Refurbishment of existing buildings known as W6A and W6B, erection of a new five-storey building, and associated landscape works to create a new Macquarie University Arts Precinct.

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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.



Oliver Klein
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Date: 31 October 2017

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RobertsDay operates under a Quality Management System. 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:

Stacey McMasters
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This report has been reviewed by:

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SUPPORTING DOCUMENTS

- A** Detailed Cost Report
Wilde & Woollard
- B** Secretary's Environmental Assessment Requirements
Department of Planning and Environment
- C** Minutes of Without-Prejudice Meeting
RobertsDay
- D** Architectural Drawings and Design Statement
BNMH Architects / Architectus
- E** Landscape Package
Group GSA
- F** Survey
LTS Lockley
- G** State Transit Bus Route Map (North Shore & West)
Transport for NSW
- H** Infrastructure Management Plan
Wood & Grieve Engineers
- I** Geotechnical Assessment
JK Geotechnics
- J** Preliminary Stage 1 Environmental Site Assessment / Waste Classification Assessment
Environmental Investigation Services
- K** Hazardous Materials Survey
Pickford & Rhyder Consulting
- L** Arborist Report
Australian Tree Consultants
- M** Ecology Review
Macquarie University Property
- N** Heritage Impact Statement
Tropman & Tropman
- O** Due Diligence Aboriginal Heritage Assessment
Mary Dallas Consulting Archaeologists

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- P** Railway Corridor Impact Study
Taylor Laudner Bernstein

- Q** Integrated Water Management Plan
C & M Consulting Engineers

- R** Traffic Impact Assessment / Preliminary Construction Traffic Management Plan
Traffic Design Group

- S** Acoustic Impact Assessment
Wood & Grieve Engineers

- T** Preliminary Construction Management Plan
Capital Insight

- U** BCA Compliance Assessment
Blackett Maguire + Goldsmith

- V** Site Waste Minimisation & Management
Capital Insight

- W** Accessibility Report
MGAC

- X** ESD Report
Wood & Grieve Engineers

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1.0 INTRODUCTION

This Environmental Impact Statement (EIS) is submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (the Act) in support of an application for the State Significant Development (SSD) for the Macquarie University Arts Precinct Project (MUAPP) at Macquarie University's (MQU's) North Ryde campus.

Development for the purpose of Educational Establishments with a capital investment value of more than \$30 million is identified in clause 15 of Schedule 1 under *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD) and is therefore declared to be State Significant Development (SSD) for the purposes of the Act.

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The proposed development has a Capital Investment Value (CIV) of in the order of \$111 Million and is therefore a SSD project. A QS Statement / Detailed Cost Report is provided at **Appendix A**.

This EIS was prepared by RobertsDay on behalf of MQU and is based on the supporting technical information appended to the report (EIS Supporting Documents). This EIS describes the site, its environs, and the proposed development. This EIS has been prepared in accordance with the requirements of Part 4 of the Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation), and the Secretary's Environmental Assessment Requirements (SEARs), which are included at **Appendix B**.

1.1 Summary of this EIS

1.1.1 Purpose of this Report

This EIS is submitted to the Minister for Planning pursuant to Part 4 of the Act and *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD) to gain approval of the MUAPP project.

1.1.2 Overview of the Project

The project seeks to comprehensively refurbish and reuse the existing buildings known as W6A and W6B and to bring it up to best practice standards for research and teaching in the Arts and general learning thereby delivering the new MUAPP.

The future MUAPP lies within the academic core of MQU's North Ryde Campus south of the central east-west pedestrian spine known as Wally's Walk. W6A and W6B were erected in 1968 and have a long serving association with the MQU Faculty of Arts in the period since their construction. However, the buildings and their internal facilities are now over 50 years old and are no longer fit for purpose.

This application seeks approval for:

- Internal refurbishment of W6A and W6B
- Construction of new entrance to W6B from Wally's Walk
- Erection of new purpose-built faculty showcase building south of W6A
- Construction of new covered atrium space to between W6A and the new showcase building

As the project is principally the renewal and refurbishment of the existing buildings to serve the existing staff/ student body, it will not generate any new operational jobs within the building or campus. It will however generate employment for an estimated 181 construction workers during the 20 month construction program.

1.1.3 Planning Context

The proposed development has a total Capital Investment Value (CIV) in the order of \$111 Million and is classified as State Significant Development under Clause 15, Schedule 1 in SEPP SRD.

The request for the Secretary's Environmental Assessment Requirements (SEARs) for the proposed development was made by RobertsDay on behalf of MQU on 10 April 2017. The SEARs were issued to MQU on 10 May 2017. A copy of the SEARs is provided at **Appendix B**.

Section 6.0 of this EIS considers all applicable legislation in detail. The proposal is generally consistent with the requirements of all relevant environmental planning instruments as well as the proposal's strategic planning context.

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1.1.4 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;
- implementation of ESD measures;
- transport and accessibility including pedestrian and cycle access, peak public and private transport demand and the provision of on-site parking, including during construction;
- noise and vibration during construction and operation; and
- stormwater management.

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

1.1.5 Benefits of the Project

The redevelopment of the MUAPP will provide a further 30-35 years of serviceable life to the existing buildings and to bring it up to contemporary regulatory building standards and best practice standards for research and teaching.

It will also reinforce a major grouping of buildings which frame chief east-west pedestrian connections including the key Wally's Walk pedestrian spine at the transition between the Arts Precinct and other precincts to the east. These buildings and their 1960s concrete frame and brick masonry construction are considered a valuable reference to MQU's early years and worthy of retention and refurbishment as legacy buildings.

The reuse and refurbishment of existing buildings also provides significant ESD benefits (eg embodied energy) and a shortened construction program minimising potential amenity and traffic impacts within and around the MQU North Ryde Campus.

1.1.6 Justification

This EIS fulfils the requirements of the Act and addresses the SEARs. Section 7.0 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.

1.2 Project Background

The subject land lies within the grounds of Macquarie University's North Ryde Campus and has a total area of some 7,500m². The land accommodates a complex of three (3) three-storey buildings known as W6B and a nine-storey building known as W6A. The interstitial space between these buildings forms an open courtyard. To the south of these buildings is a landscaped berm. A number of mature planted trees are present within the site. The land is held by Macquarie University in freehold.

As per the SEARs request letter, the broader MUAPP Project is subject to a mix of planning approval pathways including Exempt Development, a Review of Environmental Factors for decanting works for locations across the wider campus outside of the scope of the SSD works, as well as a DA to Council for the excavation works related to the berm to the south of W6A.

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An initial without-prejudice meeting with Council planning officers was held at Ryde City Council on 23 March, 2017, during which the project team presented an overview of the project objectives, challenges presented by existing facilities, the concept design, and proposed mix of approval pathways for the overall project, and the scope subject of this SSD DA.

During the course of the meeting Council raised no objection to the proposal but highlighted the following matters:

- Potential traffic management issues arising from heavy rail closures (Macquarie University station) during Sydney Metro construction and concurrent construction of the approved AMP Macquarie Centre shopping centre redevelopment;
- Importance of design excellence; and
- Significance of MQU museums as a point of difference for MQU and an asset to the City of Ryde and the need to provide an appropriate level of access.

Complete minutes of the meeting are attached at **Appendix C**.

In addition to the without-prejudice meeting, the scheme was presented to Macquarie University's External Design Excellence Review Panel on 17 May 2017. The feedback from Design Excellence Review Panel has been taken into consideration in the finalisation of the design of the MUAPP project.

Consideration of the development's compliance with the approved Part 3A Concept Plan, its supporting Design Excellence Strategy and Urban Design Guidelines, State Environmental Planning Policies, and *Ryde Local Environmental Plan 2014* is set out in Section 6.0 of this EIS.

1.3 Objectives of the Project

The project's detailed objectives are to:

- *Showcase what the Faculty of Arts does through visual connection and a sense of porosity between inside and out*
- *Showcase faculty artworks and assets within a built-for-purpose space*
- *Continue MQU's unique built environment legacy of the 'Campus in the Park'*
- *Ensure the public realm reflects the identity of MQU with emphasis on natural landscape*
- *Create stimulating outdoor learning spaces to advance the provision of 'new generation' academic environment*
- *Build in flexibility and adaptability that incorporates smart technology*

- *Develop well-defined hierarchy of spaces within a clearly legible framework with different spaces offering different experiences*
- *Develop a graduation of spaces for engaged collaboration and private focus*
- *Create open spaces that support social engagement*
- *Appeal to a multi-cultural university cohort*

1.4 Project Description

This SSD DA seeks approval for construction works comprising the refurbishment of W6A and W6B as well as the erection of a five-storey new museum/showcase building to the south of W6A. Key elements of the construction works include the following:

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- W6A and W6B to be internally refurbished to provide superior amenity and spaces consistent with requirements of contemporary best practice for academic teaching/ learning;
- New entrance to W6B from Wally's Walk to provide legible entrance and visual connection;
- W6A's aged core to be replaced with a new core that will also serve as the vertical circulation and collaborative hub facilitating interdepartmental and student /academic meetings and joint work to reverse the current academic silo character of the existing tower;
- W6A's northern facade to be fitted with new dual skin glazed façade with integral solar shading which also accommodate the necessary services runs installed;
- New purpose-built faculty showcase building to be erected in the location of the berm to the south of W6A to accommodate MQU's ancient cultures and modern history collections, wet and dry teaching and fieldwork spaces, function/ exhibition space, and academic uses;
- Covered atrium space to be erected between W6A and the new showcase building to connect the new and existing refurbished built structures and to thereby create a unified 'Arts Precinct';
- North-south visual connection between Wally's Walk and new east-west pedestrian connection to the south of the precinct to assist orientation for visitors and users of the buildings;
- Augmentation of the precinct services capacity to serve the new development, adjacent existing facilities and future developments in line with the University Master Plan.

Details of the scale and location of the proposed works are illustrated by the architectural drawings and design statement prepared by Budden Nangle Michael Hudson Architects (BNMH) and Architectus at **Appendix D** as well as landscape drawings prepared by Group GSA at **Appendix E**.

A selection of these and further details with respect to the proposed works can be found at Section 3.0 of this EIS.

1.5 Evaluation of Alternatives

An evaluation of a range of alternative pathways for the evolution of the university campus was undertaken at the time of the preparation of the Environmental Assessment for the Concept Plan 06_0016 and the subsequent approval process. The proposed works are consistent with the Part 3A Concept Plan Approval and do not invalidate the conclusions of the original options analysis.

Further, the option of providing for the needs of the Faculty of Arts through a new build option was considered. Alternative sites included the area south of the site subject of this EIS and north of the Old

Library. However, W6A and W6B are legacy buildings within the North Ryde Campus and have a long-standing association with the Faculty of Arts. The severance of this association would have a negative impact upon this legacy and is therefore undesirable. The option of a new build was dismissed on these grounds.

1.6 Planning Approval Pathway

Under the SEPP SRD, a development proposal is State Significant Development (SSD) if it is so identified under Schedule 1 the SEPP. Development for the purpose of an 'educational establishment' with a CIV of \$30 million or greater is identified as SSD under Schedule 1.

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The SSD DA will be assessed against the relevant provisions under Part 4 of the Act. It is noted that in accordance with Clause 11 under Part 2 to the SEPP SRD, the requirements of Development Control Plans do not apply.

The MUAPP has a CIV in the order \$111 million and therefore qualifies as SSD. A Quantity Surveyor's statement confirming the project CIV is included at **Appendix A**.

A copy of the SEARs is included in **Appendix B**.

1.7 Crown Development

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

Under the special provisions for Crown developments, the DA cannot be refused (except with the approval of the Minister for Planning); the consent authority cannot impose conditions of consent without the applicant's agreement; the applicant has the opportunity to review the draft conditions; and, if the consent authority fails to determine the application within the prescribed period, the application may be referred to the Sydney North Planning Panel for approval.

1.8 Development Contributions

Development within MQU's North Ryde campus is subject to a Voluntary Planning Agreement between MQU and Council as executed in February 2013 in accordance with Section 93F of the Act. In accordance with the terms of the VPA, the proposal falls into Land Use Category 2 Academic Use including research (for non-commercial purposes). As detailed by Table 1 to the VPA, monetary contributions are not required of this Land Use Category.

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2.0 SITE ANALYSIS

2.1 Local & Regional Context

Established in 1964, MQU's North Ryde campus is located on 126 hectares 15 kilometres from the Sydney CBD. The campus comprises teaching and research spaces, shops, cafes, recreational facilities, banks, a bar, pharmacy, bulk-billed medical clinic, private hospital, counselling services, financial aid, and childcare.

Surrounding uses include Lane Cove National Park to the north, residential areas in transition characterised by low medium and recent high density development to the south and west, and a major shopping centre precinct to the east. The land is zoned B4 Mixed Use under the *Ryde Local Environmental Plan 2014* and development for the purpose of an *educational establishment* is permitted with consent, as is development for the purpose of *information and education facilities* (museums).

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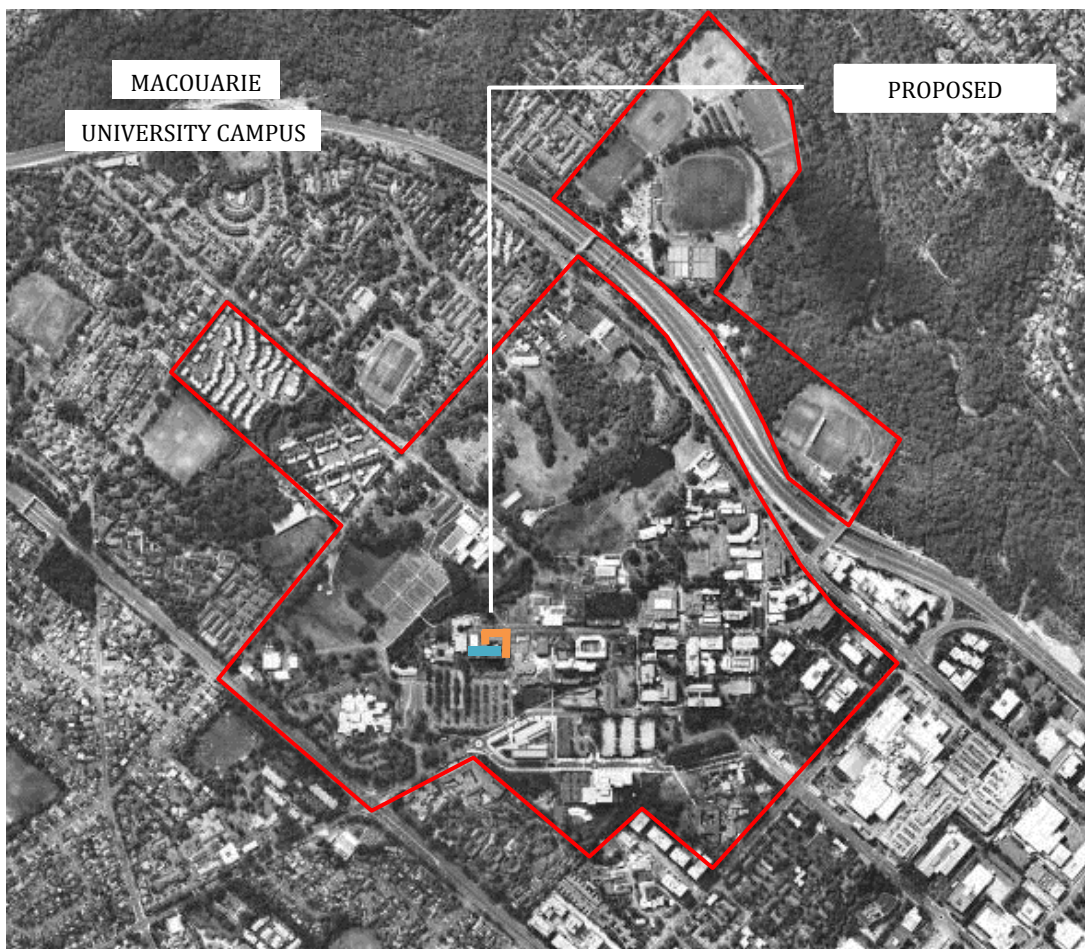


Figure 1 - Aerial photo of Macquarie University Campus & location of proposed works

2.2 Existing Development

The buildings subject of the proposal are located along the southern frontage of Wally's Walk at the western end of the campus' academic core (Precinct A under the approved Part 3A Concept Plan). The buildings are of concrete frame and brick masonry construction and approximately 50 years of age and at the end of their functional life. Immediately to the south are on-grade car parks, whilst to the north is open green space. It is surrounded to both the east and west by buildings comprised primarily of teaching spaces. The site is located within gently undulating topography on a hillside that sloped down to the northwest at about 6°. The site has a total area of some 7,500m².

Together, the buildings known as W6A and W6B form the Macquarie University Arts Precinct, consisting of:

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W6A	Accommodating academic and administrative workplace for the Faculty of Arts (with some ancillary functions) across 9 levels
W6B	Accommodating teaching and some ancillary support functions across 3 levels
COURTYARD	Bounded by the buildings, W6A and W6B
UNDEVELOPED LAND	South of the precinct is a berm accommodating a number of mature planted trees

A site survey has been prepared by LTS Lockley and accompanies this EIS at **Appendix F**.

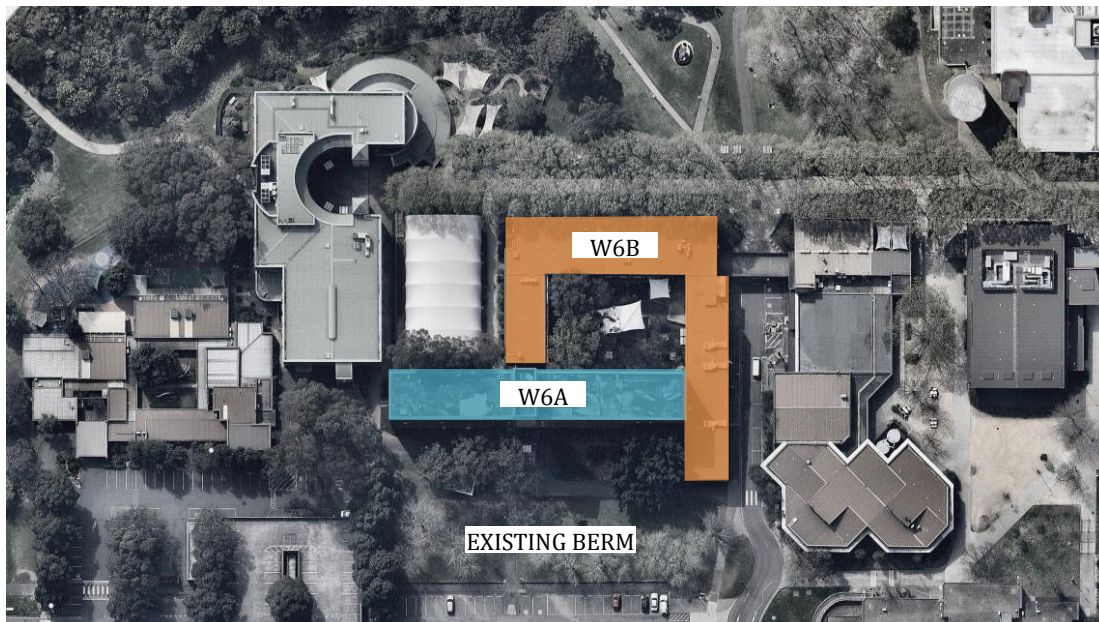


Figure 2 - Subject buildings, W6A and W6B, within the academic core of Macquarie University

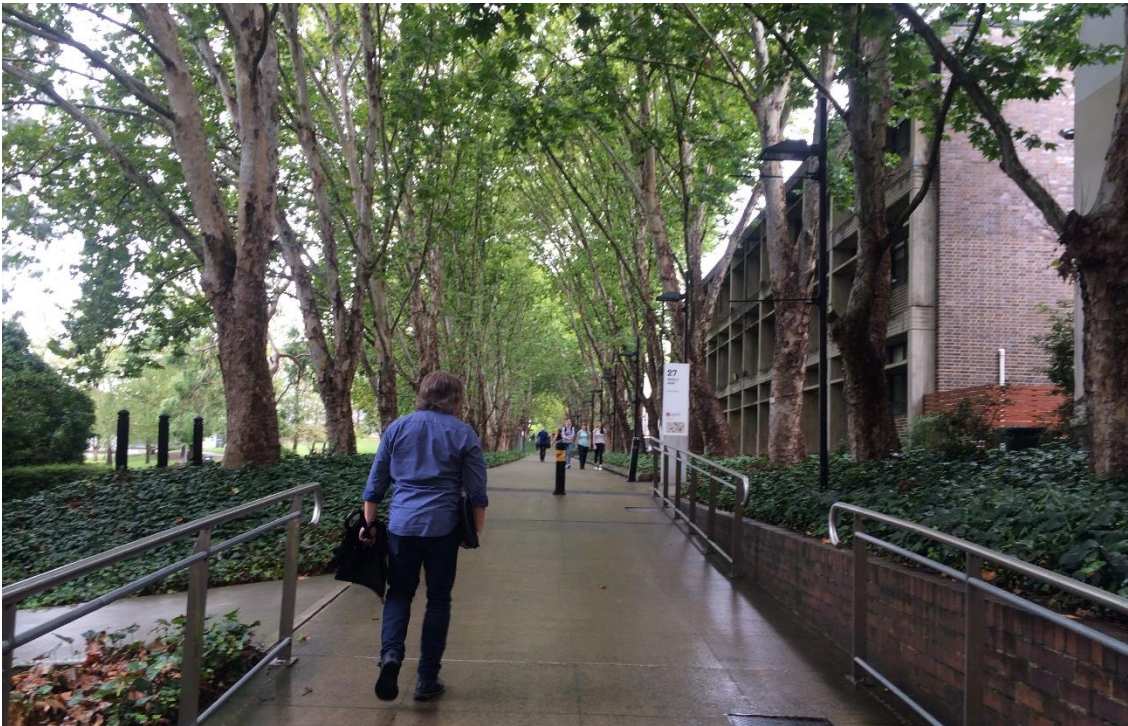


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Figure 3 – Building known as W6A, southern elevation



Figure 4 – Building known as W6B, northern elevation



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Figure 5 – East-west walkway known as 'Wally's Walk'



Figure 6 – Berm and mature planted trees south of the MQU Arts Precinct

It is noted that the Epping-Chatswood Railway corridor runs beneath the subject land. Specifically, the corridor alignment runs beneath W6B (refer Figure 7). Planning matters with respect to this are addressed in Subsection 6.2.2 of this EIS.

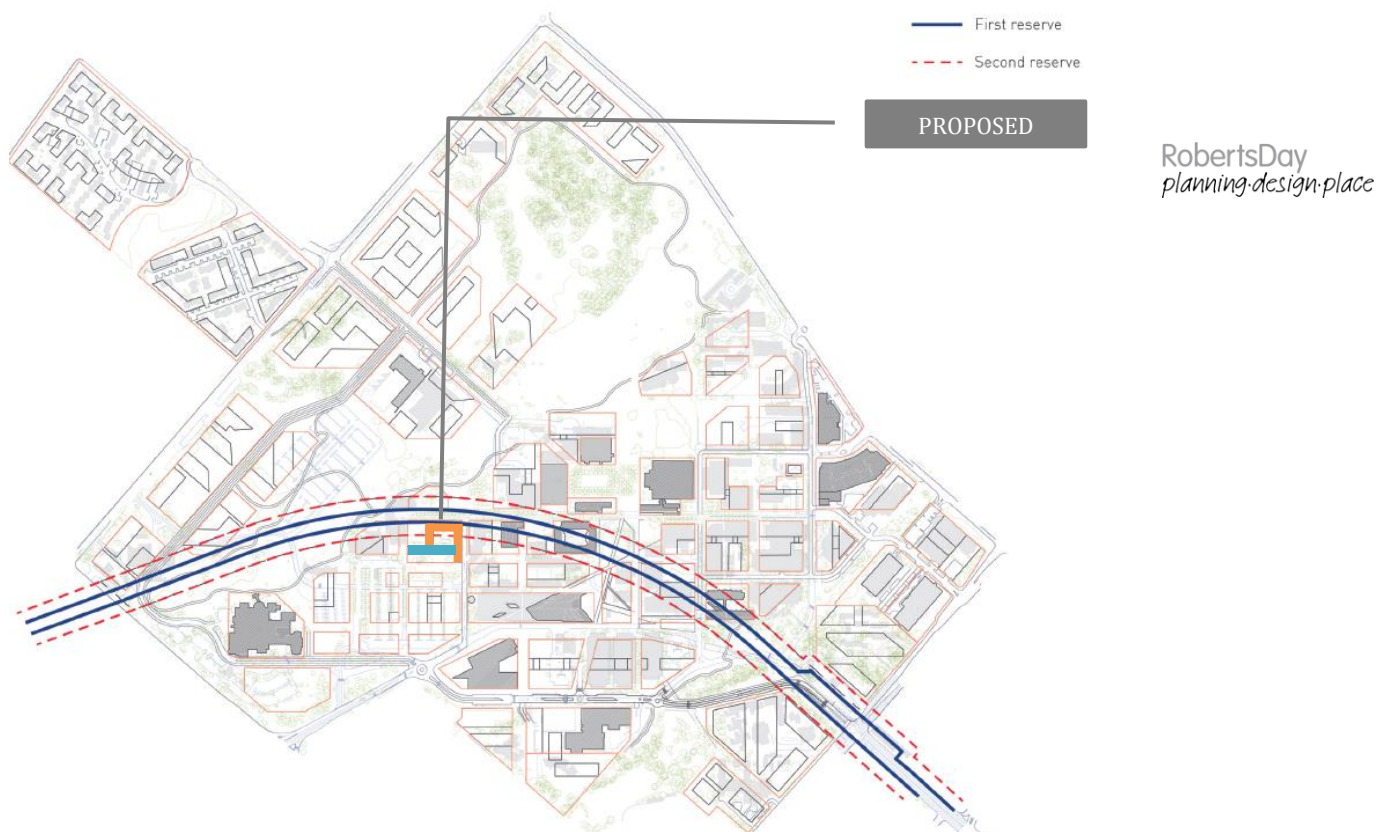


Figure 7 - Railway Corridor through Precinct A - Design Excellence Strategy & Urban Design Guidelines

2.3 Traffic, Access and Parking Facilities

Existing vehicular access to the land accommodating W6A and W6B is provided via Western Road to its east. An at-grade student / staff carpark (W4 carpark) to the south accommodates 280 parking spaces.

Macquarie University's North Ryde campus benefits from excellent public transport connections in the form of both rail and bus. Macquarie University Railway Station is serviced by the T1 North Shore, Northern & Western Lines (refer Figure 7). The station is located 800 metres (10 minute walk) east of the land via Macquarie Walk and Western Road. The closure of Macquarie University Railway Station to facilitate Sydney Metro Upgrade works is anticipated to commence in late 2018. During this period additional bus services will be provided until the line reopens in the first half of 2019.

The campus is serviced by the following bus services:

BUS ROUTE NUMBER	BUS ROUTE
140	Epping to Manly Wharf via Macquarie University
288	Epping to City Erskine Street
290	Epping to City Erskine St via Macquarie University & North Sydney
291	Epping Station to McMahon's Point
292	Marsfield to City Erskine Street via Macquarie Park
294	Macquarie University to City Wynyard
459	Macquarie University to Strathfield via Ryde
506	Macquarie University to City Domain via East Ryde
507	Macquarie University City Circular Quay via Putney
518	Macquarie University to City Circular Quay
544	Macquarie centre to Auburn via Eastwood
545	Parramatta to Chatswood via Eastwood & Macquarie Centre
550	Parramatta to Chatswood via Macquarie Park
M54	Parramatta to Macquarie Park via Epping

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Additional services are available via stands at Balaclava, Epping and Herring Roads. An extract of the State Transit Bus Route Map (North Shore & West) is provided below at Figure 9. This map is reproduced at **Appendix G**.

In addition to private and public transport modes outlined above, two car share (GoGet) vehicles are available at Saunders Close. A further two GoGet vehicles are available within Macquarie Centre Shopping Centre.



Figure 8 - Sydney Trains Suburban Network Map

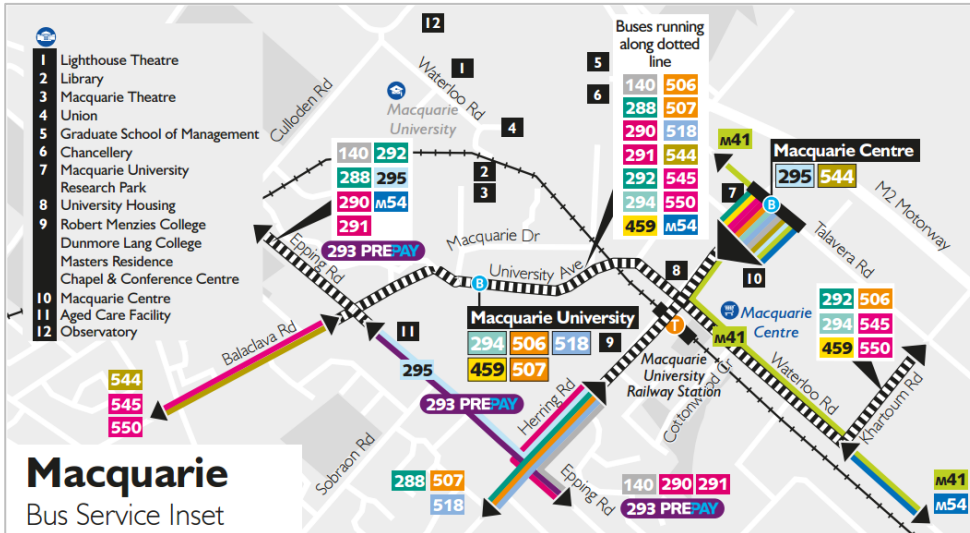


Figure 9 - State Transit Bus Route Map (North Shore & West)

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2.4 Utilities and Services

The campus, including the subject land, is currently serviced by essential utilities including water, sewer, electricity, gas and communications. An existing service tunnel runs through the north-east quadrant of the land.

A plan of existing services and utilities prepared by Wood & Grieve Engineers accompanies this EIS at **Appendix H**.

2.5 Geology and Groundwater

Due diligence investigations reveal the subject land is underlain by Hawkesbury Sandstone close to the interface with the overlying Ashfield Shale, according to the 1:100,000 Geological Map of Sydney.

Field work consisting of a walk over inspection and the excavation of twelve (12) test pits for sample recovery identified a generalised subsurface profile comprising fill over residual silty clay with weathered sandstone bedrock encountered at shallow to moderate depth.

- FILL encountered during this investigation comprised silty clay fill with varying gravel content (BH1, BH2, BH12 and BH13) and Sandy gravel fill (BH 3) was assessed as being moderately to poorly compacted.
- CLAYS both silty and sandy were encountered below the fill or road base materials in all boreholes (BH12 and BH13 excepted). The silty clays were assessed to be of medium to high plasticity while the occasional sandy clays were assessed to be of low to medium plasticity. Both clays were typically very stiff or hard strength.
- SANDSTONE BEDROCK was encountered below the residual clays in all boreholes but BH12 and BH13. Encountered depths suggest the bedrock surface steps down to the north and south across the site. The sandstone was assessed to be of extremely low to very low (occasionally low to medium) strength on first contact but improved with depth.

Groundwater was intermittently encountered at depth within the bedrock.

A Geotechnical Investigation has been prepared by JK Geotechnics and accompanies this EIS at **Appendix I**.

2.6 Contamination

2.6.1 Subsurface contamination

The conceptual site model prepared by Environmental Investigation Services (EIS) as part of a Preliminary State 1 Environmental Site Assessment identified the following areas of environmental concern at the site:

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FILL MATERIAL - *The site may have potentially been historically filled to achieve existing levels. The fill may have been imported from various sources and could contain elevated concentrations of contaminants;*

HISTORICAL AGRICULTURAL USE - *The site appears to have been used for grazing and/or market garden purposes. This could have resulted in contamination across the site via use of machinery.*

USE OF PESTICIDES - *Pesticides may have been used beneath the buildings and/ or around the site;*

HAZARDOUS BUILDING MATERIALS - *Hazardous building materials may be present as a result of former building and demolition activities. These materials may also be present in the existing buildings/ structures on site.*

SOIL MOUNDS - Landscaped soil mounds were located to the south of Building W6A. These could contain potential contaminated fill material within them.

OFF-SITE AREA - *A service station is located up-gradient of the site and is considered to be a potential source of contamination.*

Soil sampling was collected from geotechnical boreholes and analysed with respect to contaminants of potential concern as identified by the conceptual site model. No significant contamination was identified. However, it was recommended that additional assessment of the soil mounds/berm be undertaken to confirm the waste classification of the soil for the purposes of off-site disposal.

This further investigation was undertaken on 20 April, 2017, in the form of field work to obtain soil samples from 10 test pits. Based on the results of the assessment the fill material within the soil berm is classified as General Solid Waste (non-putrescible).

Approval for bulk excavation of the area currently occupied by the berm has been sought separately via a DA to Ryde City Council under Part 4 of the Act.

For reference, the Preliminary State 1 Environmental Site Assessment and Waste Classification Assessment prepared by EIS accompany this EIS at **Appendix J**.

2.6.2 Hazardous building materials

A hazardous materials survey of W6A and W6B was undertaken by Pickford & Rhyder Consulting on 22 May, 2017, for the purpose of determining the presence of hazardous materials in the form of

asbestos containing materials (ACM), lead paint or synthetic mineral fibre (SMF). The results of the survey can be summarised as follows.

ACM – nature and location of asbestos containing materials was found to be consistent with MQU's existing asbestos register;

LEAD PAINT - beige coloured paint identified in the Building W6A stairwell.

SMF - found in the following locations:

- Pipe insulation in Building W6A Level 9 plant room
- W6B Level 3 Roof Bitumen membrane
- W6B Level 3 topping slab Bitumen membrane

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A survey of PCBs was not undertaken.

For reference, the Hazardous Materials Survey prepared by Pickford & Rhyder Consulting accompanies this EIS at **Appendix K**.

2.7 Drainage and Flooding

The land subject of this EIS lies within the Macquarie Park Floodplain. Figure 10 below articulates the Flood Contour and Water Depth within this catchment. The Flood Contour level at W6A / W6B as at 65m whilst the anticipated Water Depth is the lowest category (0.1m-0.2m).

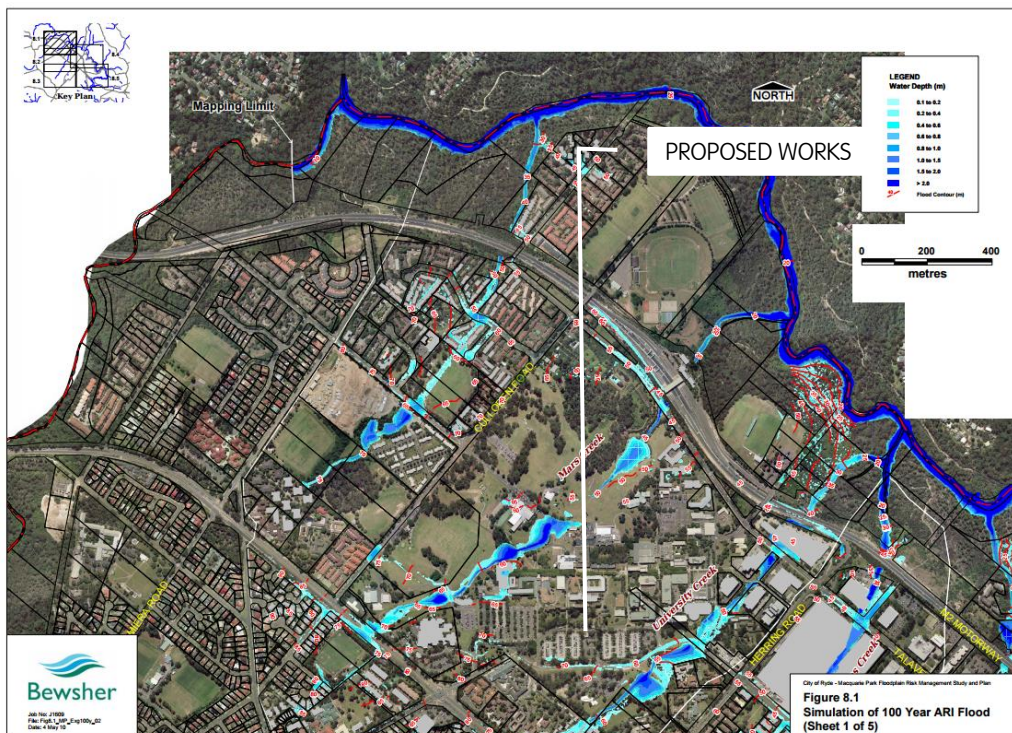


Figure 10 - Macquarie Park Floodplain Risk Management Study, Simulation of 100 Year ARI Flood (source: Council)

2.8 Biodiversity and Arboricultural Matters

A total of 117 planted trees have been identified within the site of the works and in the immediate vicinity of the proposed works. These trees are spread across eight distinctive planted areas as follows:

AREA	TREE PLANTINGS
Area 1 W6A North Garden Bed	Six (6) flooded gums (eucalyptus grandis)
Area 2: X5B Garden Grove Planting	Sixteen (16) grey gum (eucalyptus punctate) and spotted gums (corymbia maculate)
Area 3: West 3 Car Park Planting	Fifteen (15) brush box (lophostemon confertus)
Area 4: W6A Garden Grove Planting	Six (6) lemon-scented gum (corymbia citriodora)
Area 5: W6A Embankment Planting	Thirty three (33) primarily box elder (acer negundo) and flowering cherry plums (prunus bilereana)
Area 6: W6A Garden Bed Planting	Two (2) hill weeping figs (ficus macrocarpa var. hillii)
Area 7: W6A Courtyard Planting	Fifteen (15) – predominantly Broad-Leafed Paperbark (Melaleuca quinquenervia),
Area 8: Wally's Walk Avenue Planting	Twenty four (24) london plane (platanus x hybrid) and one (1) callery pear

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During the course of the preparation of a tree survey by Australian Tree Consultants, two trees were identified which are considered to be very of uncommon species in the Sydney area. These have been identified as Tree 813 Indian Bean Tree (*Catalpa bignonioides*) and Tree 825 Chinese Parasol Tree (*Firmiana simplex*).

An ecological review undertaken by MQU ecologist John Macris found that none of the species identified is considered indicative of remnant native vegetation. Further, the land is a highly modified environment and isolated from any nearby native bushland. This isolation, in combination with the absence of the full range of resources needed to support native species renders the land of limited fauna habitat value.

It is noted that the removal of eighty five (85) planted trees is able to be carried out without the need for approval as exempt works under clause 9.5 (2.0) of Ryde DCP 2014 and are intended to be removed prior to works to remove the berm upon which they sit. Replacement planting is proposed under this SSD DA application for the main construction works associated with the MQU Arts Precinct. In accordance with MQU policy, this planting will offset any vegetation removed with replanting at a rate to achieve a net increase in vegetation. In light of the limited ecological value of the existing trees and the proposed replacement planting, the proposed tree removal will have no impact on the native vegetation values present within the campus.

For reference, the arborist report prepared by Australian Tree Consultants and the Ecological Review prepared by MQU Property accompany this EIS at **Appendix L** and **Appendix M**, respectively.

2.9 Heritage

MQU is identified, in part, as an item of local heritage significance under Schedule 5 of RLEP 2014 as item no. 10 (see extract below).

SUBURB	ITEM NAME	ADDRESS	PROPERTY DESCRIPTION	SIGNIFICANCE	ITEM NO
Macquarie Park	Macquarie University (ruins)	192 Balaclava Road	Part Lot 18, DP 1058168	Local	10

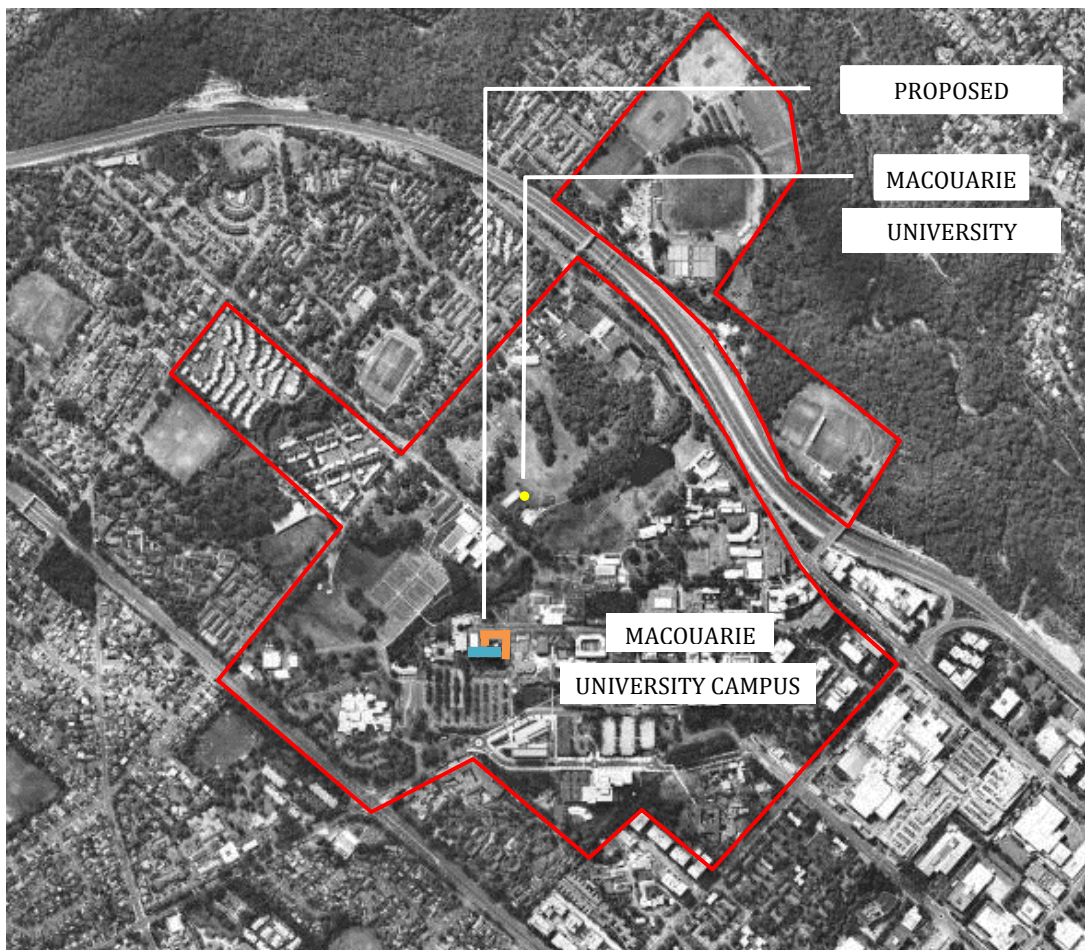
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The heritage item itself is the ruins of a stone farm building, known as the 'Macquarie University ruins', which are situated towards the centre of the University campus adjacent to the Lighthouse Theatre car parking area (see Figure 11 below). Although the majority of the campus is mapped as a heritage item due to the cadastral boundaries at that time and the prevailing LEP mapping convention, the heritage item is as defined under Schedule 5 (refer clause 5.10 of RLEP 2014). The land subject of this EIS, therefore, does not form part of the heritage item. The relative location of the subject land and the 'Macquarie University ruins' is illustrated by Figure 12 below.

For completeness, a Heritage Impact Statement has been prepared by Tropman & Tropman and accompanies this EIS at **Appendix N**.



Figure 11 – Aerial photo of Macquarie Ruins (courtesy Nearmap)



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Figure 12 - Macquarie University Campus & location of proposed works, Macquarie Ruins

2.9.1 Aboriginal Archaeology

A Due Diligence Aboriginal Assessment of the whole of the MQU North Ryde campus was prepared by Mary Dallas Consulting Archaeologists (MDCA) in 2012 to address Condition C9(1) of the Part 3A Concept Plan approval.

As illustrated by Figure 13 below, the land subject of this EIS does not lie within an area identified for further investigation for aboriginal heritage artefacts. Nevertheless, the Heritage Management Strategy recommended by MDCA applies to the land.

For reference, Due Diligence Aboriginal Assessment prepared by MDCA accompanies this EIS at **Appendix O**.



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Figure 13 - Areas of potential archaeological sensitivity (shaded aqua) within Macquarie University (Mary Dallas)

2.10 Summary of Opportunities and Constraints

The key opportunities for the site are to:

- Provide a lifecycle upgrade and expansion of existing buildings to meet both the current requirements for workplace, research and teaching – as well as providing a level of flexibility and adaptability to allow for future change of the next building lifecycle.
- The upgrade of the public realm to create a connected precinct of Places in line with the MQU Part 3A Concept Plan and its Design Excellence Strategy & Urban Design Guidelines, and the more recent Cox Richardson Macquarie University Campus Masterplan 2014.
- Upgrades to available facilities such that the physical environment created aligns with the cultural environment that the Faculty aspires to.
- Fit outs within the buildings to meet the workplace requirements of the various administrative, academic, research, and teaching and outreach functions. This includes the opportunity to showcase the Faculty of Arts museum collection.
- Retain, protect and augment existing significant vegetation within the site; and
- Relative abundance of access to public transport connection.

The key constraints at the site (which are able to be suitably mitigated and addressed) are:

- Potential impacts upon and arising as a result of the location of the site above the Epping-Chatswood Railway Corridor; and
- Management of construction impacts (traffic, noise, vibration, air quality, tree protection etc.) to minimise impact on operation of surrounding land uses throughout construction phase.

3.0 THE PROPOSAL

3.1 Development Objectives and Design Principles

The works proposed under this DA are to facilitate the delivery of the MUAPP's the objects and design principles of which can be summarised as follows:

- *Showcase what the Faculty of Arts does through visual connection and a sense of porosity between inside and out*
- *Showcase faculty artworks and assets within a built-for-purpose space*
- *Continue MQU's unique built environment legacy of the 'Campus in the Park'*
- *Ensure the public realm reflects the identity of MQU with emphasis on natural landscape*
- *Create stimulating outdoor learning spaces to advance the provision of 'new generation' academic environment*
- *Build in flexibility and adaptability that incorporates smart technology*
- *Develop well-defined hierarchy of spaces within a clearly legible framework with different spaces offering different experiences*
- *Develop a gradation of spaces for engaged collaboration and private focus*
- *Create open spaces that support social engagement*
- *Appeal to a multi-cultural university cohort*

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3.2 Description of Development

The proposed works can be briefly summarised as follows:

- W6A and W6B to be internally refurbished to provide superior amenity and spaces consistent with requirements of contemporary best practice for academic teaching/ learning;
- New entrance to W6B from Wally's Walk to provide legible entrance and visual connection;
- W6A's aged core to be replaced with a new core that will also serve as the vertical circulation and collaborative hub facilitating interdepartmental and student /academic meetings & joint work to reverse the current academic silo character of the existing tower;
- W6A's northern facade to be fitted with new dual skin glazed façade with integral solar shading which also accommodate the necessary services runs installed;
- New purpose-built faculty showcase building to be erected in the location of the berm to the south of W6A to accommodate MQU's ancient cultures and modern history collections, wet and dry teaching and fieldwork spaces, function/ exhibition space, and academic uses;
- Covered atrium space to be erected between W6A and the new showcase building to connect the new and existing refurbished built structures and to thereby create a unified 'Arts Precinct';
- North-south visual connection between Wally's Walk and new east-west pedestrian connection to the south of the precinct to assist orientation for visitors and users of the buildings; and

- Augmentation of the precinct services capacity to serve the new development, adjacent existing facilities and future developments in line with the University Master Plan.

For reference, details of the scale and location of the proposed works are expressed in the architectural drawings prepared by BNMH / Architectus and design statement prepared by BNMH at **Appendix D**. A selection of these is provided overleaf.

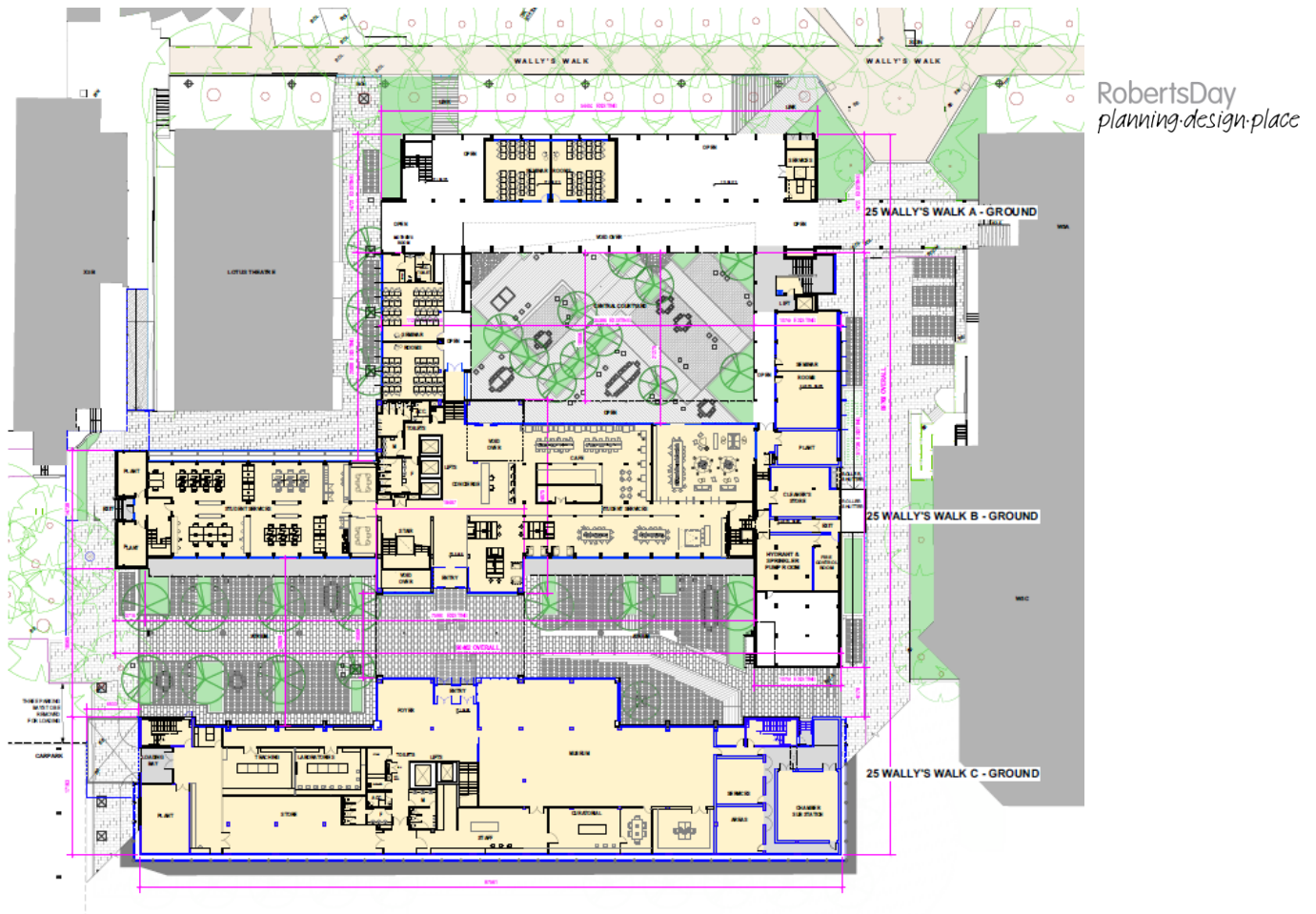


Figure 14: Proposed Development, Ground level

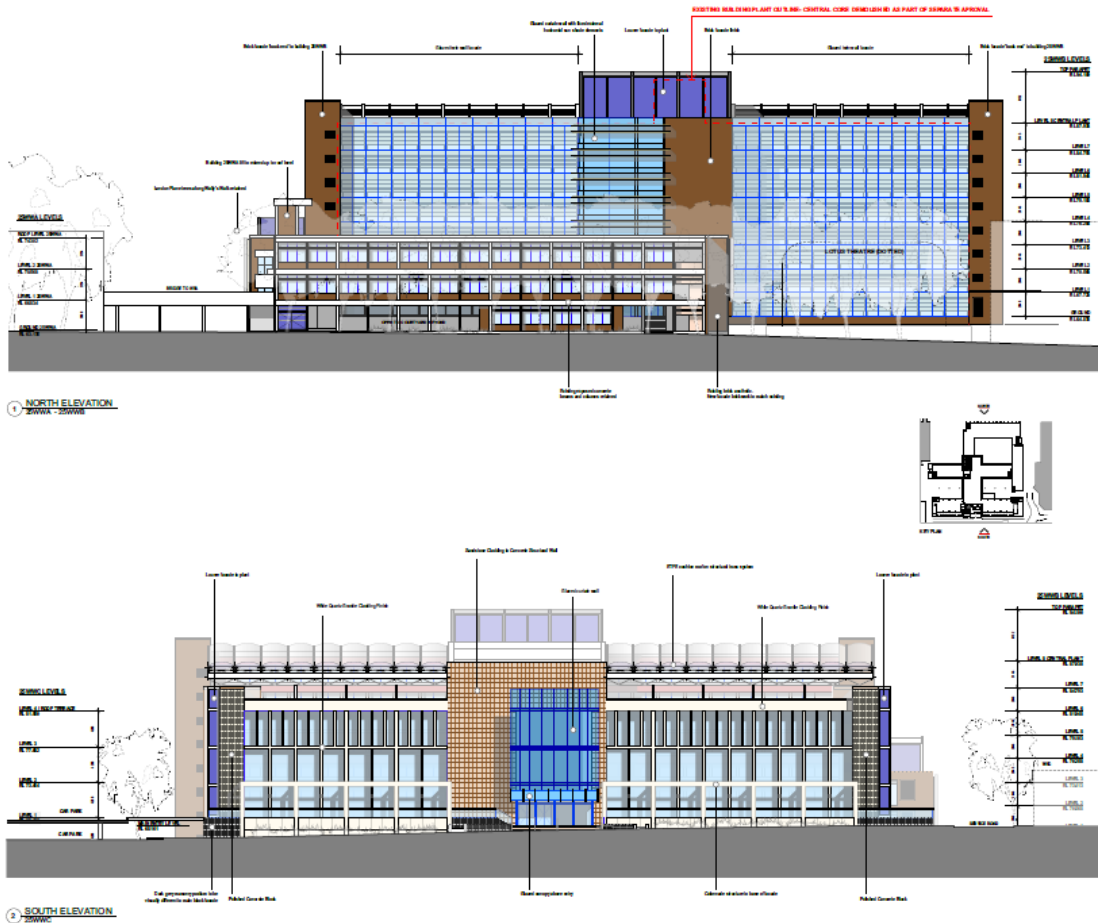


Figure 15: Proposed development, North (top) and South (bottom) Elevations



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Figure 16: Indicative render – from Wally's Walk looking south-west

3.3 Utilities and Services

As noted, the campus is currently serviced by essential utilities including water, sewer, electricity, and communications. The land subject of this DA contains an existing service tunnel, which runs through the north-east quadrant of the land. Diversion augmentation and capping of services that connect to the wider infrastructure network is subject of approval via a separate REF process in accordance with Part 5 of the Act.

For reference, a plan of existing and proposed utilities prepared by Wood & Grieve Engineers accompany this EIS at **Appendix H**.

3.4 Stormwater Management

Temporary sediment and erosion control measures have been designed to be incorporated into the construction works and sequencing of the project to ensure that the proposed construction activities on site do not pollute local drainage systems or have a detrimental effect on downstream waterways. These measures are subject of separate DA approval related to the excavation of the berm.

The proposed Sediment and Erosion Control measures for the early works phase of the project are detailed by the concept civil engineering drawings prepared by C&M Engineering Consultants and accompany this EIS at **Appendix Q**.

Further, measures for the ongoing management of stormwater during the operational phase of the MUAPP are proposed including collection, storage, and reuse of rainwater runoff via 30L rainwater tank and designed in accordance with the requirements of the *Ryde Development Control Plan 2014*.

An integrated Stormwater Management Plan has been prepared by C&M Engineering Consultants and accompany this EIS at **Appendix Q**.

3.5 Ecologically Sustainable Development

From an ESD perspective, the proposed development will seek to achieve compliance with or exceed requirements under the Building Code of Australia's Section J as well as align itself with MQU's campus-wide objectives to reduce overall greenhouse gas emissions and energy use as follows:

- 50% total reduction on 2012 greenhouse gas emissions levels
- 50% total reduction on 2012 megajoules levels

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In addition, the proposal adopts a pathway to Five (5) Star Green Star Rating and One Planet Footprint target of 1.05 planets. ESD measures are employed across a number of areas including energy efficiency, potable water reduction, water sensitive urban design, structure & material improvement options, waste reduction, and improved indoor environmental quality.

Matters relating to ecologically sustainable development are discussed in detail at Section 6.7 of this EIS, including compliance with the approved Part 3A Concept Plan, noting academic buildings do not have specific rating tools or targets. An Ecologically Sustainable Development Report has been prepared by Wood & Grieve Engineers and accompanies this EIS as **Appendix X**.

3.6 Staging

Fundamentally, the project will be undertaken via a single construction contract over 20 months (excludes early works subject of separate approval process) from June 2018 to February 2020. The phases of works will be as follows:

- Detailed excavation
- Piling & footings;
- New building structures including new atrium;
- New facades, external finishes and roofing;
- Services infrastructure and services rough-in;
- Internal fit-outs, services fit-outs, internal finishes, and equipment;
- Civil works including hard landscaping, stormwater and drainage;
- Landscaping works; and
- Building commissioning and final decant.

The works are proposed to be staged so as to minimise potential impacts upon the operation of the university, particularly the ongoing use of the northern wing of W6B.

4.0 SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

In accordance with section 89G of the Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of this EIS on 10 May 2017. A copy of the SEARs is included at **Appendix B**.

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

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TABLE 1 –SEARS COMPLIANCE TABLE	
SEAR	EIS REFERENCE
GENERAL REQUIREMENTS	
The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the Regulation).	Statement of Validity
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Section 6.19
Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: - adequate baseline data - consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed); and - measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	
The EIS must also 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 Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived. The report shall be prepared on company - letterhead and indicate applicable GST component of the CIV; - an estimate of jobs that will be created during the construction and operational phases of the proposed development; and - certification that the information provided is accurate at the date of preparation.	Appendix A
KEY ISSUES	
The EIS must address the following specific matters:	
1. Statutory and Strategic Context – including: Address the statutory provisions contained in all relevant environmental planning instruments, including: <i>State Environmental Planning Policy (State & Regional Development) 2011;</i> <i>State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017;</i> <i>State Environmental Planning Policy (Infrastructure) 2007;</i> <i>State Environmental Planning Policy No.55 – Remediation of Land;</i>	Sections 6.1 and 6.2 Appendix P

• <i>Ryde Local Environmental Plan 2014</i>, and • <i>Draft State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017</i>. <i>Permissibility</i> Detail the nature and extent of any prohibitions that apply to the development. <i>Development Standards</i> Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards. <i>Macquarie University Concept Approval</i> In accordance with clause 3B(d) of Schedule 6A of the <i>Environmental Planning and Assessment Act 1979</i>, demonstrate consistency with concept plan approval MP 06_0016 dated 13 August 2009 including the Statement of Commitments for the project.	
2. Policies Address the relevant planning provisions, goals and strategic planning objectives in the following: • NSW Premier's and State Priorities; • A Plan for Growing Sydney; • Greater Sydney Commission's Draft North District Plan; • NSW Long Term Transport Master Plan 2012; • Sydney's Bus Future 2013; • Sydney's Cycling Future 2013; and • Sydney's Walking Future 2013.	Section 6.1
3. Built Form and Urban Design • Address the height, bulk and scale of the proposed development within the context of the Macquarie University Campus. • Address design quality with specific consideration of the façade, massing, setbacks, building articulation, use of appropriate colours, materials/finishes, landscaping, Crime Prevention Through Environmental Design Principles (CPTED) and public domain.	Section 6.4 and Appendix D Section 6.14
4. Environmental Amenity Detail amenity impacts including acoustic impacts, overshadowing and wind impacts. A high level of environmental amenity for any surrounding education buildings and open space areas must be demonstrated.	Section 6.5 and Appendix D
5. Transport and Accessibility Impacts (Construction and Operation) Include a transport and accessibility assessment, which details, but is not limited to, the following: • the current daily and peak hour vehicle, public transport, pedestrian and bicycle movements and existing traffic and transport facilities provided on the road network located adjacent to the proposed development; • the number of students and staff currently using the site and the likely number using the site due to the proposed development; • an estimate of the total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and cycle trips; • assessment of the operation of existing and future transport networks, and their ability to accommodate the forecast number of trips to and from the development; • the adequacy of pedestrian and bicycle provisions to meet the likely future demand of the proposed development including suitable bicycle parking and end of trip facilities;	Section 2.3 Section 6.6 and Appendix R Appendix G

- the operational impact of the proposed development on existing and future pedestrian network, bicycle network and public transport infrastructure within the vicinity of the site; - existing and proposed pedestrian, cyclist and vehicle access, including car, taxi and point to point transport for staff, students and visitors and compliance with Australian Standards; - sustainable travel initiatives for employees, students and visitors that support the achievement of concept plan targets, particularly the provision of bicycle parking, end-of-trip facilities, green travel plans and wayfinding strategies; - assessment of the impact of additional traffic generated by the proposed development on the existing road network; - the daily and peak vehicle movements impact on nearby intersections utilising traffic modelling endorsed by Roads and Maritime Services, 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); - measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks; - anticipated student and staff numbers and subsequent implications for car and bicycle parking demand on the campus; - existing and proposed car and bicycle parking provision, including end of trip facilities, and the consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards; - location of bicycle parking facilities in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance; - service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times); - road and pedestrian safety adjacent to the proposed development and required road safety measures; and - traffic and transport impacts during construction, including: - how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport; - the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact; - any cumulative impacts from construction activities for the Sydney Metro; - an assessment of road safety at key intersections and locations subject to heavy vehicle construction traffic movements and high pedestrian activity; and - construction programming detailing significant milestones and events during the construction process. Relevant Policies and Guidelines: <i>Guide to Traffic Generating Developments (Roads and Maritime Services)</i> <i>EIS Guidelines – Road and Related Facilities (DoPI)</i> <i>Cycling Aspects of Austroads Guides</i> <i>NSW Planning Guidelines for Walking and Cycling</i> <i>Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development</i> <i>Healthy Urban Development Checklist, NSW Health</i> <i>Development Near Rail Corridors and Busy Roads – Interim Guideline 2008</i>	
6. Ecologically Sensitive Development Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the proposal.	Sections 6.2 and 6.7 and Appendix X

• Demonstrate that the proposal 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.	
7. Noise & Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation. Outline measures to minimise and mitigate the potential noise impacts on surrounding uses, particularly the nearby aged care facility. Relevant Policies and Guidelines: • <i>NSW Industrial Noise Policy (EPA)</i> • <i>Interim Construction Noise Guideline (DECC)</i> • <i>Assessing Vibration: A Technical Guideline 2006</i>	Section 6.8 and Appendix S
8. Contamination Demonstrate that the site is suitable for the proposed use in accordance with State Environmental Planning Policy No.55 – Remediation of Land (SEPP 55). Relevant Policies and Guidelines: • <i>Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP)</i>	Section 2.6 Section 6.9 and Appendices J and K See also Section 6.10 and Appendix I
9. Utilities • Preparation of an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure. • Preparation of an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.	Section 2.4 Section 6.11 and Appendix H
10. Staging Provide details regarding any staging of the proposal.	Section 3.6
11. Drainage and Flooding • Detail the drainage system for the proposal • Assess any potential flood risks on-site associated with the proposal and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005)	Section 2.7 Section 6.12 Appendix Q
12. Waste Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Section 6.13 Section 6.16
PLANS & DOCUMENTS	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i> . Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: 1. Architectural drawings (dimensioned and including RLs); 2. Site Survey Plan, showing existing levels, location and height of existing and	Appendix D Appendix E Appendix F Appendix D Appendix E Appendix F

adjacent structures / buildings and boundaries;	
3. Site Analysis Plan;	Appendix A
4. Stormwater Concept Plan;	Appendix Q
5. Sediment and Erosion Control Plan;	Appendix Q
6. View Analysis / Photomontages;	Appendix D
7. Landscape Plan (identifying any trees to be removed and trees to be retained or transplanted);	Appendix E Appendix L Appendix M
8. 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 for all demolitions/construction activities;	Appendix R Appendix T
9. Geotechnical and Structural Report;	Appendix I Appendix P
10. Accessibility Report;	Appendix W
11. Arborist Report;	Appendix L Appendix M
12. Acoustic Report;	Appendix S
13. Acid Sulphate Soils Management Plan (if required); and	N/A
14. Schedule of materials and finishes.	Appendix D and Appendix E
CONSULTATION	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • City of Ryde Council; • Roads and Maritime Services; • Transport for NSW; • Sydney Metro Coordination Office; and • Sydney Trains. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	Section 1.2 Section 5.0

5.0 CONSULTATION PRIOR TO LODGEMENT

In accordance with requirements issued under the SEARs, MQU has consulted with a range of stakeholders in the preparation of the EIS.

Authorities were contacted via email on 21 June, 2017, and provided with a description of the proposal as set out in this EIS. Recipients were invited to contact RobertsDay to arrange a briefing on the proposal during which the Proponent and its representatives would be available to answer any questions the authorities may have about the proposal.

RobertsDay contacted the following organisations:

- City of Ryde Council
- RMS
- Transport for NSW
- Sydney Metro Coordination Office
- Sydney Trains

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The Sydney Metro Coordination Office was the only agency to respond. Most recent communication of relevance to this DA occurred on 11 October 2017. The Manager of the Epping-Chatswood Temporary Transport Project - Sydney Metro Delivery Office provided commentary to this project's transport consultant (TDG) on the possible construction-related impacts and management matters of works occurring simultaneously.

The comments related to:

- Timing of AM peak truck routes
- Mode of travel by construction works
- Construction vehicle route alternatives to avoid:
 - Impacts on existing bus routes
 - Alterations to bus layover arrangements within the MQU campus
 - Cumulative impacts of construction vehicles in Herring Road generally
- Avoidance of truck queuing via marshalling activities

TDG has provided commentary on these matters in Section 7.3 of its preliminary Construction Traffic Management Plan (see **Appendix R** of this EIS).

Separate liaison has also been ongoing with Sydney Trains as described in Section 6.2.2 of this EIS in relation to potential impacts of works to the Epping-Chatswood Railway Tunnel which runs beneath the MQU Campus.

Additionally, various consultants as part of their investigations and reporting consulted with relevant parties such as Council, Sydney Water, and Ausgrid.

It is noted that the EIS will be placed on public exhibition for at least 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.

6.0 ENVIRONMENTAL ASSESSMENT

This section of the report assesses and responds to the environmental impacts of the development and addresses the matters for consideration set out in the SEARs (see Section 4.0). The Mitigation Measures at Section 7.0 complement the findings of this section.

The SEARs have required the following strategic and statutory (and other planning-related documents) be considered and addressed in this EIS:

- *State Environmental Planning Policy (State & Regional Development) 2011;*
- *State Environmental Planning Policy (Infrastructure) 2007;*
- *State Environmental Planning Policy No.55 – Remediation of Land;*
- *Ryde Local Environmental Plan 2014;*
- *Draft State Environmental Planning Policy (Educational Establishments & Child Care) 2017;*
- *Protection of the Environment Operations Act 1997;*
- NSW Premier's and State Priorities;
- A Plan for Growing Sydney;
- Greater Sydney Commission's Draft North District Plan;
- NSW Long Term Transport Master Plan 2012;
- Sydney's Bus Future 2013;
- Sydney's Cycling Future 2013; and
- Sydney's Walking Future 2013.

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These are addressed below and in various other sections of this EIS.

6.1 Strategic Planning

An assessment of the proposal against the relevant state and local strategic planning policies as identified by the amended SEARs is summarised in the subsections that follow.

6.1.1 NSW Premier's and State Priorities

The current NSW Premier's and State Priorities are:

- Creating jobs - 150,000 new jobs by 2019
- Delivering Infrastructure - Key metropolitan, regional and local infrastructure projects to be delivered on time and on budget
- Driving public sector diversity - Increase the number of women and Aboriginal and Torres Strait Islander people in senior leadership roles by 2025
- Improving education results - Increase the proportion of NSW students in the top two NAPLAN bands by eight per cent by 2019
- Improving government services - Improve customer satisfaction with key government services every year, this term of government to 2019
- Improving service levels in hospitals - 81 per cent of patients through emergency departments within four hours by 2019
- Keeping our environment clean - Reduce the volume of litter by 40 per cent, by 2020

- Making housing more affordable - Deliver 61,000 housing completions on average per year to 2021
- Protecting our kids - Decrease the percentage of children and young people re-reported at risk of significant harm by 15 per cent by 2019
- Reducing domestic violence - Reduce the proportion of domestic violence perpetrators reoffending by 25 per cent by 2019
- Reducing youth homelessness - Increase the proportion of young people who successfully move from Specialist Homelessness Services to long-term accommodation to more than 34 per cent by 2019
- Tackling childhood obesity - Reduce overweight and obesity rates of children by five percentage points by 2025

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The project is not directly related to the vast majority of these priorities. Of more direct relevance is the priority to ensure a cleaner environment. To that end the project's ESD credentials and the waste management plan tied to the construction of the development itself appear most relevant. Of significance to this theme is the substantial reuse of these legacy buildings within the campus and overall avoidance of waste through the refitting of parts of the buildings that are able to be retained and reused. See also the Design Statement at **Appendix D**.

6.1.2 A Plan for Growing Sydney

MQU lies within the Macquarie Park Corridor, which features prominently in the NSW Government's 20-year plan for the future of the Sydney Metropolitan Area, A Plan for Growing Sydney. Macquarie Park is identified variously as a 'strategic centre', 'suburban office market', 'significant metropolitan health and education precinct', and 'knowledge hub (medical technology)'.

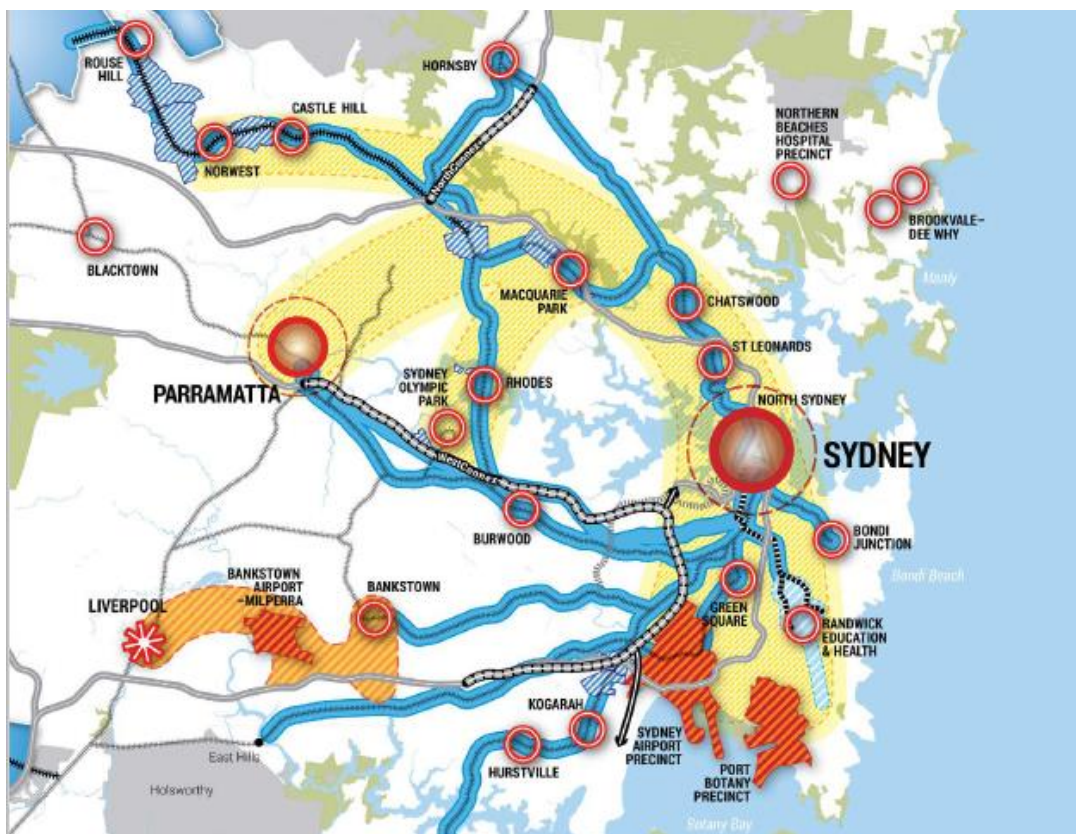


Figure 17 - A Plan for Growing Sydney – Global Economic Corridor (courtesy of DPE)

Specifically, the following are identified as priorities for the North Sub-region in relation to Macquarie Park:

- *Work with council to retain a commercial core in Macquarie Park for long-term employment growth.*
- *Work with council to concentrate capacity for additional mixed-use development around train stations, including retail, services and housing.*
- *Facilitate delivery of Herring Road, Macquarie Park Priority Precinct, and North Ryde Station Priority Precinct.*
- *Investigate potential future opportunities for housing in areas within walking distance of train stations.*
- ***Support education and health-related land uses and infrastructure around Macquarie University and Macquarie University Private Hospital.***
- *Support the land use requirements of the Medical Technology knowledge hub.*
- *Investigate a potential light rail corridor from Parramatta to Macquarie Park via Carlingford.*
- *Investigate opportunities to deliver a finer-grain road network in Macquarie Park.*
- *Investigate opportunities to improve bus interchange arrangements at train stations*
- *Work with council to improve walking and cycling connections to North Ryde train station.*

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The proposed works will facilitate the realisation of the MUAPP, which seeks to meet the changing needs of MQU's Faculty of Arts through the provision of a flexible 'new generation' academic environment and a built-for-purpose space to showcase faculty artworks and assets. The proposal is, therefore, consistent with the aims of A Plan for Growing Sydney as far as they apply to the proposal.

6.1.3 Greater Sydney Commission's Draft North District Plan

The Greater Sydney Commission (GSC) draft District Plans were placed on exhibition in late November, 2016. The Draft North District Plan will form the basis for strategic planning within the North District comprising Ryde, Hornsby, Hunters Hill, Ku-ring-gai, Lane Cove, Northern Beaches, Mosman, North Sydney, and Willoughby.

In recognition of the complex nature of the Macquarie Park Corridor and the range of stakeholders involved in planning and development of the area, the Corridor is identified as a Collaboration Area where a significant productivity, liveability or sustainability outcome is better achieved through the collaboration of different levels of government and in some cases the private sector or landowners.

Macquarie Park is also identified by the draft District Plan as a 'strategic centre' with a job target range of between 73,000 (baseline target) and 79,000 (higher target) by 2036. This represents growth of an additional 20,500 jobs; the most ambitious target of any centre within the North District. The Macquarie Park strategic centre is identified as one of Metropolitan and Global Sydney's foremost CBDs in terms of jobs, investment, innovation clusters, and GSP/ GDP generation.

Once again, the strategic aims of the draft District Plan are broad in nature and not of direct relevance to the current proposal given the scale and nature of the works. The MQU Arts Precinct Project proposal relates to lifecycle renewal of existing buildings within an existing university campus that will enhance - but not intensify - its existing operations. It is noted, however, that no aspect of the proposal will preclude the future achievement of the aims of the draft District Plan.

6.1.4 NSW Long Term Transport Master Plan 2012

The NSW Long Term Transport Master Plan (LTTMP) was released in 2012. It sets the direction for transport planning in NSW and provides a framework for transport policy and investment decisions. Whilst the Master Plan does not provide any specific actions for the subject land, it did generate the preparation of Sydney's Walking Future 2013, Sydney's Cycling Future 2013, Sydney's Bus Future 2013, and Sydney's Rail Future 2013. These are addressed in turn in the subsections that follow.

6.1.5 Sydney's Bus Future 2013

Sydney's Bus Future 2013 is the NSW Government's long term plan to redesign our city's bus network to meet customer needs now and into the future. The plan proposes new high frequency Rapid bus routes for travel between suburbs and centres, such as Macquarie Park, that are not directly connected by rail. These new services are intended to accommodate growth in demand for bus services, anticipated to grow by 30 per cent by 2031 as a result of jobs and population growth, particularly in the North West and South West of Sydney.

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Although the specific projects identified in the Plan are not of direct relevance to the subject land and proposal, the proposal is broadly consistent with the Plan's objective to encourage use of the Sydney bus network by commuters: The proposal:

- lies within close proximity to bus services on University Avenue;
- minimises the provision of on-site parking to discourage reliance on private vehicles; and
- is consistent with MQU's University Travel Plan and goal of achieving a 40% non-car share mode target.

6.1.6 Sydney's Cycling Future 2013

The actions set out in Sydney's Cycling Future 2013 presents a new direction in the way Transport for NSW plans, prioritises and provides for cycling in Sydney. This is in response to a change in culture in Sydney where more people are choosing to ride a bike for transport. The Plan seeks to increase the mode share of cycling in the Sydney metropolitan region for short trips that can be a 20 to 30 minute ride.

The land subject of this EIS lies within a 5 kilometre cycling catchment of an identified activity centre (Specialised Precinct) but Macquarie Park is not listed or mapped as a priority area for new connections.

Importantly, MQU already provides a substantial number of secure bike storage options and end of trip facilities within the campus and in close proximity to this development which have historically contributed to realisation of Sydney's Cycling Future objectives.

6.1.7 Sydney's Walking Future 2013

The actions set out in Sydney's Walking Future 2013 seek to make walking the transport choice for quick trips under two kilometres and will help people access public transport. Increasing the number of people walking will help to reduce the burden of congestion on Sydney's roads and generate capacity on key public transport corridors such as:

- Changes to online trip planning to enhance walking as a transport option;
- Wayfinding pilots at Milsons Point, Martin Place and Circular Quay and the development of walking maps;

- Construction of the 'Wynyard Walk';
- Investigations into an extension of the Goods Line; and
- Delivery of the George Street light rail/ pedestrian spine.

The land subject of this EIS lies within the catchment of an identified activity centre (Specialised Precinct). Although the land is not associated with any of the specific projects identified by the Plan for activity centres, the proposal is consistent with the Plan's general aim of investing in connected walking routes within two kilometres of centres and public transport interchanges. The proposal includes measures that seek to make walking a more convenient, better connected and safer mode of transport within the MQU campus. It is also important to note that the origins of the campus' development and its fundamental design and structure some 50 years ago was based on a walking environment. This has been further encouraged with the opening of the Epping to Chatswood railway line and the Macquarie University Station and access from the station to the campus generally.

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6.2 Statutory Planning

An assessment of the proposal against the relevant state and local statutory planning instruments as identified by the SEARs is summarised in the subsections that follow.

6.2.1 State Environmental Planning Policy (State & Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 identifies development that is State Significant Development (SSD). In the case of SSD, the Minister for Planning is the consent authority and an Environmental Impact Statement (EIS) must be prepared in accordance with environmental assessment requirements specified by the Minister.

Clause 15 of Schedule 1 of the SEPP specifies certain development for the purpose of an educational establishment as SSD, as follows:

15 Educational establishments

Development for the purpose of educational establishments (including associated research facilities) that has a capital investment value of more than \$30 million.

The proposal subject of the SSD has an estimated capital investment value of \$111 million and is therefore State Significant Development. A Quantity Surveyor's Report estimating the capital investment value of the project is provided at **Appendix A**.

It is also salient to note that, under Division 11 of Part 2 of the SRD SEPP, development control plans do not apply to SSD DAs.

6.2.2 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) enables development for the purpose of an *educational establishment* as development without consent where the works are carried out by a public authority and within a prescribed zone subject to provisions listed under Division 3 Educational establishments.

MQU is a public authority under planning legislation and is able to carry out such works. The subject land is zoned B4 Mixed Use and is a prescribed zone for the purposes of the ISEPP.

Pursuant to Clause 86 of the ISEPP, a consent authority must give Railcorp notice of an application for development proposing the penetration of ground to a depth of at least 2 metres below ground level on land within or above a rail corridor, or within 25m of a rail corridor.

The only works subject of this EIS triggering Clause 86 is those under W6A. The works to W6B and to the new building do not trigger concurrence in their own right. The Railway Corridor Impact Study prepared by Taylor Lauder Bersten articulating the impacts of the works accompanies this EIS at **Appendix P**.

As noted in the report prepared by Taylor Lauder Bersten, the Early and Main Works are split. The Early Works have already been assessed by Sydney Trains in consultation with Council, MQU and Taylor Lauder Bersten. A concurrence to that DA is in preparation at the time of writing. Sydney Trains in already in receipt of documentation for the whole of the works consistent with **Appendix P**.

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Clause 87 of the SEPP nominates heads of consideration in the determination of a DA relating to development for certain purposes on land in or adjacent to a rail corridor that is likely to be adversely affected by rail noise or vibration. Nominated purposes include development for the purpose of a building for residential use, a place of public worship, a hospital, an educational establishment or child care centre. As the land subject of this proposal is currently used for the purpose of an educational establishment, there will be no material change in impacts generated by the location of the rail corridor, noting these buildings and the educational use predate the development of the rail corridor by some 40 years.

Finally, Schedule 3 of the SEPP specifies development that qualifies as traffic generating development that must be referred to the Roads and Maritime Services (RMS). Although the overall proposal comprises additions to an existing educational establishment, the proposal will not result in an increase in the number of students or staff associated with MQU. The proposal, therefore, does not qualify as 'traffic generating development' under Schedule 3 of the Infrastructure SEPP and is not required to be referred to the RMS for comment on this basis.

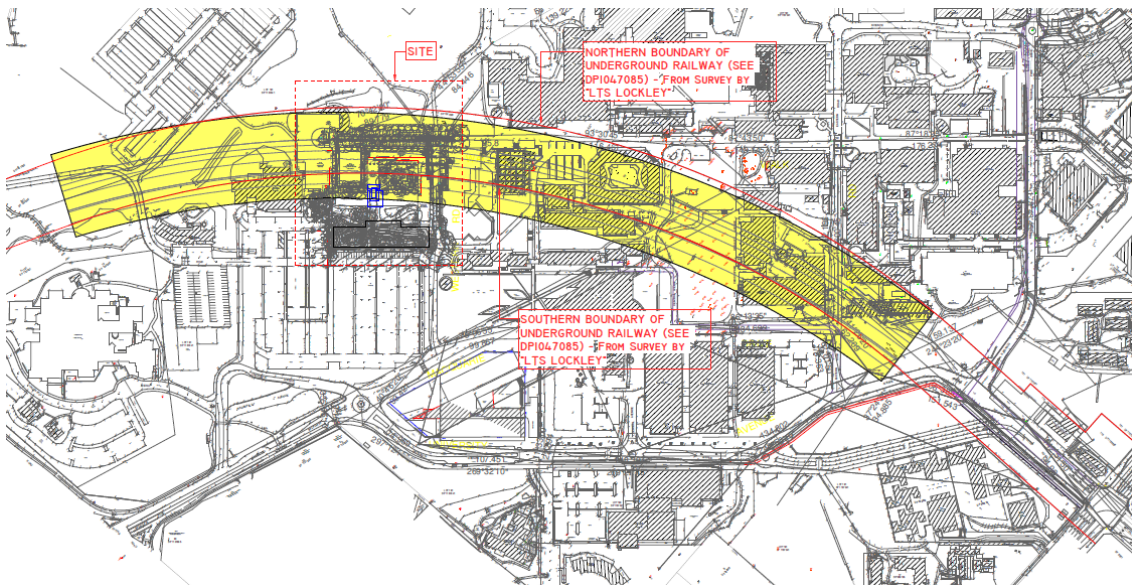
In light of the above, further consideration of the ISEPP is not required.

6.2.3 State Environmental Planning Policy No.55 – Remediation of Land

The requirements of State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55) apply to the subject site. In accordance with Clause 7 of SEPP 55, the consent authority for these works must consider if the land is contaminated, and if it is contaminated, whether it is suitable for the proposed use and if it is not suitable, whether it can be remediated to a standard such that it will be made suitable for the proposed use.

As noted in Section 2.0 of this EIS, the land is not contaminated and the soil mounds (existing berm) have been classified as General Solid Waste (non-putrescible). The existing berm is proposed for removal via separate DA to Ryde City Council under Part 4 of the Act. Similarly, identified hazardous building materials are proposed for removal via separate DA to Ryde City Council under Part 4 of the Act.

Further consideration of SEPP 55 is, therefore, not required.



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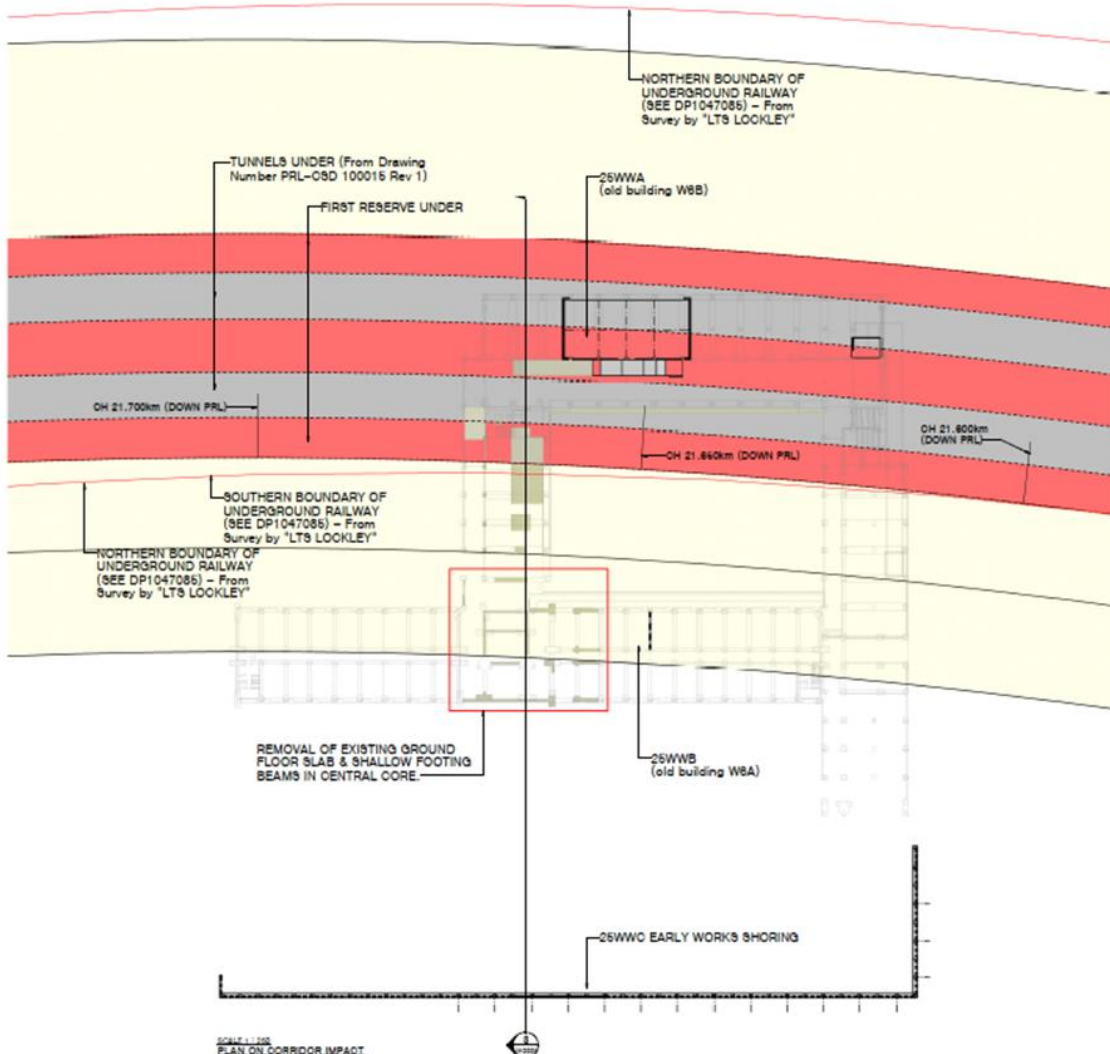


Figure 18 – Rail corridor impact study (courtesy Taylor Lauder Bersten)

6.2.4 State Environmental Planning Policy (Educational Est. & Child Care) 2017

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

commenced in early September 2017. It seeks to improve regulatory certainty and efficiency through a consistent planning regime for educational establishments that include universities. Part 5 - Universities, in particular, seeks to simplify planning approval pathways for universities (including identification of certain development of minimal environmental impact as exempt development).

The SEPP has limited provisions applying to universities and given the nature and scale of the proposed works, the approval pathway in this case is unlikely to be altered by the SEPP. Further consideration of the SEPP is unnecessary.

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6.2.5 Ryde Local Environmental Plan 2014

As noted, to the extent that it is not inconsistent with the approved Part 3A Concept Plan, *Ryde Local Environmental Plan 2014* (Ryde 2014) also applies to the land and the proposal. We note that development standards under RLEP 2014 were recently amended by the gazettal of new controls following the finalisation of the Herring Road Priority Precinct process.

Part 2 Permitted or Prohibited Development

Under Part 2 Permitted or Prohibited Development of RLEP 2014, the site is zoned B4 Mixed Use. Development for the purpose of *educational establishments* is permitted with consent in the B4 zone.

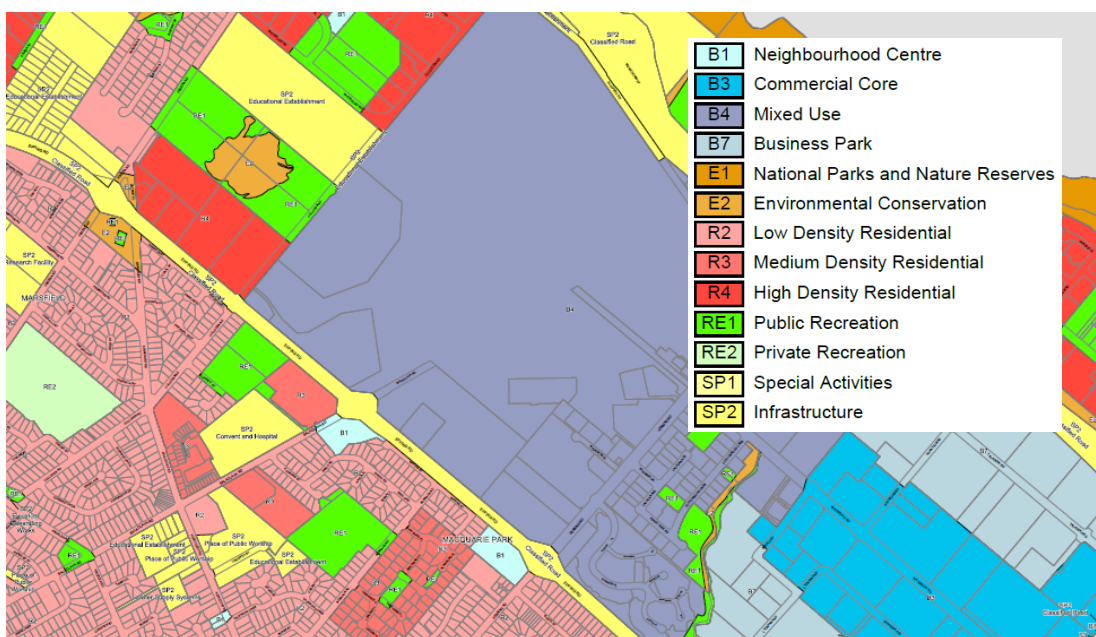


Figure 19 - RLEP 2014; land use zone map (Sheet LZN_004)

Part 4 principal development standards

The relevant principal development standards under Part 4 of RLEP 2014 are the maximum building height and the maximum floor space ratio development standards. Although maximum building height and FSR controls are applied to certain allotments along Herring Road, no maximum building height or FSR is applied to the land subject of this proposal, or throughout Precinct A under both the LEP and the approved Part 3A Concept Plan.

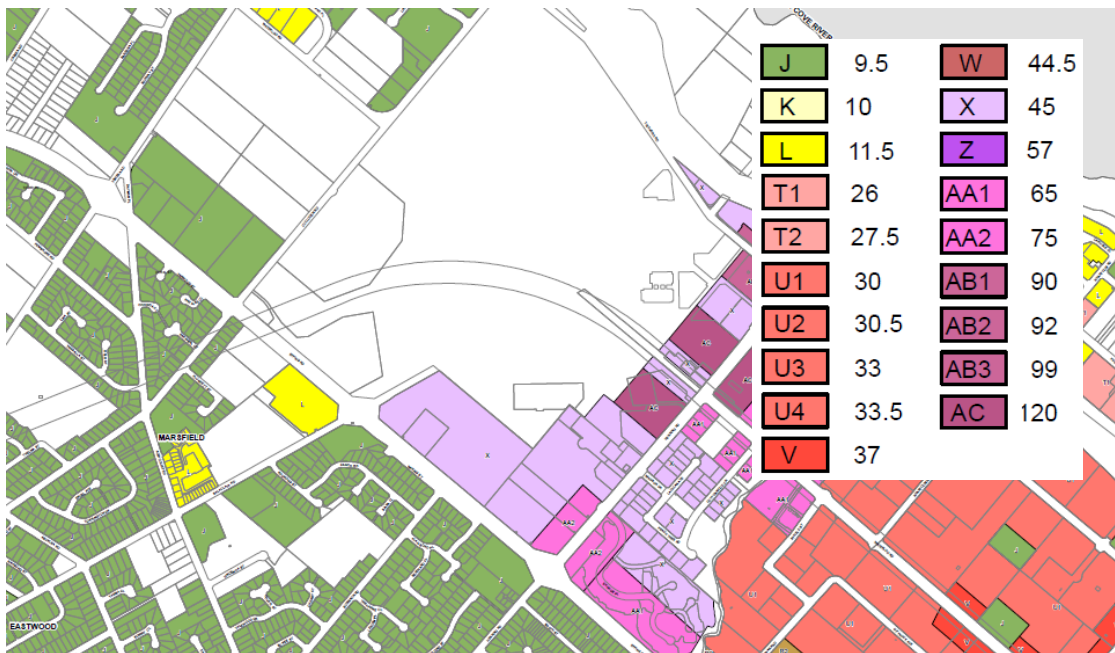


Figure 20 - RLEP 2014; height of building map (Sheet HOB_004)

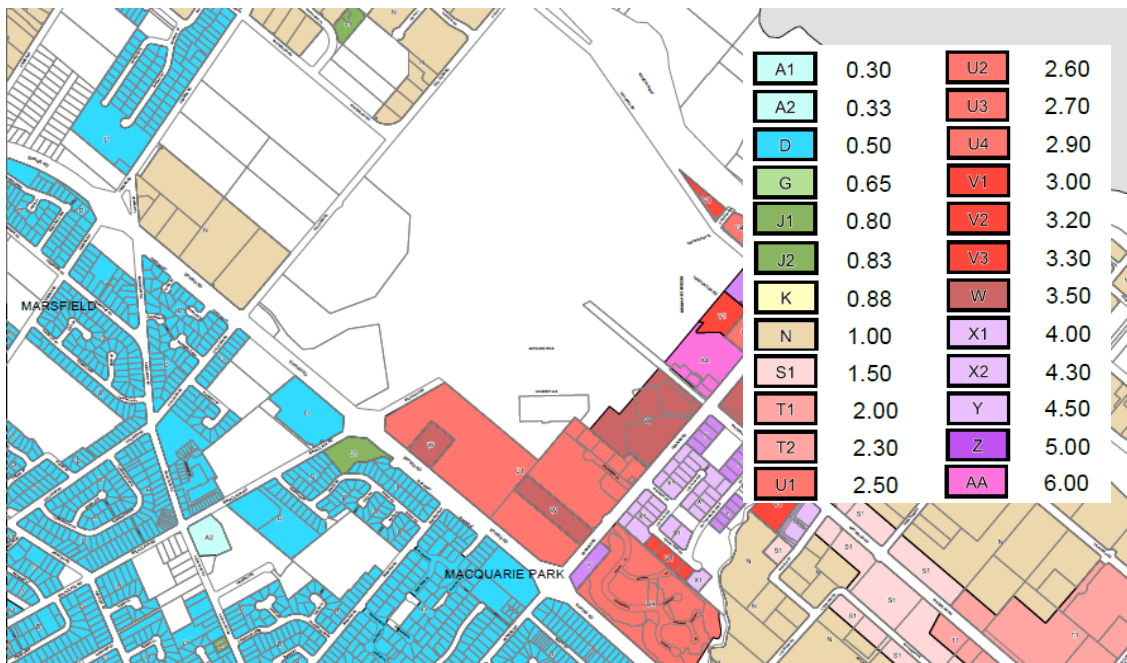


Figure 21 - RLEP 2014; floor space ratio map (Sheet FSR_004)

Part 5 Miscellaneous provisions

Clause 5.9 Preservation of Trees or Vegetation seeks to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation. As noted in Section 3.0, approval of tree removal works will be undertaken as exempt works (as opposed to works identified as Exempt Development) consistent with clause 9.5 (2.0) of Ryde DCP 2014.

Clause 5.10 Heritage Conservation of RLEP 2014 seeks to conserve the environmental heritage of Ryde including its heritage items, conservation areas, archaeological sites and Aboriginal heritage. MQU is

in part identified as an item of local heritage significance under Schedule 5 of RLEP 2014 as item no. 10 (see extract below).

SUBURB	ITEM NAME	ADDRESS	PROPERTY DESCRIPTION	SIGNIFICANCE	ITEM NO
Macquarie Park	Macquarie University (ruins)	192 Balaclava Road	Part Lot 18, DP 1058168	Local	10

The heritage item itself is the ruins of a stone farm building, listed by Council as the 'Macquarie University ruins', which are situated towards the centre of the University campus adjacent to a car parking area. Despite the modest scale of the ruins, as heritage listing at a local level is defined by the legal description of the land (ie lot and DPI), the vast majority of the university campus is identified as a heritage item due to the cadastral boundaries at that time and the prevailing LEP mapping convention. However, in accordance with Clause 5.10 of RLEP 2014, the heritage item is as defined under Schedule 5 and the listing does not relate to the land subject of this proposal. A Heritage Impact Statement has nonetheless been prepared and is attached to this EIS at **Appendix N**.

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Part 6 Additional Local Provisions

Clause 6.2 Earthworks seeks to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land. Before granting development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the likely environmental impacts of the work including the source of any fill material and the destination of any excavated material, the likelihood of disturbing relics, and the proximity of any waterway.

Clause 6.3 Flood Planning seeks to minimise the flood risk to life and property, to allow development on land that is compatible with the land's flood hazard, and to avoid significant adverse impacts on flood behaviour and the environment. Although the subject land is not identified as a "Flood Planning Area" on the LEP's Flood Planning Map, the land lies within the vicinity of land at or below the flood planning level, defined as follows:

land at or below the flood planning level means land at or below the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard.

Clause 6.4 Stormwater Management seeks to minimise the impacts of urban stormwater on land to which this clause applies and on adjoining properties, native bushland and receiving waters. Development consent must not be granted to development unless the consent authority is satisfied that the development is designed to maximise the use of water permeable surfaces on the land, includes (if practicable) on-site stormwater retention and avoids any significant adverse impacts of stormwater runoff. Stormwater and flooding is addressed in this EIS at Section 6.12.

Clause 11A of Schedule 1 nominates a number of additional permitted uses with respect to MQU's North Ryde Campus. These are not of direct relevance to the current proposal which is, in any case, a permissible use.

6.2.6 Part 3A Concept Plan Approval

Clause 3B(d) of Schedule 6 of the Act requires demonstration of consistency with the Part 3A Concept plan approval, including its Statement of Commitments. This consistency is set out in the detailed table below and further commentary and detailed information following it.

TABLE 3 – ASSESSMENT AGAINST PART 3A CONCEPT PLAN APPROVAL

SCHEDULE 2 –PART A ADMINISTRATIVE TERMS OF APPROVAL

<i>A1 Development Description</i> (1) 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 titles "Macquarie University State Environmental Planning Policy (SEPP) amendment and Concept Plan" dated April 2008, as amended by the "Macquarie University Concept Plan and SEPP (Major Projects) Amendment Preferred Project Report" dated March 2009, prepared by JBA Planning Consultants and Cox Richardson Architects including: a. The provision of an additional 400,000 sqm of commercial GFA and associated parking outside of the Academic Core. b. The Provision of an additional 61,200 sqm of academic GFA within the Academic Core. c. The Provision of an additional 3,450 beds within the University Housing Precincts for University purposes only. d. Infrastructure upgrading and improvement to the road network as required, and e. Rationalisation of University car parking locations.	N/A Proposal entails an addition of 1,298 sqm GFA to existing W6A and W6B as well as addition of 4,456 sqm GFA via the new showcase building. A balance of 55,418 sqm GFA remains to be utilised within Academic Core. See further description following this table below. N/A N/A N/A
<i>A2 Development in Accordance with Plans and Documentation</i> (1) The development shall generally be in accordance with the following plans and documentation (including any appendices therein): a. "Macquarie University State Environmental Planning Policy (SEPP) amendment and Concept Plan" dated April 2008, as amended by the "Macquarie University Concept Plan and SEPP (Major Projects) Amendment Preferred Project Report" dated March 2009, prepared by JBA Planning Consultants and Cox Richardson Architects. Except for otherwise provided by the Department's modifications of approval as set out in Schedule 2, Part Band the Proponent's Statement of Commitments set out in Schedule 3. (2) In the event of any inconsistencies between the modifications of this concept approval and the plans and documentation described in Part A, Schedule 2, the modifications of this concept approval prevail. (3) In accordance with Section 75P(2)(a) of the EP and A Act, where there is an approved Concept Plan, any approval given under Part 4 of the Act by Council, must be consistent with that Concept Plan.	Noted. Noted. Noted.

<i>A3 Gross Floor Area</i> The maximum gross floor area for each precinct is detailed in the following table ...	As noted above, the proposal entails an addition of 1,298 sqm GFA to existing W6A and W6B as well as addition of 4,456 sqm GFA via the new showcase building. A balance of 55,418 sqm GFA remains to be utilised within Academic Core. See further description following this table below. See further description following this table below.
<i>A4 Consolidated Concept Plan</i> A consolidated version of the Concept Plan, combining the approved components of the Environmental Assessment, Preferred Project Report, Statement of Commitments, and modifications required by this approval, is to be submitted to the Department within 3 months of the Concept Plan approval.	N/A – condition was satisfied in December 2009.
<i>A5 Approval authority</i> In the event that the Council is the consent authority for any future applications on the site, any reports specified in the Statement of Commitments to be submitted to the Director General for approval, shall be instead be required to be approved by the Council.	N/A – consent authority is DPE / the Minister
<i>A6 Approvals by the Director General</i> If any of the terms of the approval specify that an agreement is to be made between the proponent and a government agency or council, all parties to the agreement are to act reasonably. If no agreement is reached within 3 months of the commencement of negotiations, the issue can be referred to the Director General for a decision. Full details of the discussions and the dispute are to be provided in order for the Director General to make a decision.	Noted.
<i>A7 Lapsing of Approval</i> Approval of the Concept Plan shall lapse 5 years after the determination date in Part A of Schedule 1, unless an application is submitted to carry out a development for which concept approval has been given.	The Concept Plan Approval has been preserved through the lodgement (and subsequent approval) of the Australian Hearing Hub application.
SCHEDULE 2 – PART B MODIFICATIONS TO THE CONCEPT PLAN	
<i>B1 Car Parking</i>	N/A

(1) Car parking for commercial uses shall not exceed a maximum rate of 1 space per 80m² of gross floor area across Precincts E and F. Note: variations to the car parking rates could be considered only where it can be demonstrated with certainty that upon completion of the full development of Precincts E and F in accordance with the approved Concept Plan, compliance is achieved with the maximum prescribed car parking rate. (2) The maximum car parking across the campus is 10,800 spaces and is distributed for each precinct as follows: a. Precincts A, G and H (total) - 4,095 spaces b. Precinct B - 1,000 spaces c. Precinct D - 705 spaces d. Precinct E and F (total) - 5,000 spaces (3) New car parking for commercial buildings within Precincts D, E and F shall be located within basements (part of which may be above ground due to the slope of the site) and generally contained within the footprint of the building above. The design of any above ground car parking shall include architectural treatment of the elevations to reduce their visual impact and dominance. (4) The existing at-grade and above ground car parking areas within the site shall be consolidated into four car parks around the perimeter of the Academic Core (Precincts A and B). The design of any above ground car parks shall include architectural treatment of the elevations to reduce their visual impact and dominance.	No change proposed. A temporary loss of parking results from decanting and the works zone to the south of the development site. N/A N/A N/A N/A N/A to this development. This is progressively being rolled-out as the centralised parking structures are demolished.
<i>B2 Transport and Pedestrian Management</i> (1) A 40% non-car mode share target shall be adopted for the academic and commercial uses on the site. (2) A travel survey of the academic and commercial uses shall be undertaken every five years and identify the mode share achieved for each transport type. A report shall be submitted to the Director General of the Department of Planning and shall include a summary of the survey methodology and results and recommendations to achieve the target of 40% non-car mode share target.	The 40% mode share split to non-car mode was achieved once the Macquarie University railway station opened. The MQU 2014 Sustainability Report and Macquarie University Travel Demand Survey 2014 Analysis Report confirmed that public transport use increased to 48% in 2014. The most recent travel survey is presently under preparation for separate lodgement to the Department, again confirming the successfully attained non-car mode share split.

<i>B3 Road works</i> (1) The Concept Plan approval includes the following road intersection upgrades identified within Section 4.4 of the "Macquarie University Concept Plan TMAP" dated March 2009 and prepared by Cardno Eppell Olsen: - Epping Road/ Balaclava Road intersection - additional through lane on Balaclava Road (south) and additional right turn lane on Balaclava Road (north) - Epping Road / Herring Road intersection - additional through lane on Herring Road (south), additional right turn lane on Epping Road (east), two through lanes and two right turn lanes on Herring Road (north) and adjusted signal phasing. - Waterloo Road / Herring Road intersection - left/through lane on Waterloo Road (east) and adjusted signal phasing. - Waterloo Road / Culloden Road intersection - realign Gymnasium Road to make fourth leg at roundabout and provide two lane circulating roundabout. - Talavera Road/ Christie Road intersection - additional left turn slip lane, through lane/right turn lane on Talavera Road (east), departure lane becomes full traffic lane on Talavera Road (west) and adjusted signal phasing. - Talavera Road / Herring Road intersection - adjusted signal phasing. (2) Within 3 months of the date of this approval, or as otherwise agreed to by the Department, indicative timing and staging plans of the above intersection works shall be submitted to the Department. As part of any application that generates the need to undertake the above intersection works, detailed design plans for the relevant intersection upgrade(s) and a commitment to enter into a Works Authorisation Deed (or similar type of agreement) with the RTA, shall be submitted to the Department.	It was subsequently agreed with the then RTA that only the Epping Road/Herring Road and Epping Road/Balaclava Road intersections required further attention under this condition. The timing of works is in part subject of Mod 5 to the Australian Hearing Hub approval which is presently under assessment. As per information included in MOD 5 from 2016, separate VPAs have been prepared to address roadworks under Conditions B3(1) and C15(1) with the DPE (on behalf of the RMS) and with Council to address other local roadworks as since agreed with Council post Concept Plan approval. The current status of the VPAs is: - MQU has made offers to each of City of Ryde and DPE - MQU is presently awaiting a draft VPA from City of Ryde; and - MQU is presently responding to the draft VPA from DPE.
<i>B4 Design Excellence and Urban Design Guidelines</i> (1) The Design Excellence Strategy and Urban Design Guidelines to be prepared (as referred to on page 5 of the Statement of Commitments) are to have regard to Macquarie Park Corridor DCP.	Campus-wide Design Excellence Strategy and Urban Design Guidelines have been prepared and separately lodged with the DPE for its consideration. These works

(2) The Design Excellence Strategy and Urban Design Guidelines are to be prepared in consultation with Council and include provision for the accommodation of car parking in the basement of new buildings, including details in relation to the achievement of activated frontages, and details related to the provision of bicycle paths and associated facilities. (3) The Design Excellence Strategy and Urban Design Guidelines for Precinct E are to specifically address pedestrian crossing from the Macquarie Park railway station to the Academic Core, creating active frontages around the station particularly after hours, and integration of station services buildings into design of new buildings around the station plaza. (4) The Design Excellence Strategy and Urban Design Guidelines are to indicate the extent of setbacks required by the RTA. Such guidelines to be prepared in liaison with the RTA, having regard to the micro simulation modelling and the extent of setback required to achieve additional capacity improvements and bus priority. (5) The Design Excellence Strategy and Urban Design Guidelines are to be submitted for approval by the Department of Planning prior to the or with the first application for new building works within each precinct.	are not the first works within Precinct A since the Part 3A Concept Plan approval. MOD 5 has addressed Condition B4(4) which states that the micro-simulation model demonstrates that provision of setbacks is not required and that MQU commits to regular traffic counts to monitor traffic performance of the University Ave intersection at Balaclava Road. This matter has not been agreed by RMS or DPE and is presently being negotiated and resolved.
<i>B5 Setbacks</i> (1) An amendment to the Concept Plan is to be prepared in consultation with Council and the RTA, and approved by the Department of Planning, which makes provision for adequate setbacks along Balaclava Road (from Epping Road to University Avenue) and Waterloo Road (from Herring Road to Research Park Drive), to facilitate additional capacity improvements and bus priority, prior to or with the lodgement of the first application for new building works within Precinct E. (2) The setbacks referred to in (1) above to form part of the agreements referred to in C15 of this approval.	As above, the micro-simulation model demonstrates that provision of setbacks is not required and that MQU commits to regular traffic counts to monitor traffic performance of the University Ave intersection at Balaclava Road. This matter has not been agreed by RMS or DPE and is presently being negotiated and resolved.
SCHEDULE 2 – PART C FURTHER ASSESSMENT REQUIREMENTS	
<i>C1 Staging of Development</i> (1) The Proponent shall demonstrate with each application for building works that the proposed development represents the orderly and coordinated development such that: a. It may be serviced by existing infrastructure, by infrastructure approved by this Concept Plan, or is capable of being serviced; and b. Access for vehicles and pedestrians is available and can be made available.	An Infrastructure Management Plan has been prepared by Wood & Grieve Engineers and accompanies this EIS at Appendix Q. Access to the MUAPP for both vehicles and pedestrians is proposed as demonstrated by the architectural drawings prepared by BNMH and Architectus, which accompany this EIS at Appendix D.
<i>C2 Urban Design Details</i>	

(1) Future applications for increased height of buildings to the north of Macquarie University Station shall demonstrate by way of sections and elevations, the relationship of the proposed increase in building height with that approved by this Concept Plan. (2) Development within Station North (Precinct E) is to be set back 43 metres from the centre line of Waterloo Road. The Urban Design guidelines for Precinct E shall demonstrate by way of Sections and elevations how this setback is to be achieved, the proposal's relationship with the setbacks approved by this approval, as well as provision for activated frontages, and assessment of any adverse impacts including but not necessarily restricted to, visual impact and overshadowing.	N/A – not relevant to the current proposal, which lies within Precinct A Academic Core. N/A – not relevant to the current proposal, which lies within Precinct A Academic Core.
<i>C3 Landscaping</i> (1) The Landscape Management Plan referred to on Page 4 of the Statement of Commitments is to be integrated with the Design Excellence Strategy and Urban Design Guidelines referred to in 84 of this approval and is to demonstrate: - Maintenance of the bush land setting of the site. - Achievement of the landscape principles articulated in the Statement of Commitments, and as shown in Figure 26 to the Environmental Assessment Report. (2) The Landscape Management Plan is to be prepared for each precinct, and submitted for approval prior to or with the first application for new building works within each precinct.	The Landscape Management Plan for Precinct A forms part of the previously lodged Precinct A Design Excellence Strategy and Urban Design Guidelines. The Landscape Management Plan for Precinct A forms part of the previously lodged Precinct A Design Excellence Strategy and Urban Design Guidelines.
<i>C4 Riparian Zone, Flooding and Storm water</i> (1) The Stormwater Management Plan and other various plans referred to on page 6 the Statement of Commitments are to be: - Integrated with the Vegetation Management Plan and Threatened Species Plan referred to on page 4 of the revised Statement of Commitments. - Revised in accordance with any modifications undertaken as part of this approval. The Stormwater Management Plan is to be submitted for approval with each application for new building works as relevant.	A Stormwater Management Plan has been prepared by TTW as part of the campus-wide Design Excellence Strategy and Urban Design Guidelines. The Stormwater Management Plan integrates with the Vegetation Management Plan and Threatened Species Management Plan. The MUAPP is designed / located to not impact upon stormwater, flooding or riparian zones, not also that no threatened species occur in part of the campus. A project specific Stormwater Concept Plan is appended to this EIS.
<i>C5 Bushfire Protection</i> (1) A Bushfire Management Plan is to be prepared in accordance with the requirements of 'Planning for Bushfire Protection 2006' (NSW Rural Fire Service), particularly in relation to Precinct B. The Bush Management Plan has to be prepared to the satisfaction of the NSW Rural Fire Service and submitted with each application for building works, as relevant.	N/A – the development is in Precinct A and this part is not subject to bushfire risk.

(2) Uses constituting 'Special Fire Protection Purposes' as defined in 'Planning for Bushfire Protection 2006' are to be undertaken in consultation with the NSW Rural Fire Service.	N/A – does not apply to the current proposal, which is for a University and not a school. As above, this part of Precinct A is not subject to Bushfire Risk
<i>C6 Flora and Fauna</i> (1) The Vegetation Management Plans, the Threatened Species Plan, and the Weed Management Plan referred to on page 4 of the Statement of Commitments shall detail responsibility for each action, and shall include ongoing measures. (2) A copy of the Plans shall be submitted with each application for building works. (3) All future development is to be undertaken in accordance with the 'Guidelines for Development Adjoining Department of Environment and Conservation Land' by DECC dated August 2006.	A Vegetation Management Plan, Threatened Species Plan and Weed Management Plan have been submitted to the Department for endorsement as part of the Campus-wide Urban Design Guidelines. Note the area subject of this development is not an area identified as being subject to any threatened species or communities and the Ecology Report at Appendix M that the trees already separately removed as being exempt from any approval under Ryde DCP were planted specimens.
<i>C7 Environmentally Sustainable Development</i> (1) The requirements in respect of environmentally sustainable development as set out at page 1 of the Statement of Commitments is to be submitted for approval with each new application for building works on the site, as relevant.	An ESD Report has been prepared by Wood & Grieve Engineers and accompanies this EIS as Appendix X.
<i>C8 Environmental Management and Contamination</i> (1) The hazardous material audit, and a targeted Phase 2 intrusive contamination assessment referred to on page 2 of the Statement of Commitments is to be prepared be submitted for approval with each application for building works based on an assessment on a precinct by precinct basis.	A Contamination Assessment and HAZMAT study of the existing W6A and W6B and its surrounds has been undertaken and these accompany this EIS at Appendix J and Appendix K, respectively.
<i>C9 Heritage / Archaeology</i> (1) The Aboriginal Archaeology Strategy referred to on page 5 of the Statement of Commitments is to be prepared in liaison with the Metropolitan Local Aboriginal Land Council, and is to be submitted for approval prior to or with the first application for new building works within each precinct.	Strategy was approved by the DPE on 14/12/2012 and accompanies this EIS at Appendix O.
<i>C10 Access, Traffic, Transport and Parking</i>	Note, the application is not the first for works within Precinct A / the Academic Core.

The University Travel Plan (UTP) referred to at page 1 of the Statement of Commitments is to be prepared in liaison with Council and the RTA, and approved by the Department of Planning, prior to or with the first submission of the first application for building works for academic/educational uses within the Academic Core. (1) The detailed micro-simulation model referred to at page 2 of the Statement of Commitments is to be prepared in liaison with Council, the RTA and the Ministry of Transport and submitted to the Department of Planning for approval prior to or with the submission of the first application for new commercial floor space on the site. (2) The micro simulation modelling is to be prepared on the basis that there will be no additional access to the M2 Hills Motorway. (3) The micro simulation modelling is to form the basis for discussion in respect of the agreement between the RTA and the Proponent referred to at C15 below. (4) A Workplace Travel Plan referred to at page 2 of the Statement of Commitments be prepared for each commercial development and submitted for approval prior to the occupation of that commercial development.	The UTP has been previously completed and submitted. As above, the micro-simulation model demonstrates that provision of setbacks is not required and that MQU commits to regular traffic counts to monitor traffic performance of the University Ave intersection at Balaclava Road. This matter has not been agreed by RMS or DPE and is presently being negotiated and resolved.
<i>C11 Child Care Strategy</i> (1) The Child Care Strategy referred to on page 7 of the revised Statement of Commitments is to be prepared in consultation with Council, and submitted for approval prior to or with the first application for new floor space.	The condition was conditionally satisfied on 14/12/2012 and DPE provided with an update to this on 7/11/2013 and finalised/satisfied.
<i>C12 Transitional Matters (Triangle South of University Avenue)</i> (1) As part of any future applications associated with the Cochlear development, the at-grade parking is to be relocated elsewhere and replaced with open space.	N/A – does not apply to the current proposal, which is not associated with the Cochlear development
<i>C13 Construction Staging</i> (1) A Staging Plan including details of proposed bulk earth works must be submitted for approval with the first application for new building works within each precinct. (2) The Staging plan is also to address those matters identified in C10 above. (3) A Construction Management Plan, an Erosion and Sedimentation Plan, and a report detailing the existing geological conditions of each development site (within the relevant precinct), and any potential geological impacts of development consistent with the Concept Plan must be submitted with any application for the development of the particular precinct or site and is to be integrated with any Vegetation Management Plan and Threatened Species Management Plan referred to on page 3 and 4 of the revised Statement of Commitments; and integrated with the Staging Plan referred to in C1 of this approval.	As stated above, the development is not the first application for new works within Precinct A. As above. A Preliminary Construction Management Plan has been prepared by Capital Insight and accompanies this EIS at Appendix T. An Erosion and Sedimentation Plan has been prepared by C&M Consulting and accompanies this EIS as part of Appendix Q. The geotechnical report has been prepared by JK Geotechnics and is found at Appendix I.
<i>C14 Utilities</i>	As above, N/A as this is not the first development in Precinct A since the Part 3A Concept Plan approval.

(1) The following plans are to be prepared and approved by the relevant agencies prior to the submission of the first application for building works: - A detailed water supply infrastructure needs analysis is to be undertaken as indicated at page 5 of the Statement of Commitments. - A detailed service master plan is to be prepared. - The water supply needs analysis and detailed service master plan to be prepared to the satisfaction of the relevant agency. (2) All electricity and other relevant services shall be accommodated underground, where ecological or landscape outcomes are not compromised.	
<i>C15 Agency and Council Agreements</i> - An agreement is to be made with the RTA for relevant road and intersection works prior to or with the first application for new commercial floor space on the site. - The agreement referred to in (1) above is to provide details on the staging for the road based infrastructure provision outlined in Condition B3(1) as well as the construction of missing cycleway connections on Epping Road and details of appropriate bus priority measures to be implemented throughout the University. - Proposed road works/significant intersections modifications along the classified road network and local street network, as identified within the agreement referred to in (1) above, are to be designed to meet the RTA standards and endorsed by a suitably qualified and chartered engineer, and approved by the Department of Planning. - The agreement referred to in (1) above is to include provision for a Works Authorisation Deed for any works referred to in the agreement as may be required by the RTA. The Proponent to be responsible for all public utility adjustment/relocation works and all works/regulatory signposts associated with the proposed development shall be at no cost to the RTA. - An Agreement is to be made with Council for the provision of development contributions and/or agreed works in kind required for the development of the site, prior to, or with the first application for new floor space on the site".	As noted above, the current status of the VPAs is: - MQU has made offers to each of City of Ryde and DPE - MQU is presently awaiting a draft VPA from City of Ryde; and - MQU is presently responding to the draft VPA from DPE. As identified in Section 1.8 of this EIS, a VPA between Council and MQU was executed in February 2013 and is in force for this development.
STATEMENT OF COMMITMENTS	
<i>Environmentally Sustainable Development</i> - Commercial development on the site shall be capable of achieving the following targets: - Buildings should achieve a minimum 4-star Green Star rating. - Buildings should achieve a minimum 4.5-star NABHERS rating. - Retail development will comply with any reasonable future rating tool provided by the Australian Greenhouse Rating Scheme.	N/A – does not apply to current proposal, which comprises academic uses and not commercial development.

- Each development is to provide measures to capture, retain, and minimise litter, oil, sediment, nutrients, and pollutants prior to stormwater runoff discharge to the receiving creeks. - A precinct-based supply vs. demand analysis will be performed at the detailed design stage of the development to provide water re-use storage system to service non-potable use such as irrigation for landscape areas and for toilet flushing.	An Integrated Stormwater Management Plan has been prepared by C&M Consulting and accompanies this EIS at Appendix Q whilst the Wood & Grieve ESD report at Appendix X addresses water re-use and WSUD. As above. This plan includes water re-use storage system.
<i>Access, Traffic and Transport</i> - A University Travel Plan (UTP) will be formulated by Macquarie University for the academic / educational uses at the site only. - Development on the site (academic and commercial) shall be consistent with the aim of the Macquarie Park Traffic Study which seeks a target of 40% non-car modal split over time. Details of the academic mode share targets (staging/mode split) will be incorporated in the UTP and will be reviewed on a regular basis against achievement as per the timing above. - A car parking management strategy will be developed as part of the UTP. - A strategy for bicycle parking including end of trip facilities will be developed as part of the UTP. - A strategy for intra-university travel will be developed as part of the UTP and will include recommendations on travel to/from university housing, connections to the rail station, and night travel. Consideration will be given to the development of a campus shuttle bus service in the UTP. - A detailed micro-simulation transport model of the University internal road network and surrounding "area of influence" will be developed. The model will be used to assess in detail proposed changes to the internal road network and review internal intersection performance. The model will be utilised for assessment of project applications and to determine staging of works. The timing of the model would be based on full operation of the Epping-Chatswood rail link being realised and any major redevelopment of the Station South portion of Precinct E. - Development on the site shall promote as far as practicable reduced use of private single occupant vehicles and promote public transport use, walking and cycling - including implementation of the Macquarie University Cycle Access Plan. - Commercial developments will be required to prepare a Workplace Travel Plan (WPTP) for individual sites in accordance with City of Ryde DCP 2006 Part 4.5 (Section 6.3.9). - All internal roads are to be designed and constructed consistent with the requirements of all relevant Australian Standards, and the requirements of Council and Austroads as applicable.	These Statements of Commitment are variously superseded by conditions of the Concept Plan approval. In this regard see responses and compliance with Conditions B2, B5, C10, and C15. The proposal improves pedestrian access to W6B, provides a covered atrium space, and enhances surrounding pedestrian connections. N/A – does not apply to the current proposal, which is for academic uses rather than commercial Proposal complies with the relevant standards. No permanent change to the number of available parking spaces is proposed. The development is for academic uses and a WPTP requirement / commitment does not apply in this instance. An Accessibility Report accompanies this EIS at Appendix W.

- The design facilities will permit effective, appropriate and safe use by all people, including those with disabilities in accordance with the Building Code of Australia and Australian Standard AS 1428. 4,800 car parking spaces are to be retained for academic (4,095) and existing commercial and MURP related (705) uses on site. New car parking for non-academic uses shall be at a maximum rate as identified within the Concept Plan for each precinct.	As above, no permanent change to the number of available parking spaces is proposed.
<i>RTA roads</i> Macquarie University shall provide for regional road upgrades in negotiation with the RTA consistent with recommendations contained in the revised TMAP as prepared by Cardno Eppell Olsen. The negotiated position shall seek to determine the appropriate schedule of works value, responsibilities, and timing.	As above, see various conditions relevant to the road upgrades.
<i>Environmental management and contamination</i> - A hazardous material audit which will include sampling and identification of asbestos and Polychlorinated Biphenyls (PCBs) will be completed to determine the extent and integrity of the hazardous building materials which exist on the site. - Any demolition / removal of Polychlorinated Biphenyls (PCBs) and asbestos containing material will be conducted in accordance with current NSW EPA waste classification and disposal guidelines, and WorkCover occupation health and safety procedures. - A targeted Phase 2 intrusive contamination assessment to assess whether any contamination, from potential sources outside the site, has migrated onto" the property. This would involve the drilling and collection of soil samples as the installation of ground water wells. In addition, limited surface soil sampling as will be conducted across any sporting fields and open spaces which may have been treated with organochlorine / organophosphate pesticides. The result of Phase 2 soil and groundwater investigations will be assessed against the relevant land-use criteria stated by NSW EPA, NEPM and ANZECC guidelines. If concentrations of contaminants exceed the relevant land-use guideline, a remedial action plan will be developed, with remediation and validation works completed in accordance with EPA guidelines, CLM Act (1997) and SEPP 55. - Development at particular sites (including the Australian Film and Television School and the site of the existing service station) will include a detailed soil investigation and appropriate management of any contamination, if determined.	A HAZMAT Survey relating to W6A and W6B and accompanies this EIS as Appendix K. A Phase 1 Environmental Site Assessment has been undertaken by EIS for earthworks and has classified existing soils as general waste (non-putrescible). Further contamination testing, therefore, is not required in this case. See Appendix J. N/A – does not apply to the current proposal.
<i>Geotechnical and construction impacts</i> A report detailing the existing geotechnical conditions of each development site (within the relevant precinct) and any potential geotechnical impacts of development consistent with the Concept Plan shall be submitted with future project applications.	A Geotechnical Investigation has been prepared by JK Geotechnics and accompanies this EIS as Appendix I.

• A Construction Management Plan will be submitted with subsequent applications to address issues related to construction impacts such as, but not limited to, noise, vibration, dust, soil and erosion and waste materials. • An Erosion and Sedimentation Control Plan will be developed to address both the construction phase to ensure erosion and sedimentation controls will be put in place prior to any works beginning to ensure that any potential increase in run-off from removal of vegetation or leaf litter does not impact on downstream or off-site environments and development does not contribute to environmental damage if the waterways, bushland or air quality. • Buildings around the new rail station will be designed having regard to the Epping-Chatswood Rail Link Underground Infrastructure Protection Guidelines (TIDC - May 2008), with future applications accompanied by appropriate engineering advice and design measures to protect TIDC infrastructure.	A preliminary Construction Management Plan has been prepared by Capital Insight and accompanies this EIS as Appendix T. An Erosion and Sediment Control Plan has been prepared by C&M Consulting and accompanies this EIS as Appendix Q. N/A – does not apply to the current proposal.
<i>Flora and fauna</i> • Ecological restoration management plans will be developed for retained flora remnants and include pest and weed management. • As part of each Project Application that potentially affects Remnant Areas 1 - 4 of STIF, a Vegetation Management Plan (VMP) is to be submitted that addresses the restoration and rehabilitation of the STIF, as relevant. • Where possible, endangered vegetation remnants will be retained and protected from further encroachment/degradation or supplemented with appropriate offsets at other remnants. • Where possible, individual remnant trees outside remnant areas will be retained. • Detailed flora and fauna surveys and assessments will be undertaken as part of each future application where development is proposed that may impact upon flora and fauna and STIF remnants or areas nominated as potential endangered ecological communities (EEC). • Indirect impacts on bushland such as weeds and fire will be managed by the implementation of management plans and strategies including: • A Threatened Species Management Plan will be prepared to address relevant actions to conserve threatened species across the site. • A Weed Management Plan will be prepared as part of Project Applications to link into stormwater control strategies.	N/A – does not apply to the current proposal or site, which does not include remnant vegetation. An Ecology Review by MQU Property was prepared in support earlier tree removal works within the MUAPP and accompanies this EIS at Appendix M.
<i>Trees</i> • A Landscape Management Plan will be prepared for each site that will address: ◦ Retention or replacement of plating of suitable tree species (preferably endemic and mature where possible); and	A Landscape Plan has been prepared by Group GSA and accompanies this EIS at Appendix E.

o Long term preservation and maintenance of tree assets.	
<i>Bushfire Protection</i> • All habitable development will comply with the requirements of Planning for Bushfire Protection 2006 (NSW Rural Fire Service), particularly with Precinct B.	N/A – does not apply to the subject proposal, which lies within Precinct A Academic Core.
<i>Infrastructure</i> • A detailed water supply infrastructure needs analysis will be undertaken to allow for identification and controlled connection of the Mobbs Hill and Marsfield reservoirs, in consultation with Sydney Water. • Duplication of the existing sewer system will be investigated with Sydney Water as development envisaged under the Concept Plan progresses, to ensure existing services may remain and new services provided as development occurs. • Macquarie University will investigate all opportunities to maximise efficiency of existing Energy Australia assets in consultation with Energy Australia. • Macquarie University will investigate additional power generation opportunities beyond that supplied by Energy Australia. • New medium pressure gas mains will be provided as required, dependent upon take-up of existing gas supply and cogeneration power options. • Water detention areas are to be provided within the development area. • All relevant certificates and approvals, including those required under Section 68 of the Local Government Act 1993 or section 73 of the Sydney Water Act 1994 will be obtained.	See response to Condition C14. An Infrastructure Management Plan has been prepared by Wood & Grieve Engineers and accompanies this EIS at Appendix H.
<i>Heritage/ archaeology</i> • The Metropolitan Local Aboriginal Land Council will be requested to monitor surface works during initial construction phase. • Should any Aboriginal relics or artefacts be unexpectedly discovered, then all excavations or disturbances to the area will cease and National Parks and Wildlife will be informed in accordance with section 91 of the National Parks and Wildlife Act 1974. • Should any historical relics be unexpectedly discovered, all excavations and disturbance to the area will stop immediately, and the Heritage Council of NSW will be informed in accordance with section 146 of the Heritage Act 1977	The MLALC will be invited to monitor earthworks proposed to facilitate the MUAPP. These works are subject of a separate DA pursuant to Part 4 of the EP&A Act. Can be ensured via DPE's standard conditions of consent. Can be ensured via DPE's standard conditions of consent.
<i>Design Excellence and Urban Design Guidelines</i>	

- A Design Excellence Strategy will be prepared to ensure a quality built form and public domains achieved during the life and construction of the project.
- The Strategy will clearly articulate a process to achieve design excellence, and may include the preparation of site specific design guidelines and principles.
- Urban design guidelines will be developed to ensure design excellence is achieved in the architecture of the buildings and public domain (streets, parks and squares). This will include building designs and standards.
- The detailed urban design guidelines will be provided as part of precinct plans and a detailed urban design guideline will be provided. The guidelines will address the following:
 - Building form;
 - Heights;
 - Road widths;
 - Streetscape character;
 - Civic spaces;
 - Parking provision;
 - Lighting, safety and security;
 - Water sensitive urban design;
 - Energy efficiency; and
 - Materials and colours.

The guidelines will address CPTED principles for Safer by Design best practice models, to which all future applications will need to accord.

Campus-wide Design Excellence Strategy and Urban Design Guidelines have been prepared and separately submitted to the DPE for consideration.

Riparian Zone, Flooding and Stormwater

- Adoption of the 100-year storm event as the interim design flood level standard and that proposed structures to have 500mm freeboard to the finished floor level, 300mm freeboard for flood egress roads, and 150mm freeboard for flood egress footpaths.
- Location of the proposed development outside the 100-year storm flood extent as shown in the TTW report.
- Location of the proposed development outside the riparian zone (except for development for approved revegetation and creek rehabilitation and stabilisation works).
- Provision of a flood management/evacuation plan for proposed development within the PMF flood extent as shown in the TTW report.

An Integrated Stormwater Management Plan has been prepared by C&M Consulting and accompanies this EIS at **Appendix Q** and address relevant considerations within this Commitment which is otherwise superseded by Condition C4.

- Precinct-based stormwater detention storages are to be implemented to limit flow to that of the pre-development flowrates, from the 5-year to the 100-year ARI storm events. - A detailed creek rehabilitation and riparian vegetation management plan will be prepared to establish a short, medium and long-term revegetation and rehabilitation strategy for the Mars and University Creeks beds, banks, and riparian zones.	
<i>Other Matters</i> - The payment of the Long Service Levy under section 34 of the Building and Construction Industry Long Service Levy Payment Act 1986 will be paid for any works costing \$25,000 or more. - The University will prepare a childcare strategy, based on, amongst other things, ensuring timely notification, relocation, decanting and reopening of childcare facilities within the campus as a result of new development.	Noted. See response to Condition C11.
<i>Transitional issues</i> As the Triangle South of University Avenue is developed, at-grade parking required in the earlier stages of development will be relocated into basements of new buildings so that when the Triangle is fully developed, the open space will be provided in accordance with the Concept Plan.	N/A – not relevant to current proposal.
<i>Contributions / VPA</i> - Developer Contributions will be made consistent with the terms of the Macquarie University VPA(s) presently being prepared and formalised in consultation with Macquarie University, City of Ryde Council, and other relevant parties. - See above for relevant arrangements for contributions to the RTA.	Proposal comprises academic floorspace and is not subject to developer contribution requirements under the VPA executed between Council and MQU in February 2013. See response to Condition C15 and associated conditions.

As, noted in the Compliance Table above, the proposal entails an addition of 1,298 sqm GFA to existing W6A and W6B as well as addition of 4,456 sqm GFA via the new showcase building. A balance of 55,418 sqm GFA remains to be utilised within Academic Core. See detailed table further below addressing the GFA changes within Precinct A since the approval of the Concept Plan. The table below articulates works within Precinct A since the Part 3A Concept Plan approval, their general dates, and the impact upon the GFA balance at that time.

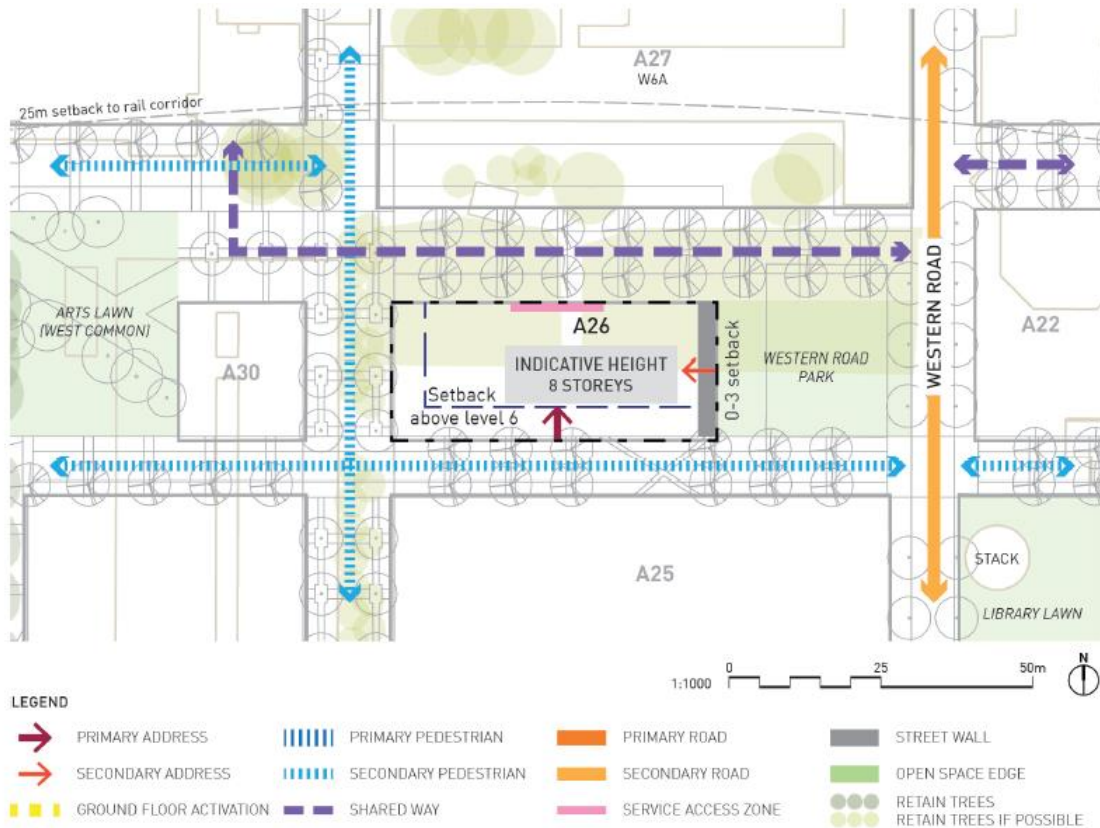
Works Undertaken / Proposed	GFA Change (m2)	Balance (m2)	Approval pathway	Date
Additional Precinct A GFA gained under the Part 3A Concept Plan approval	-	61,200	-	-
New Build (E7A / E7B)	-1,790	59,410	DA	October 2015
Demolition of C4A, C4B, C9B, C9C, C9D	+2,824	62,234	Various REFs	Various 2011-2014
Lotus Theatre (temporary theatre)	-683	61,551	REF	October 2011
Macquarie Theatre refurbishment	-379	61,172	REF	October 2011
New Museum Building (W6C)	-4,456	56,716	This SSD DA	pending
Upgrades to W6A / W6B	-1,298	55,418	This SSD DA	pending
		55,418		

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The development has been designed with reference to the abovementioned Design Excellence Strategy and Urban Design Guidelines (Precinct Planning Framework, Public Domain, and Built Form sections). The development generally satisfies the more detailed Legacy Building Lots and Precinct A lot controls as set out in Section 5 of the Design Excellence Strategy and Urban Design Guidelines. Compliance with these detailed controls is set out below (see also Figure 22 below):

Provision	Control	Compliance
5.1 LEGACY BUILDING LOTS (W6A / W6B are Legacy Buildings/ Lot A27 under the Design Guidelines)	A number of buildings across the campus have been identified as Legacy Buildings. These are recent buildings that are unlikely to be redeveloped in the short term or buildings that may have architectural or cultural importance to the university. No specific controls have been developed for these lots. These buildings may be upgraded or refurbished over time or may be demolished and redeveloped after review and justification.	The proposal is consistent with the principle of the buildings being upgraded or refurbished over time or may be demolished and redeveloped after MQU review and justification.
5.2.1 LOT A26 The new showcase building (25WWC) is identified as Lot A26.	Architectural Principles Lot A26 is located in the western part of the Academic Core. The lot is adjacent to a small open space along Western Road. The lot is discreet as it is not located on primary pedestrian or vehicle routes.	The development is consistent with the existing and future access network and maintains this context.

	Built Form — Indicative height 8 storeys. — Building is to address the pocket park. — Reinforce street wall along the eastern frontage facing Western Road Park.	The development satisfies the indicative height control. The building is proposed to extend to the similar width as the redeveloped W6A / W6B buildings (new names: 25WWB and 25WWA respectively) and thereby sits over the area intended for the future secondary pocket park. The development will reinforce the wall edge along the eastern façade fronting Western Road.
	Access — Primary address located indicatively on pedestrian route along the southern frontage. — Secondary address located indicatively on eastern frontage from Western Road Park. — Service access from the shared way along the northern frontage.	The primary address to the building is from the south fronting the pedestrian access link. Secondary addresses are located around the building with service access from the western frontage.
	Landscape — Interface with Western Road Park. — Review and retain significant trees if possible. — Refer to the Western Road Park landscape guidelines in the Public Domain chapter – see below.	As noted above, the proposed area for the future Western Road Park will be developed over by the proposal, however the internal courtyard area will be improved and reinforced as a passive recreation space. Significant trees are retained where possible. Significant new planting are also proposed.
	3.4.5 Western Road Park Western Road Park will be a new public space along Western Road adjoining Lot A26 to the west. The park will need to allow for potential secondary pedestrian access to the Lot A26 building. Landscape Principles — Address potential secondary pedestrian access requirements to adjoining building. — Explore opportunities for the Park to contribute to the biodiversity corridor between University Creek and Mars Creek along Western Road. — Provide deciduous tree planting for summer shade and winter sun. — Provide an appropriate frontage to Western Road.	The proposed new building provides a suitable urban design response in tandem with the landscape design. The development will reinforce the primary and secondary linkages, frontage to Western Road, shared ways and shaded landscaped areas.



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Figure 22 – Lot A26 Lot Design Controls - Design Excellence Strategy and Urban Design Guidelines

6.3 Other Approvals Required

Being a SSD DA, the requirement for other approvals under other NSW legislation is 'switched off'. This includes the Heritage Act, Threatened Species Conservation Act, Rural Fires Act, Mine Subsidence Act, Water Management Act, and Contaminated Land Management Act. Given the location, scope and nature of the works for the MUAPP project no further approvals under NSW legislation are required.

6.4 Built Form and Urban Design

The built form and urban design of the project is largely driven by the overall project objectives as set out in this EIS and in the Architectural Design Statement. The Design Brief and Architectural Response has been set by the following:

- **Improved connection to Wally's Walk** to reinforce the movement and pedestrian hierarchy within the campus and between key buildings and spaces, create a podium linkage and retain the legacy fabric of the original buildings – See Figure 23 below.
- **A collaborative environment facilitating student, staff and wider community interaction** by re-designing and repurposing aged fabric within W6A to remove its isolating features and by creating a Collaborative Hub with a direct interface with the external environment.

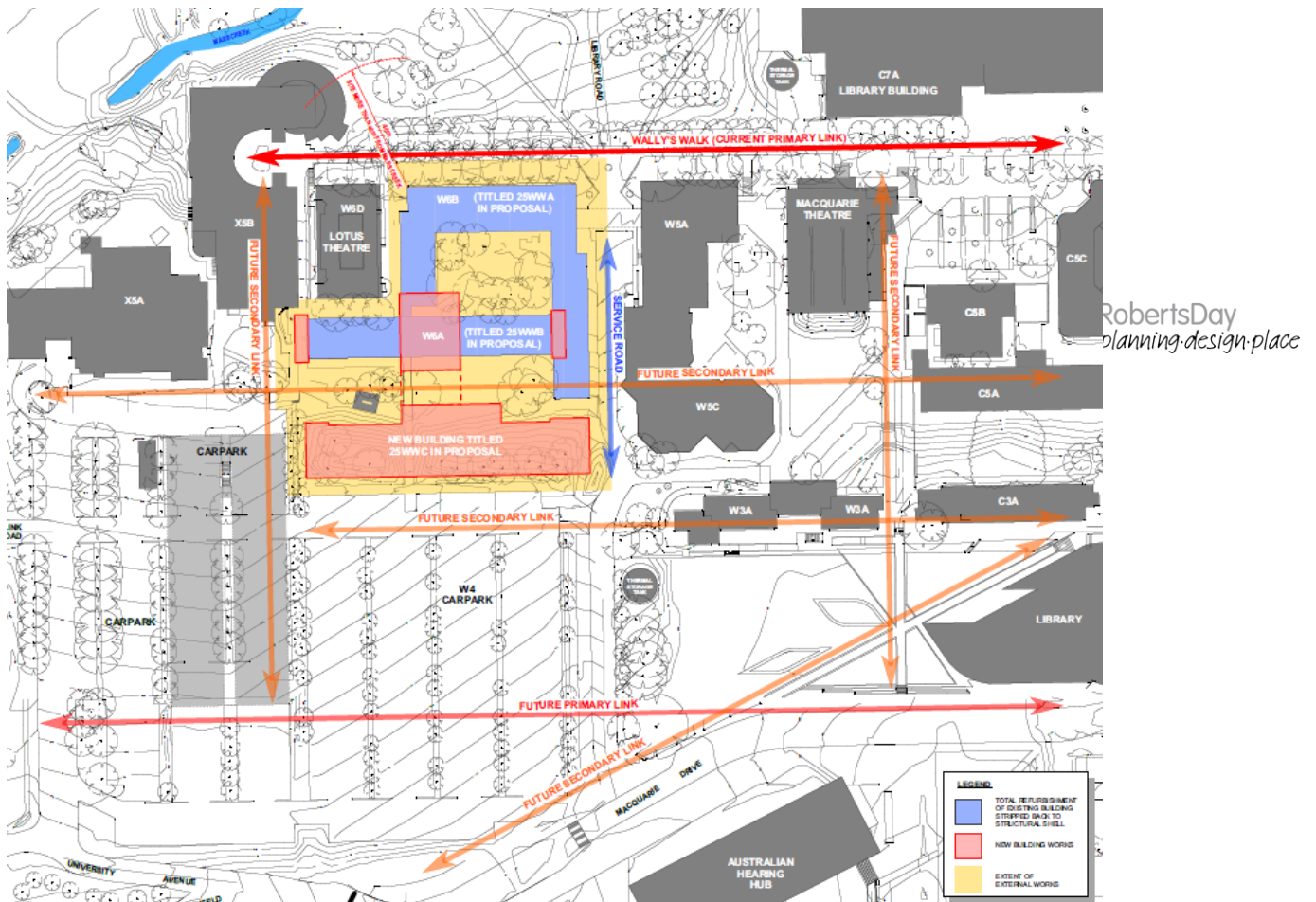


Figure 23 – Future pedestrian movement hierarchy around W6A / W6B

- **A Showcase for the Faculty's Work and Collections** with an improved entry from the south and a visible front door and address to create engagement and interest. See Figure 24 below.
- **A Centre for the Arts at Macquarie University** to consolidate and update accommodation on the campus within its historic home on the campus adjacent to Wally's Walk.
- **A modern open and transparent environment** through a 50-year lifecycle renewal to integrate modern services in an environmentally sensitive manner.
- **Consistency of Development with the Master Plan** and its design guidelines which nominates the elements as legacy buildings within the grid network of existing and future primary and secondary pedestrian and vehicular linkages and establishes the landscape and building character and open space links on the campus.



AERIAL RENDER VIEW LOOKING TOWARDS BUILDING 25WVC

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PHOTOMONTAGE VIEW FROM THE SOUTHERN CAR PARK

Figure 24 – Aerial render and photomontage of showcase building

As derived from the Architectural Design Statement:

The existing legacy buildings – W6A & W6B – will be extensively redeveloped but will remain the heart of the new Arts Precinct, located with a primary frontage to Wally's Walk, and of a scale, form and location that ensures they currently, and will continue to, function as defining elements to the western end of Wally's Walk.

While the existing complex occupies this primary position fronting Wally's Walk, the current complex largely turns its back on Wally's Walk with no attractive visual and limited direct physical pedestrian connections into the buildings – the proposal seeks to redress this situation by opening the ground plane of the northern wing of building W6B, within the retained and attractive expressed concrete frame, to create a high quality and attractive link between Wally's Walk and the central courtyard space within W6A & W6B.

The existing central courtyard does not successfully address the major W6A tower – the level change of near 2 metres is handled poorly so that W6A does not currently address the central courtyard other than overlooking this important outdoor space. The proposal addresses this issue by creating a visual and circulation axis through the new W6A collaborative hub that reverses the circulation to the western wing of W6B so that this now addresses and helps activate the central courtyard consistent with the form of the circulation and courtyard frontage of the existing northern and eastern wings.

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The central courtyard will also be developed as a series of stepped platforms or outdoor pavilion like terraces that gently interplay with the strong brutalist forms of the expressed concrete framing to W6B while bridging the level difference with the W6A tower ground plane so that access to W6A via these platforms is encouraged and the visual link between the student activity oriented spaces within the W6A ground plane and the central courtyard strengthened so that these facilities are a primary address to the central courtyard with their activities spilling out into the central courtyard space.

The existing buildings are located within a building platform grid established by the MQU Master Plan with a secondary pedestrian circulation route to the immediate south – this is respected in the proposed development with the atrium space located to the south of the redeveloped W6A tower functioning as a covered component of the Master Plan proposed secondary route that is open to a minimum of a two storey height at the east and west ends and under the central link bridge elements connecting the collaborative hubs of the redeveloped W6A tower and the new Showcase Building.

The existing W6B tower fabric is aged, inward looking with solid facades containing limited openings, does not have necessary modern services and does not meet current day needs for an involving educational environment that encourages student, staff and community interaction – it also does not have an appropriate entrance from either the primary student interface via the central courtyard or from the carpark and more visitor oriented perimeter circulation routes to the south.

The floor area of the current complex does not meet the Faculty of Arts current needs with a number of Departments currently located in other facilities across the campus including important facilities such as the Ancient Cultures Museum and the Numismatics Suite that are tucked away with little identification in the X5B building to the west. The proposal addresses this issue by developing a new Showcase Building that will house important local and community facilities that showcase the Faculty, including the Ancient Cultures Museum and the Australian History Museum, in purpose designed high quality accommodation that will appropriately display the significant collections held by these Museums plus it provides a home for outward looking Research Units, the Immersive Languages Department and accommodates a Function and Temporary Exhibition Space that will further support the community outreach and involvement vision for the Faculty's future.

This new building will provide an attractive and involving entry experience from the south with a direct connection past the Museum, Function & Temporary Exhibition areas to the ground plane of the Atrium space and into the new ground level central Concierge point in the redeveloped W6A tower that lies at the base of the new collaborative hub interconnecting all levels of the W6A tower and the Showcase Building.

The additional floor area provided in the additional building allows the consolidation of the Faculty of Arts, with three currently remote Departments now incorporated in the new complex creating an identifiable new Arts Precinct on the University Campus – the consolidation of the Faculty of Arts on the site that has been its historic home respects the social and cultural heritage of this foundation Faculty.

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The Architectural Design Statement by BNMH is included at **Appendix D**.

The built form, height, bulk and scale of existing buildings W6A and W6B will remain largely unchanged. The inclusion of mechanical plant rooms to the east and western wings and the central core of W6A will contribute to a marginally wider profile of the building from the south and north. W6A will continue to form a significant built form element in this part of the campus and be amongst the taller buildings when viewed throughout the campus. Works to W6A will provide for a more prominent northern elevation that will provide a well-defined entrance for the building and activity hub for the Faculty of Arts.

Given the prevailing fall of land from south to north from Epping Road, and its distance from Epping Road, W6A will nonetheless appear in a more recessive manner within a cluster of buildings. W6B will continue to address Wally's Walk to the north as a low-rise element framing the courtyard and providing an extended 'podium' element for W6A.

The new showcase building will predominantly be viewed from the south. It will sit in front of W6A and appear as nestled within this general cluster of buildings. It will align in its frontage / width with that of the existing built form and footprint of the W6A / W6B buildings. The height of the new building is approximately a third to a half of that of W6A. As noted elsewhere in this EIS, there is no height limit applicable within Precinct A – the Academic Core of MQU - under either of the approved Part 3A Concept Plan or the LEP. The new building sits well within the prevailing building heights in its immediate vicinity and provides for a stepped transition in heights from south-north to W6A and will operate in a similar manner to W6B in serving as a podium element for the taller development in the centre of the MUAPP.

6.5 Environmental Amenity

The key environmental amenity considerations of the project involve solar access and shadows to external spaces and courtyards; trees, plantings and landscaping; and views and view loss, noting that the development is well within the centre of the campus and will not present any significant boundary or amenity impacts upon development adjacent to the campus.

Solar access available, and shadows generated by the development, during mid-winter are as presently available given the built form of W6A and W6B will not be significantly changed. The central courtyard will still enjoy minimal solar access during mid-winter, however during all other times of year suitable solar access can be enjoyed within the courtyard between the refurbished W6A and W6B. The new showcase building to the south of W6A will cast additional shadows over existing carparking areas. See Figure 25 below.

The development will not impact upon any enjoyment of solar access outside of the campus.

As noted earlier in this EIS, the mature planted trees in the landscaped berm will be separately removed in preparation for the new showcase building. Landscaping lost as a result of this action will generally be replaced elsewhere within the overall development site and as part of the refurbishment and establishment of the future primary and secondary pedestrian and open space linkages.

The proposed landscape treatment and public realm in and around the development is focused on maximizing use of outdoor spaces, reinforcing the clear and legible masterplan framework, and creating a sequence of outdoor spaces with high levels of safety, security, visibility, and amenity.

The high quality amenity is achieved through revitalising the precinct to building an address to Wally's Walk; transforming the Central Courtyard; and providing new spaces in the atrium, rooftop and terraces. See the Landscape Design Statement as part of **Appendix E**.

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As shown in Figure 24 above, the new 5-level showcase building will be lower in height than the retained form of W6A and will present as a new built edge to existing at-grade carparking on the campus. Direct views to the development will be minimal or oblique from outside of the campus given the orientation of development at the retirement village to the south of the campus and the distance between the two – some 175m from the new showcase building to the retirement village.

Operational acoustic matters are separately addressed further below.

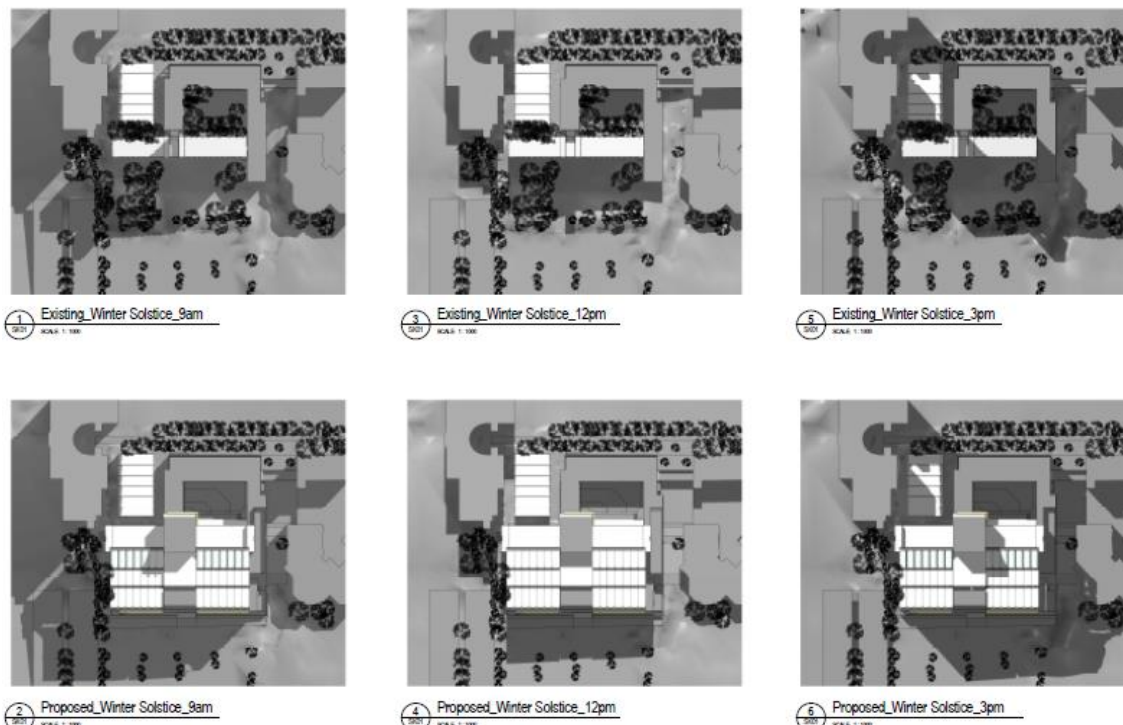


Figure 25 – Winter solstice shadowing (existing and proposed)

6.6 Transport and Accessibility Impacts

A traffic and parking assessment, incorporating a preliminary construction traffic management plan has been prepared by TDG/Traffic Design Group – see **Appendix R**. Construction and Operational traffic and parking is addressed in turn below.

6.6.1 Construction

The anticipated construction period will be between June 2018 and February 2020 over a 20 month period. The preliminary construction traffic management plan sets out the following during this period:

- the staging of works and likely duration of discrete work elements;
- the likely traffic generation and truck movements;
- truck routes;
- likely traffic impacts;
- the loss of parking temporarily arising from the development's work zone;
- construction worker access to the site and carparking;
- pedestrian safety; and
- impacts of or on other planned construction in or near MQU.

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The likely daily number of trucks visiting the site during the construction period will range from 10-30 trucks per day (20-60 movements per day). It is estimated that some 400 contractors will be on-site during the general construction phases. It is assumed 50% of these will travel to and from the site by public transport, with a further 40% of trips assumed to be via carpooling. The resulting 120 vehicles will be accommodated in part within the works zone in the carpark to the south of the development site and in part throughout the campus.

The work zone itself will result in the temporary loss of about 63 spaces, including 9 disabled/accessible spaces. Alternative parking locations will be utilised by staff and students during works noting that ample parking is available across the campus and nearby, including the soon to be completed full development of the temporary carpark off Culloden Road.

Trucks will be required to satisfy the proposed truck access route as set out in the preliminary construction traffic management plan. The access point into and out of the campus will be via Balaclava and Epping Roads, and access to and from the M2 Motorway via Herring Road. The work zone itself will be able to cater for the required turning circles / swept paths for the trucks likely to visit the site. TDG concludes that the primary traffic effects relate to the traffic generation associated with the transport of materials to/from the site. These effects can be managed with acceptable impacts to the road network.

The detailed construction methodology by the awarded contractor will inform the final construction traffic management plan.

6.6.2 Operational

Whilst the development results in a minor increase in overall GFA (some 5,571m², including 4,468m² in the new showcase building), there will be no change to student or staff numbers on the campus. Accordingly, there are not expected to be any changes to existing levels of parking demand or traffic generation arising from the development. No new or different traffic or parking impacts are forecast.

It is not expected that the proposal will have an impact on the surrounding traffic network as:

- The total number of staff will not change as a result of the proposed development;
- The building will be occupied by students and staff members already on campus; and
- There are no additional car parking areas or spaces proposed as part of the development.

The existing bicycle hub and parking area is in the process of being relocated approximately 150m to the east of the proposed development. Again, as there are no proposed changes to staff or student numbers, both the provision of bicycle parking and end of trip facilities as well as the location is satisfactory to service the proposed development.

The MUAPP will have a dedicated loading / servicing area off the western elevation ground floor level of the new museum / showcase building. Minimal courier deliveries are expected on a daily basis with larger truck deliveries likely to be out of peak periods.

During the operational phase of the development there are no planned or expected changes to public transport operations to/from MQU.

6.7 Ecologically Sensitive Development

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6.7.1 *Clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000*

The EP&A Regulation lists four principles of ESD required to be considered in assessing a project:

- The Precautionary Principle
- Intergenerational equity
- Conservation of biological biodiversity and ecological integrity
- Improved valuation and pricing of environmental resources

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 scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful consideration and 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 or irreversible damage to the environment and therefore the precautionary principle is not relevant in this case.

Intergenerational equity is concerned with ensuring the health, diversity and productivity of the environment can be maintained or enhanced for the benefit of future generations.

The proposal satisfies this by providing the reuse, renewal and refurbishment of W6A and W6B to allow its effective and efficient delivery of education, teaching and training. The reuse also enhances and improves the buildings' and campus' overall environmental performance.

The principle of biological diversity upholds that the **conservation of biological diversity and ecological integrity** should be a fundamental consideration for any development. The proposal will have no significant detrimental affect upon this.

The principles of **improved valuation and pricing of environmental resources** requires consideration of all environmental resources that may be affected by a proposal, including air, water, land and living things. The development addresses its likely impacts upon the environment, which are deemed to be minimal in this case due to the substantive reuse of the building and management of impacts upon the physical environment.

The reuse of the buildings also enhances its environmental credentials by initially avoiding waste and ensuring there is recycling and reduction in waste, and then by ensuring the operational aspects of the building are improved over that under the current circumstances. Further ESD commentary based on technical and design considerations is set out below.

6.7.2 ESD

The Architectural Design Statement has also considered the principles of ESD as part of the overall design approach to the project.

Macquarie University has a commitment to achieving a 25% reduction in the existing One Planet Footprint across the campus involving the inclusion of sustainability measures beyond just compliance with the standards established by Part J of the BCA.

The Sustainability Report prepared by Wood & Grieve Engineers should be referred to for more detailed advice on ESD objectives and the measures incorporated in the design but a simple listing of the major ecological initiatives included in the design is as follows:

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- *Maintaining the embodied energy of the existing building structures by retaining and re-using these structures*
- *Minimising applied internal finishes to use existing thermal mass*
- *Recycling of demolition materials for re-use*
- *Well shaded facades including the twin wall northern façade that provide environmental performance exceeding Part J requirements*
- *Clean accessible roof planes created by adopting floor by floor plant facilitates efficient PV cells installation for renewable power generation*
- *Open plan design ensures future proofing and flexibility*
- *High indoor air quality standards and energy efficient HVAC design and control systems accommodating varying occupant loadings*
- *Carefully designed internal acoustic environment*
- *Sensitive lighting control systems integrated with the high daylight levels generated by the transparent facades and using efficient LED light sources*
- *Passive solar design includes maximized north and south facades*
- *Stormwater re-use and retention integrated with water efficient fittings*

A detailed ESD Report by Wood & Grieve Engineers accompanies this EIS at **Appendix X**. The report provides an overview of the proposed project's Ecological Sustainable Development Framework to be further refined within the Detailed Design phase of the project.

Macquarie University is currently committed to a range of initiatives which are designed to reduce the overall environmental footprint of the campus and the university's operations. The project is included in the current initiative and benchmark implementation of the One Planet Ecological Footprint tool developed by the Footprint Company. This is a current campus-wide programme and intended to reduce the overall ecological footprint of the university. The program includes both existing and future buildings & significant structures. The methodology behind this tool measures the impact of existing building operations and calculates a 'planet rating' meaning – how many planets (of resources) would it take to continue existing if everyone continued as business as usual.

The current benchmark index across the campus is 1.4 planets with scores achieved by assessing key impact areas of each building including: biological capacity, energy, water, structure & roof, façade, internal elements, services, transport and fitout operations. While no official benchmark has been set, a nominal project target of 1.0 planets has been identified. Note also that under the approved Part 3A Concept Plan only new commercial development is required to meet set Green Star and NABHERS rating targets. The Green Star tool has nonetheless been applied and a provisional self-assessment scorecard for design and as-built has been provided in the ESD Report.

The design and operation features applied to the development to achieve set targets include:

- Energy Efficiency / Greenhouse Gas Reduction through façade treatments, materials choice, mechanical systems innovations, energy and water efficient appliances, energy efficient lighting, and on-site photovoltaic cells;
- Potable water reduction through choice of fittings and fixtures, reuse of water, rainwater collection, reduced water consumption for landscaped areas, and water use education;
- Water Sensitive Urban Design including rainwater reuse, stormwater detention systems and stormwater treatments to improve water quality.
- Structural and Material improvement options including reuse of the buildings as far as possible and recycling of building materials, and use of materials with longer lifespans
- Waste reduction including reduced consumption in operation of the building, reduced construction waste and ongoing waste monitoring.
- Improved indoor environmental quality including high amenity views, consistent and managed thermal comfort levels, and material selection.

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6.8 Noise & Vibration

Wood & Grieve Engineers has prepared a Noise and Vibration Impact Assessment to address the requirements set by the SEARs, relevant industry standards, policies and criteria and to identify the likely noise and vibration sources from construction and operation of the MUAPP, as well as the likely nearest noise sensitive receivers on and off the campus.

As the site is some 350m from Epping Road and 400m from Culloden Road the most likely noise and vibration sensitive receivers will be within the campus, including education and teaching spaces as well as a further afield child care centre.

Under the EPA / OEH Industrial Noise Policy the recommended L_{Aeq} noise level for education uses is 35-40 dB(A). A modifying adjustment may be made by 5-10 dB(A). The AAAC Noise Criteria for External Emissions for child care centres is 55 dB(A) $L_{Aeq\ 1\ hour}$ for outdoor play areas and 40 dB(A) $L_{Aeq\ 1\ hour}$ for indoor play areas and sleeping areas.

Wood & Grieve has determined that the applicable project specific noise levels for adjacent sensitive receivers is 45dB(A) $L_{Aeq\ 1\ hour\ external}$ for the immediately adjacent education and teaching spaces and 55dB(A) $L_{Aeq\ 1\ hour\ external}$ for the child care centre further afield and nestled behind other structures and buildings.

The likely noise generating sources during construction will be machinery-based and impacts related to proximity of receiver to the noise source. The most effect method of ameliorating noise impacts upon sensitive receivers is through installation of temporary noise reducing screens, or screening of noise-causing machinery behind and within built structures during works. Crane-related noise could be mitigated through choice of electric cranes, and if diesel-powered through an appropriate silencer on the muffler and an acoustic screen around the engine bay. Alternatives to reversing or warning alarms can also be introduced to mitigate 'beeping' sounds from receivers.

The likely vibration generating sources during construction will also be machinery-based, and will vary dependent upon the use and choice of machinery. Based on the proximity of nearby sensitive receivers, human comfort vibration levels will be exceeded during construction. Measures to minimize transmission of vibration that should be employed during construction include:

- Monitoring vibration levels using attended/un-attended methods during construction so as to manage potential excessive vibration;
- Managing the construction program so as to minimise heavy machinery operating concurrently to each other;
- Preparation of dilapidation reports on adjacent structures and monitor the effects; and
- Locating heavy machinery away from nearby sensitive receivers, as far as practical.

The likely noise generating uses during operation of the building will be mechanical plant including small isolated plant rooms from levels Ground to 7 and on the rooftops of each of the buildings. Mechanical plant items include cooling towers, condenser units in rooms with louvres, exhaust fans and chillers. The noise generated by these varies and ranges from an overall level of 78dB(A) to 109dB(A).

To mitigate noise to sensitive receivers the acoustic louvres are proposed for all plant room openings from ground level to the rooftop. Other measures include attenuators in ducting and internal acoustic lining. In addition solid acoustic barriers and louvres for rooftop plant, other general matters to mitigate noise impacts include careful placement and positioning of plant away from nearby receivers, screening and insulation.

Wood & Grieve concludes that no excessive noise or vibration will be generated by the construction and operation of the MUAPP, subject to appropriate noise and vibration criteria and mitigation measures being applied.

The Noise and Vibration Impact Assessment is found at **Appendix S**.

6.9 Contamination

As set out in Section 2.6 of this EIS, soil sampling of the general development site identified no significant subsurface contamination and fill material. The area of the soil berm has been classified as General Solid Waste (non-putrescible). No specific risks, therefore, have been identified with respect to works at the site.

Should any new soil contamination information or contaminants be identified during the undertaking of works which have the potential to alter previous conclusions about site contamination works will cease until the site is remediated.

For reference, the Preliminary State 1 Environmental Site Assessment and Waste Classification Assessment prepared by EIS accompany this EIS at **Appendix J**.

The Hazardous Materials Survey carried out for the project (in Buildings W6A and W6B) found typical results for a development of its age and construction. The results were:

Asbestos Containing Materials – nature and location of asbestos containing materials was found to be consistent with MQU's existing asbestos register;

Lead Paint - beige coloured paint identified in the Building W6A stairwell.

Synthetic Mineral Fibres - found in the following locations:

- Pipe insulation in Building W6A Level 9 plant room
- W6B Level 3 Roof Bitumen membrane
- W6B Level 3 topping slab Bitumen membrane

A survey of PCBs was not undertaken.

The Hazardous Materials Survey prepared by Pickford & Rhyder Consulting accompanies this EIS at **Appendix K**.

6.10 Geotechnical Conditions

As set out in Section 2.5 of this EIS, due diligence investigations reveal the subject land is underlain by Hawkesbury Sandstone close to the interface with the overlying Ashfield Shale, according to the 1:100,000 Geological Map of Sydney.

Field work consisting of a walk over inspection and the excavation of twelve (12) test pits for sample recovery identified a generalised subsurface profile comprising fill over residual silty clay with weathered sandstone bedrock encountered at shallow to moderate depth.

- Fill encountered during this investigation comprised silty clay fill with varying gravel content (BH1, BH2, BH12 and BH13) and Sandy gravel fill (BH 3) was assessed as being moderately to poorly compacted.
- Clays both silty and sandy were encountered below the fill or road base materials in all boreholes (BH12 and BH13 excepted). The silty clays were assessed to be of medium to high plasticity while the occasional sandy clays were assessed to be of low to medium plasticity. Both clays were typically very stiff or hard strength.
- Sandstone bedrock was encountered below the residual clays in all boreholes but BH12 and BH13. Encountered depths suggest the bedrock surface steps down to the north and south across the site. The sandstone was assessed to be of extremely low to very low (occasionally low to medium) strength on first contact but improved with depth.

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Groundwater was intermittently encountered at depth within the bedrock.

A Geotechnical Investigation has been prepared by JK Geotechnics and accompanies this EIS at **Appendix I**.

From a structural perspective additional support forms part of the refurbishment of both W6A and W6B, and will be provided in limited locations as advised by the project's structural engineer, Taylor Lauder Bersten. As noted elsewhere in this EIS, these works will partly sit within the railway tunnel corridor's area of influence, and Sydney Trains has been consulted about the potential impacts. A concurrence for the early works under clause 86 of the Infrastructure SEPP was under preparation at the time of writing.

6.11 Utilities

As noted in Section 2.4 of this EIS, the campus, including the subject land, is currently serviced by essential utilities including water, sewer, electricity, gas and communications. An existing service tunnel runs through the north-east quadrant of the land. The utilities upgrades, augmentation or services to be provided is set out below. See also the Infrastructure Management Plan by Wood & Grieve Engineers at **Appendix H**.

6.11.1 Electricity

A new High Voltage (HV) supply will be required at the site subject to Ausgrid approval. The HV supply will be connected to the existing HV supply running through the existing MQU tunnel system under Wally's Walk along to the proposed new chamber substation located in the development site under the south-eastern corner of the new Museum / showcase building.

A new Standby generator will be provided to support the Fire Exhaust system. The generator will also service the lifts and other safety services. The location of the generator will be located on the level 8 plantroom of W6A.

6.11.2 Water / Sewer

An existing 65dia connection to the Macquarie University main water infrastructure is located in the Wally's Walk utility tunnel complete with main isolation valve and master water meter. The proposed development load will not exceed the existing provisions. An upgrade to the meter and backflow prevention will be provided. Additionally, diversion the water main infrastructure around the proposed development will occur to maintain the integrity of the potable water ring main system.

The fire services water main will be connected to the existing water supply system within the Wally's Walk utility tunnel. A 200dia main will extend to the new booster connection and pump room.

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An existing 150dia gravity connection to the Macquarie University's main sewer infrastructure located under Wally's Walk is proposed to be retained for the development. All existing internal drainage will be removed to allow new piping routes to the existing connection as identified in Figure 4 of the Wood & Grieve Report.

6.11.3 Gas

An existing 40dia connection to the 100kPa Macquarie University natural gas main infrastructure located in the Wally's Walk utility tunnel is considered adequate for the load of the proposed development.

6.11.4 Communications

The MUAPP will utilise the existing Macquarie University campus telecommunication system with new fibre running from the Building E6A communication room and redundant link from Building C3C.

6.12 Drainage and Flooding

C&M Consulting Engineers have prepared a Stormwater Management Plan / Stormwater Concept Plan addressing compliance with relevant guidelines, stormwater quantity control, and water quality control. To address stormwater quantity and quality in tandem with a WSUD approach the key recommendations are:

- A pipe network system to collect minor storm runoff from surface areas which will minimise nuisance flooding;
- A 30kL effective volume rainwater tank will be provided to allow rainwater reuse whilst providing an improvement of the quality of stormwater runoff and also providing a level of stormwater detention. The harvested rainwater will be plumbed for non-potable water use;
- On-Site Detention will be provided for the development in the form of a detention tank with orifice and weir control and a minimum effective volume of 38.8m³;
- EnviroPods in the external surface inlet pits to form part of the water quality treatment train system that removes gross pollutants that are detrimental to the downstream waterways; and
- 8 x standard 690mm StormFilter cartridges to polish stormwater prior to discharge to the downstream drainage network.

C&M Consulting Engineers conclude that the development with the proposed WSUD strategy and management can provide a safe and ecologically sustainable environment.

Section 5 of the C&M Consulting Engineers addresses flood impacts and assess any risks or implications to the development associated with flooding. The report concludes (with reference to the City of Ryde – Macquarie Park Floodplain Risk Management Study and Plan (2010)) that:

- The area adjacent to the site is subject to overland flow during a 1% AEP storm event (refer Figure 2 of C&M's report);
- This overland flow is not considered to be mainstream flooding, rather localised flooding due to trapped low point adjacent to the site and issues with the local drainage network;
- Since the 2010 study was published, Macquarie University has undertaken drainage amplification works to address the localised flooding issues associated with undersized pipes adjacent to the proposed development; and
- As the overland flow issue has been resolved and the proposed development site is no longer affected by overland flow or localised flooding and the proposed development therefore is not affected by flooding.

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A Sediment and Erosion Control Plan has been provided by C&M Consulting Engineers as an appendix to their Stormwater Management Plan – see **Appendix Q** to this EIS.

6.13 Operational Waste Management

The preliminary Waste Minimisation and Management Plan addresses all waste streams related to the MUAPP, including operational waste.

Once completed, the development's operational waste collection will be daily (on weekdays) after hours. No centralised rubbish collection area is required other than for the Café – all other rubbish is taken out by trolley in black plastic bags after hours directly into small vehicles accessing Western Road and is not stored on site.

The eastern side of the development will include storage for 240L Sulo bins for the Café that is externally accessible behind roller doors. A new loading bay will be constructed on the western end of the new Museum building allowing loading of (large E-waste) and other items.

Spare bins for general waste and paper recycling will be housed in the secure cleaner's storage room on the ground floor of the Museum building.

The preliminary Waste Minimisation and Management Plan sets out the likely management of various waste streams, including: General waste (office); paper and cardboard; comingled recyclables; and chemical waste.

Construction-related waste is addressed in Section 6.17 below.

6.14 CPTED

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the likelihood of essential crime ingredients (law, offender, victim or target, opportunity) from intersecting in time and space (source: NSW Police – Safer by Design).

The relevant CPTED Principles under the NSW Police Safer by Design guidelines are:

- Territorial Re-enforcement
- Surveillance
- Access Control
- Space/Activity Management

These principles are addressed in turn below, relative to the design of the project.

Territorial Reinforcement

The development site and its curtilage is a generally highly trafficked place within the MQU Campus at most times of the day and evening. This is especially true of the western edge of the site which fronts Wally's Walk and once development (with the berm removed) will also become more visible to the south. There is plentiful pedestrian traffic around the site and within its courtyard at present and this is unlikely to be reduced as a result of the works. The MQU Campus generally feels safe as a result of sufficient and continuous activity as well as ample on-campus security.

The works will further enhance territorial reinforcement by providing new opportunities to demonstrate that there is ownership of, and pride in, this building and occupation of its immediate frontages and spaces under its influence. The development will further promote an openness, visibility and connection with adjacent spaces to detract from creating areas to hide. The renewal works will therefore reduce the propensity for any criminal or anti-social behaviour. The development will reinforce appropriate behaviour.

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Surveillance

The building and its curtilage presently enjoys high levels of wide-ranging passive or casual surveillance from both inside and outside of the building. This will be reinforced by the works in creating enhanced access and visibility.

The building will promote interaction between people and articulate that its external and internal spaces are supervised.

Natural surveillance is achieved through the building layout, orientation and its location making it a well-used space. Surveillance is further improved with effective circulation to, around and through the building, clear sight lines, effective lighting and appropriate landscaping treatments.

Technical/mechanical surveillance is achieved through mechanical/electronic measures such as CCTV, help points and mirrored building panels.

The building would not be considered a high risk environment.

Further, security guards are present on the campus 24 hours per day 7 days per week. They patrol buildings as well as the campus grounds.

Access Control

The building will be subject to a range of security control measures for its various 'zones'. For example, Public Areas will open and freely accessible during the building's typical hours of operation. Student Accessible Areas will have a low security base level, representing free access to students but controlled and supervised access to visitors during business hours. High levels of security will be provided to staff only areas and the plant areas, with no student or public access at all times.

The building will continue to be access controlled after hours with alarms, security hardware, locks, pass-swipes, and lift locks, as relevant.

Reception Areas and visibility into and within the building will reinforce passive surveillance and a level of access control.

Way-finding will also be improved within the building assisting to detract from any criminal or anti-social behaviour.

Natural access control at the development site includes design measures such as the location of including building configuration, formal pathways and landscaping within and around the site.

Space/Activity Management

Space/Activity Management strategies are an important way to develop and maintain natural community control. Space management involves the formal supervision, control and care of the development. MQU will maintain and manage the building in accordance with current practices applied to W6A / W6B and campus-wide, ensuring there is no deterioration or decay of the building or its surrounds that may attract crime or the sense of a lack of safety.

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6.15 Building Code of Australia and Accessibility

6.15.1 BCA

A Preliminary BCA Report by Blackett Maguire + Goldsmith (BM+G) at **Appendix U** of this EIS sets out a review of the development's compliance against relevant provisions of the NCC Building Code of Australia 2016 (BCA).

The report concludes that the development can readily achieve compliance with the relevant provisions of the BCA, however further assessment of the design documentation will be required during design development.

6.15.2 Accessibility

An Accessibility Assessment Report has been prepared by MGAC to assess the design's and development's response to the relevant legislative framework and general access planning considerations.

This has included assessment of the capacity of the development to meet mandatory matters such as:

- External Access Linkages
- Entry Access to Buildings
- Level of Access within the Building
- Paths of Travel
- Central Courtyard and Covered Atrium
- Emergency Egress
- Passenger Lifts
- Sanitary Facilities
- Seating and Service Counters
- Accessible Car Parking
- Lighting
- Signage and Hearing Augmentation

The MGAC report concludes that the 'schematic design shows a mature and comprehensive response to the extensive range of mandatory and best practice provision for people with a disability.'

The MGAC report is included with this EIS at **Appendix W**.

6.16 Construction Management

Capital Insight has prepared both a preliminary Construction Management Plan and preliminary Waste Minimisation and Management Plan. These are found at **Appendix T** and **Appendix V**, respectively.

The preliminary Construction Management Plan sets out Macquarie University's requirements for the control and management of the construction works associated with MUAPP site. A final detailed Construction Management Plan will be prepared by the Main Works Contractor who is yet to be engaged.

The preliminary Construction Management Plan sets out an outline of the procedures and mechanisms that will be employed on the project during construction in order to minimise the impact on the local amenity, to ensure safety of the public and to protect the environment. It addresses a range of issues associated with the demolition/civil works process including:

- Plant, equipment and materials
- Site establishment & construction zones
- Hoardings, fences and temporary protection
- Cranes
- Site notices and signage
- Contact details
- Hours of work
- Approvals and licenses
- Consultation
- People and Traffic management
- Parking
- Work Health and Safety
- Waste management
- Erosion and sediment control
- Soil and stormwater management
- Air quality management
- Noise and vibration management.

Prior to on-site activities commencing, the plan will be expanded upon by the Contractor to provide a site specific:

- Construction Management Plan
- WH&S Management Plan
- Environmental Management Plan, and
- Construction Traffic Management Plan.

The preliminary Waste Minimisation and Management Plan describes the waste management requirements and practices to be adopted for the demolition, construction and ongoing operation of the MUAPP. It outlines the wider context for waste management at the university, as well as discussing any requirements relating to the construction of the MUAPP. Site specific demolition and construction Waste Minimisation & Management Plans will be prepared by the Demolition and Main Works Contractor. A site specific Operational Waste Minimisation & Management Plan (OWMMP) will be prepared prior to commissioning of the MUAPP. The OWMMP will be a living document that will be monitored and updated as required.

The Demolition and Main Works Contractor will be required under the contract to prepare a Construction Management Plan, including a Waste Minimisation & Management Plan (WMMP). The

WMMP will describe how the contractor will manage waste produced by themselves and their sub-contractors throughout the demolition and construction process. The WMMP will cover waste produced during any site preparation activities, hazardous materials removal, internal and external demolitions, as well as during the construction process itself. The Contractor for each of these stages is responsible for arranging and paying for removal of any project-related waste.

Generally, waste should be managed in such a way as to maximise the diversion from landfill. This may be done either through on-site segregation of recyclable components, or through off-site sorting by specialist waste contractors. Recycling rates of 80%+ of construction and demolition rates are now quite achievable following the success of industry programs such as Green Star. The Waste Reduction target for this project is 90% of construction and demolition waste (refer ESD Report by Wood & Grieve).

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General Services within Facilities Management operate a furniture reuse program which may be utilised for any project-related furniture or equipment in good condition which would otherwise be disposed of.

6.17 Site Suitability

The existing location of the Faculty of Arts will be reinforced by the current proposal. The suitability of the site to cater for the development is reaffirmed by how the development meets the various requirements of the Part 3A Concept Plan Approval as expressed above, as well as MQU's consideration of alternatives for the project.

The site is able to cater for the ongoing use of the buildings for teaching and education purposes. As set out in this EIS, the renewal and refurbishment of the buildings will not generate any new environmental impacts. Indeed, the development will improve the buildings' accessibility, efficiency, and functionality and bring it up to contemporary building code and sustainability standards whilst also allowing for a compliant new building to serve as the showcase and address for the MUAPP.

6.18 Economic and Social Considerations

The MUAPP redevelopment will include upgrade a 50+ year old building and revitalise and renew it for a further 30-35 years.

The works will therefore seek to maintain and build upon the Faculty's and MQU's reputation. MQU is currently ranked in the world's Top 250 universities (under the QS Rankings for 2018); is a leader in education in Australia; is a research leader and recognised for its excellence in research; and is a leading innovator with amongst the strongest links to industry.

The proposal will bring a number of social and economic benefits to MQU and in turn the local and regional economy including:

- Upgraded teaching, research and learning spaces;
- Provide a point of focus for MQU's Arts Faculty and strengthen its position;
- Providing a world class showcase to enable the Faculty to grow and respond to opportunities;
- Attract funding, academics and students;
- Continue to foster collaboration across faculties and schools;
- Support and encourage learning; and
- Support and showcase MQU's commitment to leadership in sustainability.

6.19 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 MUAPP site 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;
- consideration of potential cumulative impacts due other developments 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 risk to the environment.

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Figure 25 below indicates the likely significance of environmental impacts from both construction and operation of the MUAPP and assigns a value between 2 and 10 based on the likelihood of an impact occurring and the consequences of that impact. For example an Almost Certain and Catastrophic Risk is rated as having value of 10; a Possible Catastrophic Risk is rated as having a value of 8 as is a Likely Major event. A Rare Insignificant risk is rated as having a value of 2.

Based on the rating of the risk, appropriate risk control actions can then be applied. The sum of the values assigned provides an indicative rating of potential residual impacts after the mitigation measures are implemented.

Consequence Likelihood	Insignificant = 1	Minor = 2	Moderate = 3	Major = 4	Catastrophic = 5
Almost Certain = 5	Significant	Significant	High	High	High
Likely = 4	Medium	Significant	Significant	High	High
Possible = 3	Medium	Medium	Significant	Significant	High
Unlikely = 2	Low	Medium	Medium	Significant	Significant
Rare = 1	Low	Low	Medium	Medium	Significant

Likelihood		Consequence	
Almost Certain	Is expected to occur in most circumstances	Catastrophic	Severe adverse impact - (Death)
Likely	Will probably occur in most circumstances	Major	Major adverse impact - (Extensive Injuries)
Possible	Might occur at some time	Moderate	Moderate adverse impact - (Medical treatment required)
Unlikely	Could occur at some time	Minor	Minor adverse impact - (First aid treatment)
Rare	May only occur in exceptional circumstances	Insignificant	Insignificant adverse impact - (No injuries)

	Risk Control Actions
High	The risk is unacceptable. Eliminate the design feature
Significant	High Priority for action
Medium	Responsibility to be allocated
Low	Manage by routine procedure and control

Figure 25 – Risk Management and Environmental Risk Matrix

The following sets out the likely impacts of the project (Construction and Operational), potential mitigation measures, and the Risk Assessment.

Noise and Vibration (Construction and Operational)

- Increased noise and vibration during construction
- Increased noise during operation and function of the building

Mitigation through adoption of a noise management plan to minimise noise impacts from the construction phase. Further, operational mitigation with appropriate plant selection, noise suppression and shielding within the plant and machinery.

Risk Assessment Rating = Possible Likelihood + Moderate Consequence = **6 (Significant)**.

Mitigation Measures at Section 8.0 will suitably address this risk.

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Traffic and Parking (Construction and Operational)

- Increased localised traffic on roads and at intersections.
- Increased parking on campus and overflow into local streets.

It is unlikely that any new traffic or parking issues will arise given the reuse of the existing buildings, minimal increase in floorspace, but retention of existing student and staff numbers. No new demand for parking will be created by the development. The construction traffic and parking can be adequately managed within the wider MQU campus, noting the wealth of public transport options for travel to and from the site.

Risk Assessment Rating = Unlikely + Insignificant Consequence = **3 (Low)**.

Mitigation Measures are applied only in relation to construction traffic management, particularly in relation to the potential for concurrent works for the Metro and station shut-down during works.

Visual (Operational)

- Visual impact from local residences, public roads, and public open space.

The bulk, scale and form of the development, when viewed from within and outside of the university will not be perceptively greater. No significant or iconic views are likely to be affected.

Risk Assessment Rating = Rare likelihood + Insignificant Consequence = **2 (Low)**.

No Mitigation Measures are required.

Heritage (Construction and Operational)

- Material impacts upon any listed heritage items, conservation areas, and Aboriginal relics.

The development is unlikely to impact upon any local or State heritage items or conservation areas in the vicinity of the site or any mapped or identified Aboriginal sites or relics.

Risk Assessment Rating = Rare likelihood + Insignificant Consequence = **2 (Low)**.

Mitigation Measures are included in the unlikely event any European or Aboriginal heritage or relics are discovered during works.

Air Quality (Construction and Operational)

- Decrease in air quality.

The development is likely to only impact upon air quality through dust generation during the demolition / construction phase of the project. Any dust generated will be managed via a Construction Management Plan. A HAZMAT Assessment under that Construction Management Plan will also identify the handling procedures required for any such materials, including their potential impact on localised air quality.

Risk Assessment Rating = Possible Likelihood + Minor Consequence = **5 (Medium)**.

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Biodiversity (Construction and Operational)

- Loss of remnant bushland or planted trees within the development site
- Significant impact upon flora and fauna

The development will have no impact upon significant remnant bushland, flora or fauna. The MQU Campus is largely a modified urban environment with significant areas of planted landscaped areas, particularly in the Academic core (Precinct A under the approved Part 3A Concept Plan). Any loss of trees in the vicinity of the site will be minor, noting trees will have been removed and the balance retained protected during works in accordance with the relevant Australian Standard.

Risk Assessment Rating = Rare likelihood + Insignificant Consequence = **2 (Low)**.

No Mitigation Measures are required. Standard tree protection measures are included as Mitigation Measures.

Contamination and Acid Sulphate Soils (Construction)

- Exposure of contamination, hazardous materials or acid sulphate soils during construction causing harm to human health.
- Contamination reducing the suitability of the site to continue as an education facility.

Based on information secured for this part of the campus, it is unlikely that the sub-surface conditions will be contaminated to any extent likely to require discontinuation of the use of the site for an educational purpose. The site is not mapped as being subject to acid sulphate soils.

Risk Assessment Rating = Unlikely likelihood + Moderate Consequence = **5 (Medium)**.

Mitigation Measures will be applied in relation to contamination to ensure it is appropriately assessed and managed.

Water Quality (Construction and Operational)

- Stormwater run-off impacts.

Stormwater management is addressed via a Stormwater Management Plan (see **Appendix Q**). Existing drainage arrangements (including impervious areas) will not be affected by the works / project and the current engineered level of stormwater run-off / quantity will be unaffected. Similarly, the 'high' water quality of the run-off will be managed in the same accepted manner as present.

Stormwater controls on site will be detailed in an erosion and sediment control plan, generally in accordance with the "Blue Book" - Managing Urban Stormwater: Soils and Construction (Landcom NSW). The plan will vary based on construction staging and methodology, but will typically include: upstream clean water diversion; silt fences; sedimentation basin; dust control; and vehicle wash down.

Risk Management Rating = Possible likelihood + Minor Consequence = **5 (Medium)**

No additional Mitigation Measures are required.

Waste (Construction and Operational)

- Generation of construction and operational waste.

A preliminary Waste Management Plan has been prepared in relation to the construction and operation of the MUAPP (see **Appendix V**).

Risk Management Rating = Unlikely + Minor Consequence = **4 (Medium)**

No additional Mitigation Measures are required.

Crime (Operational)

- Potential areas of criminal or anti-social behaviour

The review of the design and operation of the building against the CPTED Principles (see Section 6.14) has revealed that the potential for any new safety or security concerns as well as criminal or anti-social behaviour is low.

Risk Assessment Rating = Unlikely likelihood + Insignificant Consequence = **2 (Low)**.

Greenhouse (Construction and Operational)

- Potential increase in emissions.

Based on the ESD credentials for the development being a substantive reuse of an existing building the development with concurrently reduce waste and seek to upgrade the environmental performance of the building and the campus – as set out in Section 6.7. ESD targets will be set for the building's operation. The development will provide no new car parking spaces and will continue to foster public transport use, walking and cycling as means of getting to and from the campus.

Risk Assessment Rating = Unlikely likelihood + Insignificant Consequence = **2 (Low)**.

No additional Mitigation Measures are required.

6.20 Cumulative Environmental Impacts

In light of the above and the assessment in Section 6.0 of this EIS, it is considered that the proposed development on its own or whether in conjunction with other developments occurring nearby at the same, does not give rise to any cumulative environmental impacts that cannot be appropriately managed through the mitigation measures identified in Section 7.0.

There are no concurrent approved works proposed on the MQU North Ryde Campus in the immediate vicinity of the MUAPP. The major projects outside of the campus are the redevelopment of the Macquarie University Shopping Centre and the Sydney Metro construction project. Works on these projects will be underway on Herring Road. MQU will co-ordinate its works with AMP and the relevant Transport for NSW authorities to ensure any possible conflicts, particularly in relation to traffic, may be minimised.

7.0 MITIGATION MEASURES

Mitigation measures required to address the potential impacts of the development (as derived from various specialists studies and reports supporting this DA) are listed below:

7.1 Heritage and Aboriginal Heritage

- Should any heritage relics or sites be discovered during construction they shall be reported to MQU and the NSW Heritage Office. If relics other than those indicated by this assessment are revealed, a suitably qualified archaeologist should be consulted to assess the significance and research potential of the remains and to undertake any required consultation with the NSW Heritage Office.
- If archaeological remains are unexpectedly disturbed, cease work and engage an archaeologist who will apply for an archaeological excavation permit (Heritage Act 1977 amended 2001) before any further work is undertaken.
- Should any evidence of Aboriginal be relics discovered during construction they shall be reported to the MQU and the National Parks and Wildlife Service. Any proposal to disturbance suspected relics or Aboriginal heritage site may require consultation with the National Parks and Wildlife Service. All work is to cease on site until the relevant permit is received or advice is provided by the National Parks and Wildlife Service that work can recommence.

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7.2 Noise

- Maximum noise limits for mechanical plant shall be as provided for in Table 16 of the Wood & Grieve Noise and Vibration Impact Assessment in order to meet the noise criteria for the adjacent noise sensitive receivers.
- Noise and vibration attenuation measures as set out in the Wood & Grieve Noise and Vibration Impact Assessment will be employed to suppress noise and vibration generation and transmission.
- Noise and vibration management measures will be employed through the construction process and via the final Construction Management Plan.
- Noise and Vibration monitoring as set out in Noise and Vibration Impact Assessment will be employed during construction.
- Communications and complaints procedures shall be employed during construction.

7.3 Tree protection

- Trees not approved for removal are to be protected in accordance with Australian Standard AS4970-2009.
- No building materials, builder sheds and the like are permitted to be stored under the canopy of existing trees.
- All trees identified for retention/protection within the subject site are to be clearly identified by signage as protected trees.
- The primary root zone areas of trees identified for protection are to be protected by fencing during the entire construction period except for specific areas directly required to achieve construction works.

- The tree protection fence shall be constructed of galvanised pipe at 2.4 metre spacing and connected by securely attached chain mesh fencing to a minimum height of 1.8 metres prior to work commencing.
- To prevent soil compaction or contamination no storage or mixing of construction materials shall be allowed within the primary root zone area of trees identified for protection.
- Canopy pruning of trees identified for protection which is necessary to accommodate approved building works shall be undertaken by an experienced Horticulturist/ Arborist, with a minimum qualification of the Horticulture Certificate or Tree Surgery Certificate and in accordance with Australian Standard 4373-2007 'Pruning of Amenity Trees'.

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7.4 Traffic

- The Construction Management Plan will require the construction program of the MUAPP to broadly align with / respond to the works proposed on the conversion of Macquarie University Station to a Metro station as well as those proposed under the approval of the upgrade and redevelopment at Macquarie Centre Shopping Centre.

7.5 Contamination

- Appropriate site management controls will be implemented during development of the site for the intended land use and will adequately manage waste soils and any unexpected finds through appropriate unexpected finds protocols.
- Whilst fill material near the site is provisionally classified as General Solid Waste in accordance with DECCW 2009, should material require removal from site, further testing would be required to confirm waste classification should any unexpected finds be encountered during development, or to assess whether the material may be able to be reused at other locations under an appropriate general exemption from waste regulations.

8.0 CONCLUSION

This EIS has been prepared to consider the environmental, social and economic impacts of the proposed MUAPP.

The EIS has addressed the issues outlined in the SEARs and satisfies the requirements of the Act and Regulation with respect to consideration of relevant environmental planning instruments, built form, social and environmental impacts including amongst other things, traffic, noise, vibration, heritage, construction, ESD and stormwater.

This EIS concludes that the project's impacts are able to be suitably mitigated and managed.

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The project warrants approval for the following reasons:

- It provides for upgraded teaching, research and learning spaces;
- It provides for additional operational life of the buildings and brings them up to contemporary building, fire safety, accessibility and ESD standards;
- It provides a point of focus for MQU's new Arts Precinct with design excellence and new purpose-built accommodation;
- It provides a world class showcase to enable the Arts Faculty to grow and respond to opportunities; and
- It supports and showcases MQU's commitment to leadership in sustainability.

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