

# Environmental Assessment Report Project Application

Cochlear Global Headquarters – Stage 1 Building  
University Avenue, Macquarie University Campus,  
North Ryde

Submitted to  
Department of Planning  
On Behalf of Lachlan Project Development Pty Ltd

July 2008 ■ 07429



# Statement of Validity

Prepared under Part 3A of the Environmental Planning and Assessment Act, 1979 (as amended)

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## Certificate

I certify that I have prepared the content of this Environmental Assessment and to the best of my knowledge:

- It is in accordance with the Environmental Planning and Assessment Act and Regulation.
- It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.

Signature



Name

Kim Bauer

Date

18 July 2008

Signature



Name

Bernard Gallagher

Date

18 July 2008



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## Executive Summary

This Environmental Assessment Report has been prepared to accompany a Project Application for the new purpose-built global headquarters for Cochlear Limited at Macquarie University North Ryde Campus (the Campus), and is submitted to the Minister for Planning pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *State Environmental Planning Policy (Major Projects) 2005* (the Major Projects SEPP).

Cochlear Limited is an ASX Top 100 listed company, and is the world leader in the production of implantable hearing devices. As the industry's pioneer, Cochlear has more than 25 years experience in the design, manufacture and sale of the Australian-invented 'bionic ear'.

Cochlear is a global organisation, selling into over 73 countries, with its current head office and manufacturing facilities located in Lane Cove. Over 120,000 children and adults worldwide now have a Cochlear implant or bone conduction implant.

After 25 years in the current location, Cochlear is seeking to expand its operations within Sydney, rather than relocating to another State or overseas. The relocation and expansion of Cochlear's global headquarters from Lane Cove to the Macquarie University Campus is an opportunity to further enhance Cochlear's international reputation and also reinforce Macquarie University (and the Macquarie Park Corridor) as a specialist centre and hub of innovation.

The relocation of Cochlear demonstrates a clear commitment and strategic long-term vision which aligns research and technology synergies, and will ultimately provide improved hearing technologies. The proposed development of the Cochlear global headquarters on the Campus will provide a suitable platform for future expansion and growth, and will also provide a high-tech research "hearing" hub with Macquarie University's Audiology Departments and Clinics.

The ultimate objective is to facilitate a research hub within the University to make the research, development, innovation and manufacturing process of implant technology more easily accessible to prospective and existing recipients and the broader worldwide community.

The new headquarters building will accommodate a mix of research and office function which will establish a strong relationship with University academic functions. Cochlear Limited will continue to encourage a reciprocal relationship with the University and sharing of knowledge. Many existing Cochlear management personnel currently lecture in the University's Audiology Department and the relocation of the Cochlear headquarters to the Campus will strengthen this relationship and encourage the clustering of medical and hearing-related industries and technologies within this section of the University Campus.

The Project Application relates to the Cochlear Stage 1 Building which is proposed to be constructed in the Station South Precinct. The Precinct is identified under the draft Macquarie University Concept Plan (draft Concept Plan) as being located in the south western section of University Campus. The site for the Stage 1 Building is within the southern triangle of the Precinct, south of University Avenue and in close proximity to the new Macquarie Rail Station.

The Stage 1 Building will accommodate some 1250 employees within a 6 to 7 storey building with an approximate gross floor area of 24,343m<sup>2</sup>. It will include 544 parking spaces in basement and at grade parking areas and will have a capital investment value of approximately \$71 million.

Although Cochlear is not committed beyond this proposal, there are additional buildings that are currently in early negotiation stages between Cochlear and Macquarie University. Additional buildings may be required to facilitate Cochlear's anticipated growth, and are envisaged as possible future stages.

The general parameters of the Cochlear Stage 1 Building are reflected in the draft Concept Plan which was lodged with the Department of Planning (the Department) on 30 November 2007 to support the proposed State Significant Site (SSS) listing of the Campus. The draft Concept Plan and associated amendment to *State Environmental Planning Policy (Major Projects) 2005* (SEPP Amendment) will form the statutory basis for new development on the University site. The Cochlear Stage 1 Building will be consistent with the land use structure in the SEPP Amendment and generally consistent with development parameters specified in the draft Concept Plan.

The brief to the design team has been to achieve the design and planning requirements for the Stage 1 Building, consistent with the provisions of the draft Concept Plan, whilst also contemplating possible indicative future proposals or buildings. Accordingly, the current proposal has been designed to achieve general consistency with the draft Concept Plan, for this and any possible future stages.

The Department has indicated that the proposal for the Cochlear Stage 1 Building falls within the terms of the Macquarie University Concept Plan declaration made on 4 April 2006, and that a new declaration for the Cochlear Headquarters Building is not required (letter of 14 March 2008). In accordance with Part 3A of the EP&A Act, the Director-General of Planning issued Environmental Assessment Requirements for the Cochlear Stage 1 Building (MP 08\_0032) on 14 March 2008.

These requirements refer to the following issues:

- compliance with relevant planning policies and statutory controls;
- built form and design aspects of the proposal;
- environmental impacts and biodiversity considerations;
- transport, traffic and access;
- stormwater, drainage and flooding;
- construction and operational impacts;
- ESD measures; and
- utilities and infrastructure

The site is considered suitable for the proposed Cochlear Stage 1 Building for the following reasons:

- The proposed development is consistent with the objectives for the Station South Precinct (described in the draft Concept Plan) as it will encourage the co-location of an innovative research and technology industry in close proximity to University-related research activities thereby promoting the vision for Macquarie University Campus as an internationally-recognised research hub;
- The retention of Cochlear within Sydney, and its placement within the Macquarie Park Corridor and Macquarie University, promotes and reinforces the role of the Corridor as a Specialised Centre within the “global arc” and the State Government’s direction in fostering growth in innovation.
- It is a use reflected within the draft Concept Plan and SEPP Amendment and will be consistent with the development parameters set for the Station South Precinct within the draft Concept Plan;
- The use of the site will seek to maximise use of Government investment in transport infrastructure, particularly the soon to be completed Chatswood-Epping rail link;

- Existing infrastructure can be upgraded where necessary to accommodate the proposed Stage 1 Building;
- It will provide a key element of the Concept Plan design and will initiate the transformation of the Campus into a research and technology-oriented commercial centre;
- Potential environmental impact can be mitigated through appropriate building design and management procedures; and
- The development will provide a new A-grade commercial office building with a minimum 4 star Green Star rating and a 4.5 star ABGR in close proximity to a new rail station.

The public interest is well served by the proposed development for the following reasons:

- The proposed Stage 1 Building is located within the Campus boundaries and is well set back from the adjoining residential properties;
- The development will ensure that a high-profile employment-generating activity is retained in Sydney; and
- There will be minimal impact on the public domain or neighbouring properties (outside of the University) during construction.

The high level of design will result in a new building with exceptional ESD initiatives. These are intended to minimise the impacts of the development on the environment and include: low energy building design; rainwater harvesting; optimal use of natural light through building design and materials; and use of energy efficient mechanical systems and lighting.

A draft Statement of Commitments sets out the commitments made by Lachlan Project Development Pty Ltd to manage and minimise potential impacts arising from the project. These include:

- compliance with relevant Australian Standards, the Building Code of Australia (BCA);
- commitments to apply the recommendations made in consultant reports including provision of an appropriate stormwater drainage system, sewer drainage and plumbing system, water services, fire hydrant and hose reel services, and natural gas services to the building;
- a commitment to apply the ESD initiatives recommended in consultant reports;
- the proposed rehabilitation of the adjoining creek and riparian corridor on the development site;
- relocation of an existing bus stop; and
- a commitment to minimise amenity impacts during construction.



# 1.0 Introduction

This Environmental Assessment Report (EAR) is submitted to the Minister for Planning pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It fulfils the Environmental Assessment Requirements issued by the Director General for a Project Application for the Cochlear Global Headquarters at the Macquarie University Campus, North Ryde.

The Project Application seeks approval for:

- Development of the first stage of the purpose-built Cochlear Global Headquarters consistent with the parameters of the draft Concept Plan and SEPP Amendment;
- Design (and general fit-out) of the building accommodating a mix of uses including warehouse/storage space, office facilities and research/manufacturing space;
- Maximum storey height of six to seven storeys;
- 24,343m<sup>2</sup> of gross floor area;
- 544 parking spaces of which 398 will be located below ground in two levels of basement parking and 146 spaces which will be located at grade;
- Vehicle and pedestrian access to the site from University Avenue;
- Landscaping including riparian zone vegetation;
- Associated amenities, bicycle parking and services;
- Relocation of an existing bus stop along the southern side of University Avenue with a pull-in bay;
- Proposed retention of the existing 'Waratah' Occasional Care Centre and 'Gumnut Cottage' Childcare Centre which adjoin the subject site to the west and south (with relocation of the play areas associated with these centres); and
- Rehabilitation of the north-western side of the University Creek corridor within the site.

The report has been prepared by JBA Urban Planning Consultants Pty Ltd, for the proponent, Lachlan Project Development Pty Ltd, and is based on design information provided by Toland Williams Architecture (**Appendix A**), indicative internal layout plans prepared by Geyer (**Appendix B**) and supporting technical documents provided by the expert consultant team.

This EAR describes the site, its environs and the proposed development, and includes an assessment of the proposal in accordance with the Director-General's Environmental Assessment Requirements under Part 3A of the EP&A Act. It should be read in conjunction with the information contained within and appended to this report.

This report:

- outlines the vision for the future development of the Stage 1 Cochlear global headquarters building on the Macquarie University Campus;
- establishes the design parameters for the Stage 1 Building; and
- provides an assessment of the environmental impacts of the proposed development.

The report (**Volume 1**) is structured as follows:

**Section 1:** Introduction, overview of existing site conditions, background, project team and approvals process.

**Section 2:** The current strategic and statutory planning framework and context applying to the site.

**Section 3:** The concept design for the project including key elements for which project approval is sought.

**Section 4:** Environmental assessment of the Project Application.

**Section 5:** Draft Statement of Commitments.

**Section 6:** Conclusion.

**Volume 2** contains the Appendices which include the range of technical studies undertaken to inform the land use change and Concept Plan and its environmental assessment. These studies address the Director General's Environmental Assessment Requirements for the Project Application. They provide a technical assessment of the environmental impact of the proposed development, and recommend proposed mitigation measures to manage potential environmental impacts associated with the proposal.

## 1.1 The Site

### Macquarie University Campus - Site Location and Context

Macquarie University Campus is located 17km to the north-west of the Sydney CBD (refer to **Figure 1**) at the western end of the Macquarie Park Corridor. To the north of the main University Campus is the M2 Motorway with the Lane Cove River / National Park beyond. Areas to the south and west of the site and across Epping Road are largely residential. To the west is the suburb of Marsfield. The Macquarie Shopping Centre is located immediately east of the Campus across Herring Road, with the majority of the Macquarie Park Corridor further to the south east.

The Campus, which currently has a student population of approximately 30,000, covers an area of some 126ha and is owned by Macquarie University.

A photograph of the University Campus is provided at **Figure 2**.



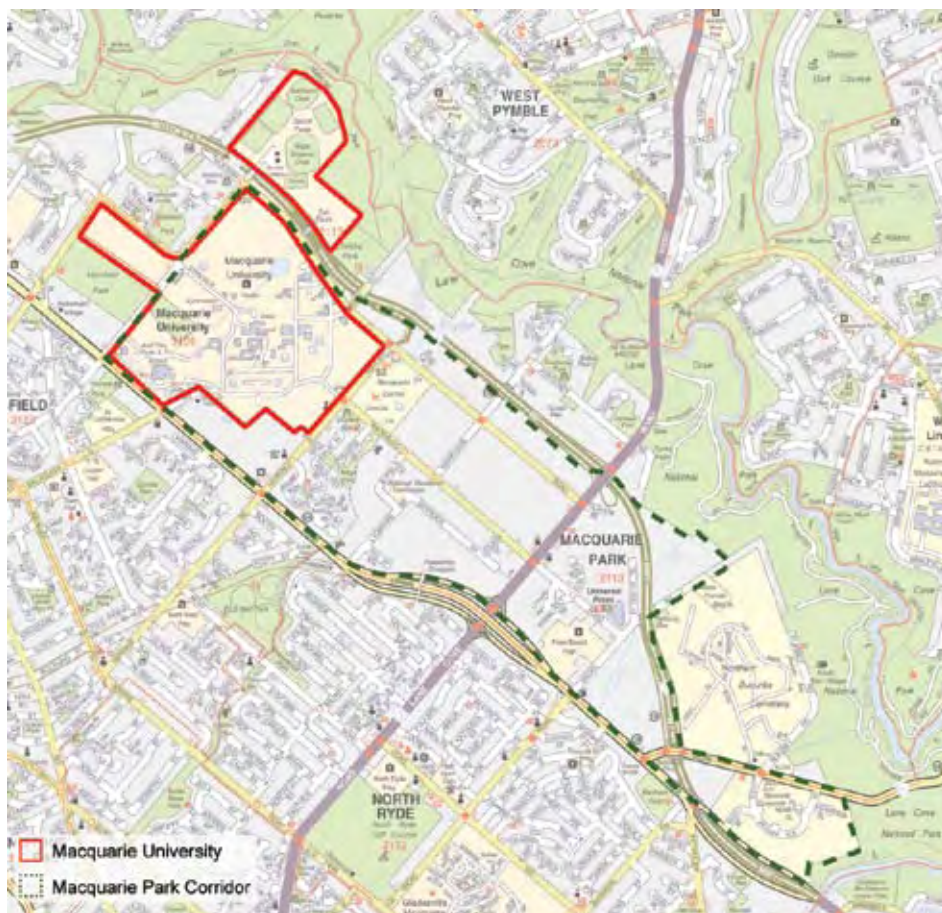


Figure 1 – Locality Plan



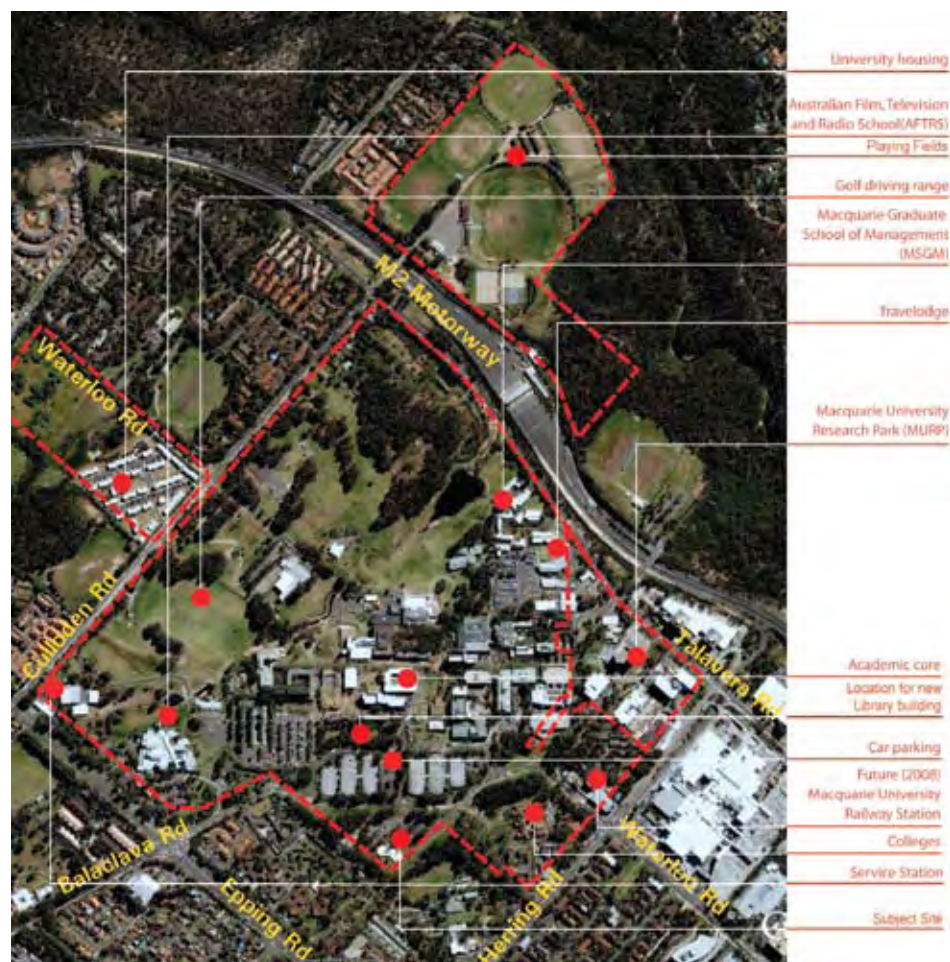
Figure 2 – Photograph of the Macquarie University Campus in the foreground from the north-west

## Existing Land Uses on the Campus

The main components of the Campus are:

- the Academic Core which contains the main University buildings ranging in height from 1 - 8 storeys;
- the Macquarie Graduate School of Management (MGSM) and the Australian Film, Television and Radio School (AFTRS);
- the Macquarie University Travelodge;
- the Macquarie University Research Park (MURP) which is located in the eastern corner of the Campus fronting Herring Road and Talavera Road. Commercial tenants include Nortel, Siemens and Dow Corning in modern buildings typically 8 storeys in height;
- student housing located west of Culloden Road;
- student housing fronting Herring Road; and
- playing fields and open space located in the northern quadrant of the Campus and north of the M2 Motorway (accessible from Culloden Road).

Existing land uses are shown at **Figure 3** below.



**Figure 3** – Existing land uses on Macquarie University site



## Station South Precinct

The site of the proposed Cochlear Global Headquarters is located in the southern-most section of Macquarie University Campus. This area is part of the approximately 17.6 hectare Station South Precinct or Precinct E (see **Figure 4** below) identified in the draft Concept Plan. It is bounded by Macquarie Drive to the north, University Creek and the University's Dunmore Lang and Robert Menzies Colleges, and Morling Baptist Bible College to the east and south, NSW Baptist Community Services' Willandra Village to the south and west. At its south-western boundary, the Precinct adjoins residential and aged-care development, as well as a creek corridor and surrounding open space. Adjoining the Precinct's north-eastern boundary is Macquarie University Research Park (MURP).

The Precinct is accessed from Balaclava Road to the south-west and Waterloo and Herring Roads to the south-east. The Macquarie University Station which, once complete will form part of the Chatswood to Epping rail line, is located at the Precinct's south-eastern boundary adjoining the Waterloo/Herring Road intersection. The Precinct is separated from the University Academic Core by Macquarie Drive, which forms a crescent shape running from west to east linking the Balaclava Road to the Waterloo/Herring Road intersection. University Avenue - south of Macquarie Drive - also provides a vehicular link between the west and east University vehicle access point.

Existing development within the precinct includes the Robert Menzies and Dunmore Lang Colleges, a child care centre, and Gumnut Cottage. North of University Avenue is a number of multi-level car parks which are proposed to be relocated as part of the draft Concept Plan.

Part of the Station South Precinct is presently zoned 3(h) Business Special (Mixed Activity) under Ryde Planning Scheme Ordinance (RPSO). A range of uses are permissible on this part of the Campus including commercial and retail. The RPSO establishes a maximum floor space ratio (FSR) of 2:1 up to 3:1 around the station and maximum building heights for this part of the Campus.

The draft SEPP Amendment seeks to implement a revised zoning regime for the Campus, including the rezoning of the Station South Precinct to B4 – Mixed Uses in which office premises are permitted. There are a number of operational drivers for research-based commercial development to be located within close proximity to a reputable academic institution. The draft Concept Plan and SEPP Amendment seek to include key supplementary land uses (in addition to the mandated land uses within the B4 zone) which will support the vision for the Campus as a research-based commercial Precinct.

Due to its close proximity to the new rail station and its interface with the remainder of the Macquarie Park Corridor, the Station South Precinct will become the focus for new commercial and related development. All existing development within the precinct will be demolished over time.

The draft Concept Plan sets a number of development controls and urban design principles for the Station South Precinct.

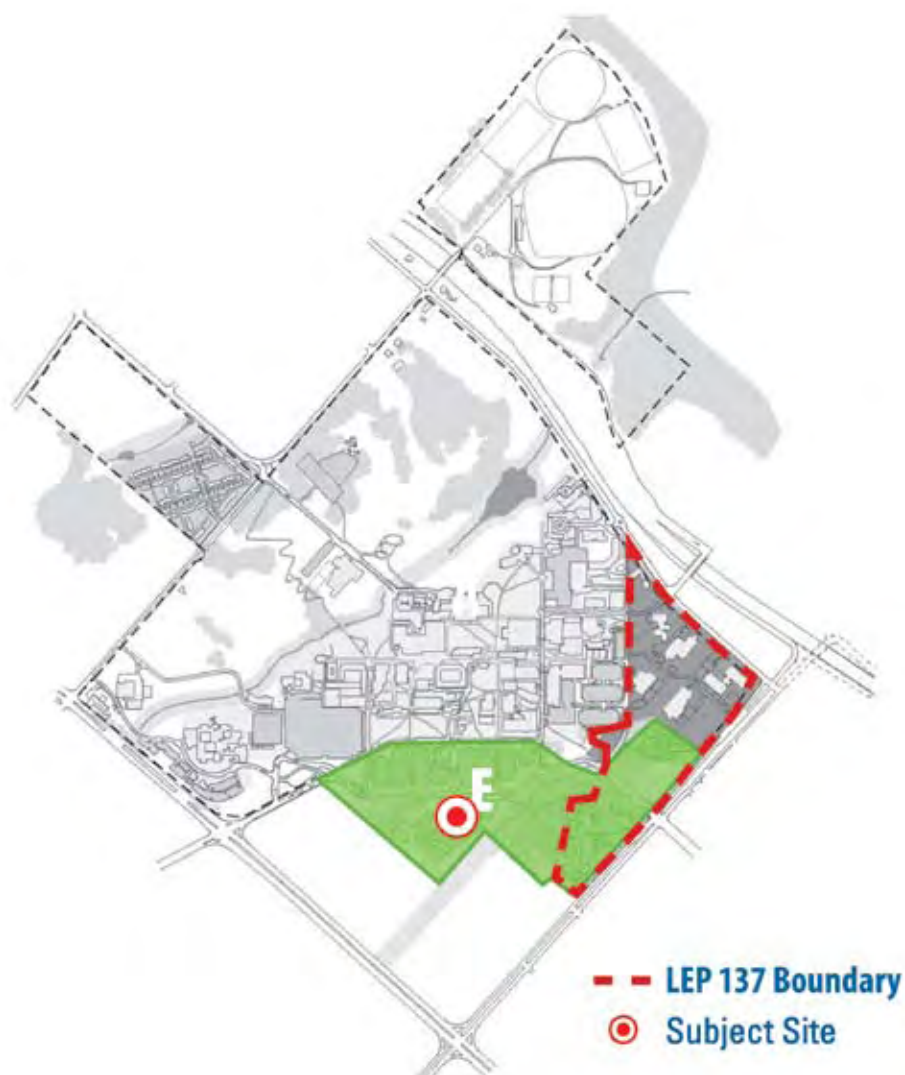


Figure 4 – Station South Precinct

### Cochlear Development Site

The development site for the building as the first stage of the new Cochlear Global Headquarters is located within the southern triangle of the Station South Precinct. Survey plans of the site and surrounds are provided at **Appendix C**. The site is located south of University Avenue and has a legal property description of Lot 182 in DP 1112777.

The site has a total area of 12,172m<sup>2</sup> and is irregular in shape. It has a northern boundary of approximately 210 metres to University Avenue, an approximately 64 metre western boundary and an irregular southern boundary of approximately 138 metres. The site's eastern boundary runs parallel to the north-western bank of University Creek. A remnant Sydney Turpentine Iron Bark (STIF) ecological community is located to the south-east of the site on the other side of University Creek. The site slopes approximately 10 metres in height from north-west to south-east. Existing drainage patterns on the site are described in detail in the Stormwater Management Plans and Report for the proposal which is included at **Appendix D**. In summary, stormwater run-off discharges to the University Creek within only minimal water quality measures provided on the site.

The site currently contains a small complex of single storey brick buildings currently used by the University's 'Waratah' Occasional Care Centre and 'Gumnut Cottage' Child Care Centre, along with ancillary structures and sheds, and at-grade car parking. These structures will be retained under the current proposal. However, the play areas associated with these centres will be relocated and vehicle and pedestrian access to the centres will be provided from University Avenue as part of the Stage 1 Building Project Application.

A site location plan is provided at **Figure 5** and photographs of the site and surrounds are provided at **Figure 6** to **8**.

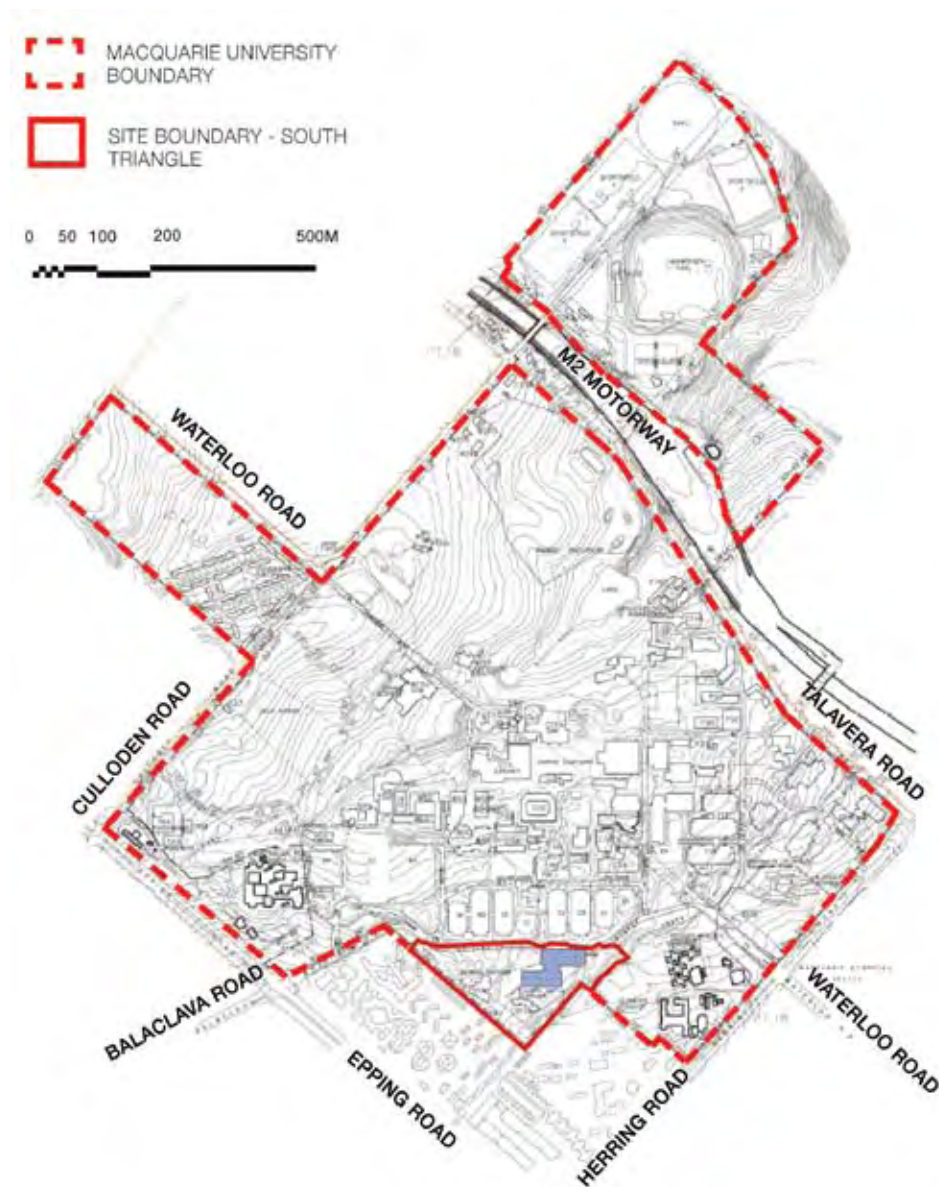


Figure 5 – Site location plan





Figure 6 – Photograph of site (from the north)



Figure 7 – Photograph of site and surround (from University Creek)



Figure 8 – Photograph of site and surrounds (from the west)

## 1.2 Background to Current Planning

Since the University's inception in 1964, a Development Plan has been in place to guide the growth of the University. In late 2002, Macquarie University commenced a review of the 1997 Development Plan prepared by Conybeare Morrison. This resulted in the comprehensive *Macquarie University Campus Development Plan 2004* (CDP) prepared by CRI/Cox Richardson which identified opportunities to guide the future growth of the University and formed the basis for preparing a specific Macquarie University statutory planning instrument to support implementation of the development potential identified in the CDP

On 16 September 2005, Macquarie University wrote to the Minister for Planning (the Minister) requesting consideration of the Macquarie University Campus to be included in Schedule 3 of *State Environmental Planning Policy (Major Projects) 2005* (Major Projects SEPP) as a SSS. On 24 January 2006, the Department of Planning (the Department) advised the University that the Minister agreed to consider the site as a potential SSS, requesting that certain matters be assessed in a planning study for the site. These were addressed in the *Planning Study to Support Amendment to Schedule 3 of Major Projects SEPP 2005* prepared by JBA Urban Planning Consultants and CRI dated May 2006 and lodged with the Department. This SSS study was exhibited during mid-2006 and garnered minimal response.

In response to the Minister's later request for a draft Concept Plan (to support and accompany the SSS proposal), a joint Concept Plan and SEPP Amendment has been prepared and was on exhibition from 21 May to 23 June 2008. The redevelopment of the Campus under the Concept Plan will, amongst other things, promote the redevelopment of residual land on the Macquarie University Campus as a research-orientated commercial precinct, as well as the progressive redevelopment of the University Academic Core and University Housing Precincts.

Consistent with this vision for the Campus, Cochlear Pty Ltd began discussions with the University in 2007 to move its global headquarters - from its current location in Lane Cove - to a new purpose-built facility in the Station South Precinct. The Cochlear Stage 1 Building will initiate the transformation of the Station South Precinct into a research-orientated commercial centre and its development is recognised as one of the earliest stages of new development on the Campus in the draft Concept Plan.

On 18 February 2008, a letter requesting the Minister's confirmation that proposal for Stage 1 Building is a type of project to which Part 3A of the EP&A Act applies and a Preliminary EAR were submitted to the Department. On 14 March 2008 the Department of Planning confirmed that the proposal falls within the terms of the Concept Plan for which the Minister formed an opinion in April 2006, and that a new declaration of the Cochlear Stage 1 Building is not required. At the same time the Department issued the Director General's Environmental Assessment Requirements for the project (see **Appendix E**).

## 1.3 Environmental Assessment and Approvals Process

The Major Projects SEPP identifies development to which Part 3A of the EP&A Act applies, and for which the Minister is the consent authority. As confirmed by the Department of Planning, the Cochlear Stage 1 Building is reflected in the draft Concept Plan for the overall and long-term redevelopment of the Macquarie University Campus, which the Minister declared, on 4 April 2006, to be a Major Project under Part 3A. As confirmed by the Department the nature and scale of the Proposal would also satisfy the criteria for declaration as a Major Project under Part 3A of the Act in its own right.

Whilst the subject proposal is not a permitted land use under the current zoning, the Minister's authorisation of a Concept Plan for the University site allows the Minister to approve the proposal in advance of the Concept Plan or any rezoning, including the proposed State Significant Site-listing.

This report constitutes for the Environmental Assessment Report (EAR) addressing the Director General's Requirements for the Cochlear Stage 1 Building.

## 1.4 Project Team

An expert project team has been formed to deliver the project and includes:

<b>Proponent</b>	Lachlan Project Development Pty Ltd
<b>Project Manager</b>	CRI Australia
<b>Architects</b>	Toland Williams
<b>Urban Planning</b>	JBA Urban Planning Consultants
<b>Interior Design Architects</b>	Geyer
<b>Quantity Surveyors</b>	Rider Levett Bucknall
<b>Geotechnical</b>	Douglas Partners
<b>BCA</b>	McKenzie Group
<b>Civil&amp; Stormwater Engineering</b>	Costin Roe Consulting
<b>Infrastructure</b>	Hyder
<b>Water and Flooding Engineers</b>	Costin Roe
<b>ESD</b>	Hyder
<b>Biodiversity</b>	Total Earth Care and DEM
<b>Water Quality and Quantity</b>	Costin Roe Consulting
<b>Traffic and Transport</b>	Cardno Eppel Olsen
<b>Arborist</b>	Treescan
<b>Landscape</b>	DEM
<b>Surveyor</b>	Lockley Land Titles Solutions
<b>Fire Engineering</b>	Raw Fire Pty Ltd
<b>Noise</b>	Heggies

## 2.0 Planning Framework and Context

### 2.1 Strategic Planning

#### The Metropolitan Strategy

In December 2005, the NSW Government released the Metropolitan Strategy for Sydney entitled *City of Cities – A Plan for Sydney's Future*. The Metropolitan Strategy provides commentary and direction for the next 25-30 years at a regional level on issues such as land use, economic development, jobs, transport, innovation, centres and corridors and residential areas within Sydney.

Macquarie University is referred to directly and indirectly in the Metropolitan Strategy. Directly, as part of the Global Economic Corridor, also known as the Global Arc, and indirectly when referring to the Macquarie Park Corridor as a Specialised Centre, of which the University is an integral component.

The Global Economic Corridor is considered in the Strategy as the most important employment sector, being the home of most of Sydney's 'knowledge' jobs and innovative industries. It is intended for the Corridor to grow by an additional 150,000 jobs on top of the existing 800,000 (ie 40% of total employment growth). Sydney's overall employment growth to 2031 is anticipated to be a further 500,000 jobs. The Macquarie Park Corridor is expected to contribute about 23,000 new jobs (or 70% growth) within the same timeframe under the Metropolitan Strategy. It is clear that the Macquarie Park Corridor is a key component of Sydney's employment growth, particularly as part of growth of the Global Economic Corridor.

Macquarie University has been a major catalyst for the northern half of the Global Economic Corridor during the past 40 years and is expected to continue to play a pivotal role in positioning Sydney as one of Asia Pacific's important global cities. An additional factor is that Macquarie University / Macquarie Park is unique in being the only strategic Specialised Economic Centre or Business Park which has direct access to the Orbital and will shortly be served by three railway stations. This is recognized in the Strategy as the model for other Specialised Centres and Business Parks.

The draft Concept Plan for the University will provide for the redevelopment of the Campus consistent with State planning objectives by accommodating a significant increase in employment-generating uses and research-orientated activities within the Macquarie Park Corridor. The Stage 1 Building for the Cochlear global headquarters will act as a catalyst in the transformation of the Campus into a knowledge-based commercial centre.

#### The Draft Inner North Subregional Strategy

The Department of Planning released the draft Inner North Subregional Strategy in July 2007. The Subregional Strategy provides a more in-depth summary and analysis of the Metropolitan Strategy objectives as they apply to this part of the metropolitan area. The subregion includes the Ryde local government area (LGA), Macquarie Park Corridor, and Macquarie University. The Strategy identifies the Macquarie Park Corridor as a key specialised centre, with a strong emphasis on the strengthening of the Global Economic Corridor from North Sydney to Macquarie Park (of which the University is a major land holder and contributor), and reinforcement of the subregion's knowledge assets.

The subregion is anticipated to provide up to 60,100 new jobs by 2031. Of this employment growth target, Ryde is expected to contribute in the order of 21,000 to 23,100 jobs. These jobs are generally all expected to be absorbed within the Macquarie Park Corridor.

In addressing issues arising from the exhibition of the draft Subregional Strategy, Macquarie University has indicated, in a written response to the Department's regional team, that the proposal is consistent with the visions and actions of the subregional strategy.

The six key directions of the draft Subregional Strategy are satisfied as follows:

#### **Strengthen the Global Economic Corridor**

The University forms the northern part to the Macquarie Park Corridor and a key hub within the wider Global Economic Corridor. A great number of globally competitive firms are located within the Macquarie Park Corridor and MURP taking advantage of access to physical infrastructure (transport and access), an available workforce, links to the University, and suitable serviced and zoned land.

The clustering of commercial, research or innovative business activities at Macquarie Park and Macquarie University is an opportunity to facilitate the development of a specialist commercial centre focussed on multi-dimensional disciplines such as medical research and development and educational linkages with business.

The proposed relocation of Cochlear's global headquarters to Macquarie University is one of the first steps in establishing this knowledge-based commercial centre and exemplifies the opportunities to co-locate commercial and research activities within the University.

#### **Reinforce the Subregion's knowledge assets**

Cochlear Limited is committed to ongoing research and innovation in the field of hearing improvement and audiology. Its proposed location to the Macquarie University Campus will build upon the knowledge assets within the corridor, and reinforce Macquarie University's status as a key knowledge hub within the Metropolitan Region.

#### **Protect strategic employment lands**

The proposal is consistent with the objective to protect strategic employment lands. The University will retain ownership of land, but will provide the land to Cochlear Limited on a long-term lease basis for the development of its global headquarters.

#### **Improve housing choice**

The land to be developed for the Cochlear global headquarters is identified in the draft Concept Plan as part of the future commercial development on the Campus. Other land on the Campus is proposed to be developed as University housing. The proposed development is not located on land earmarked for future residential development.

#### **Encourage use of public transport**

The Macquarie University railway station is located on the Campus and is scheduled to open in 2008. The station is located in close proximity to the subject site and will provide the main form of public transport access to the site.

#### **Protect and promote the harbour and bushland setting**

The development site adjoins the University Creek which will be rehabilitated as part of the proposal. Additionally, extensive native planting is proposed on the site which will contribute to Campus's natural setting.



## 2.2 Statutory Planning

The following planning controls are relevant to the proposal:

- Commonwealth Environmental Protection and Biodiversity Conservation Act (1999) (EPBC Act);
- NSW Threatened Species and Conservation Act 1995 (TSC Act);
- Water Management Act 2000 (WM Act);
- State Environmental Planning Policy (Major Projects) 2005 (SEPP Major Projects);
- State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55);
- State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure); and
- Draft State Environmental Planning Policy No 66 – Integration of Land Use and Transport (Draft SEPP 66).

**Table 1 – Relevant Acts and State Environmental Planning Policies**

SEPPs	Requirement	Compliance / Relevance
EPBC Act	The EPBC Act is relevant where a development will result in a significant impact on nationally threatened species and communities protected under the EPBC Act. If a significant impact will occur the development is identified as a 'controlled activity' and the proposal needs to be referred to the Commonwealth Department of Environment and Water, Heritage and the Arts (CDEWHA). In accordance with the Commonwealth and NSW Governments Bilateral Agreement Relating to Environmental Impact Assessment most development that would be a controlled activity (ie result in significant impact) is assessed under the TSC Act.	One critically endangered ecological community listed under the EPBC Act – Sydney Turpentine and Ironbark Forest (STIF) – adjoins the site. An assessment of the proposal's impact on this community has been undertaken (see Flora and Fauna Assessment which is attached to the Vegetation Management Plan at <b>Appendix F</b> ). The proposal will not result in a significant impact on the STIF community and no referral to the CDEWHA is required. Additionally, a single white Wallangara White Gum and a Narrow-leave Black Peppermint (both of which are listed vulnerable species under the EPBC Act) are located on the site. These trees are in poor condition and are proposed to be removed. Their removal of this species is not considered to result in a significant impact.
TSC Act	The TSC Act provides regulatory control for the protections of threatened flora and fauna within NSW.	One endangered ecological community listed under the TSC Act – STIF – adjoins the site. An assessment of the proposal's impact on this community has been undertaken (see Flora and Fauna Assessment at <b>Appendix F</b> ). The proposal will not result in a significant impact. Additionally, a white Wallangara White Gum (listed as endangered under the TSC Act) and a Narrow-leave Black Peppermint (listed as a vulnerable species under the TSC Act) are located on the site. These trees are in poor condition and their proposed removal is not considered to result in a significant impact. A seven part test under the TSC Act has been undertaken for the proposal and forms part of the Flora and Fauna Assessment demonstrating that the proposal will have no significant impact on threatened species on the site.

SEPPs	Requirement	Compliance / Relevance
WM Act	The WM Act establishes the environmental protection requirements for 'controlled activities' – works within or near a classified watercourse. Works within 40m of a waterbody is classified as a 'controlled activity' under the WMA Act for which concurrence from the Department of Water and Energy (DWE) is typically required.	The proposed development includes the construction of a new commercial building within 40m of University Creek. However, concurrence from the DWE for a 'controlled activity' is not required for Part 3A projects. Despite this, the provisions of the WM Act have been taken into account to ensure appropriate protection of the creek line and surrounds occurs. Water quality management measures have been included in the stormwater design of the proposal and a Vegetation Management Plan (VMP) has been prepared to ensure that appropriate rehabilitation and protection of the riparian vegetation and water quality within the Creek occurs. The DWE has also been consulted about the proposal.
SEPP Major Projects	SEPP Major Projects, together with Part 3A of the EP&A Act provides the planning framework for the assessment of State Significant projects.	The proposed Stage 1 Building forms part of an earlier Major Projects declaration for a project to which Part 3A of the EP&A Act applies as it is reflected in the draft Macquarie University Concept Plan. This EAR has been prepared to response to Director General's Environmental Assessment Requirements in accordance with Part 3A of the EP&A Act.
SEPP 55	When considering an application for development, the consent authority is required to consider whether a site is contaminated and if so, whether it has been remediated a suitable level to accommodate the proposed use.	A Phase 1 Contamination Assessment has been prepared for the site and surrounds by Douglas Partners ( <b>Appendix G</b> ). The Contamination Assessment concludes that the potential for contamination on the site is very low and that the site is suitable for the proposed development in this regard. Further detail is provided in Section 4.5 below.
SEPP Infrastructure	Clause 104 of SEPP Infrastructure requires consultation with the Roads and Traffic Authority (RTA) to be undertaken for any development identified in Schedule 3 of the SEPP.	The proposed development is for a new commercial building that is greater than 10,000sqm in area and will connect to University Avenue. As a result, consultation with the RTA is required to be undertaken as part of the proposal. Some consultation with the RTA has already been undertaken by Cardno – see Section 2.6 below. Formal consultation with the RTA will be undertaken as part of the Project Application exhibition and referral process and all reasonable comments from the RTA will be taken into account.
Draft SEPP 66	Aims to ensure that new development provides improved access to public transport and minimises reliance on private vehicles.	The proposed development is located in close proximity to the new Macquarie University rail station which will be in operation before use of the new headquarters building commences. Further detail is provided in the Traffic and Parking Impact Assessment at <b>Appendix I</b> and in Section 4.6.

## 2.3 Draft Concept Plan and SEPP Amendment (SSS listing)

The draft Concept Plan and SEPP Amendment will provide the planning framework under which future development of the Macquarie University Campus takes place. The proposal is consistent with the land use controls set by the draft SEPP Amendment and is generally consistent with the built form, public domain and open space parameters set by the draft Concept Plan. The draft Concept plan provides indicative layouts for public open space areas, vehicle access and building footprints on the site at the same time as allowing for flexibility in responding to the site-specific requirements of each new development within the new commercial precincts on the Campus. General consistency with the urban design parameters of the draft Concept Plan has been achieved. The proposal will comply with the maximum FSR and height controls set by the draft Concept Plan. As noted under Part 3A of the Act, generally compliance is only required where Concept Plans apply.

### Precincts

The draft Concept Plan identified a number of development precincts on the Campus including:

Precinct A – Academic Core

Precinct B – University Housing

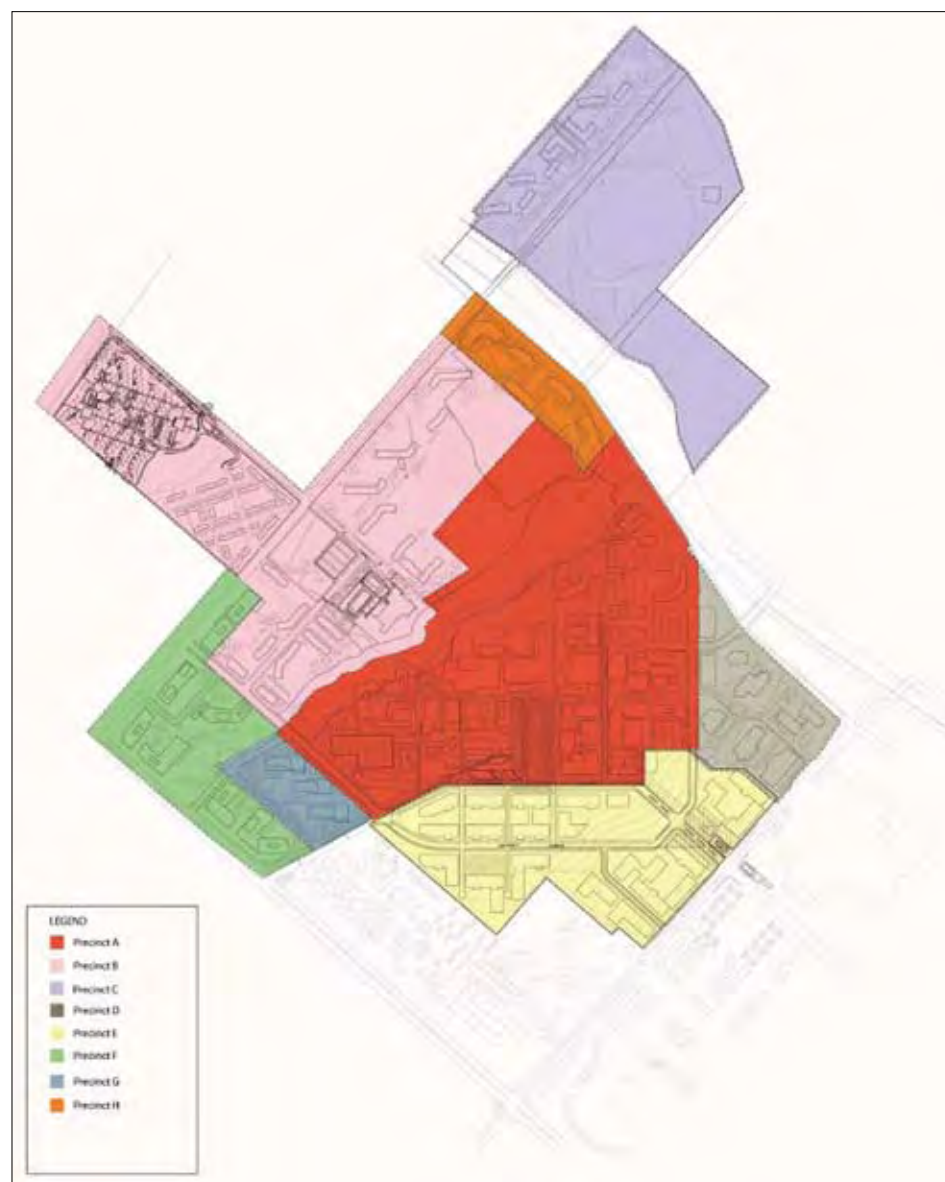
Precinct C – University Open Space And Playing Fields

Precinct D – Macquarie University Research Park (MURP) and Private Hospital

Precinct E – Station South

Precinct F – Epping Road West

The Precincts are identified in **Figure 9** below.

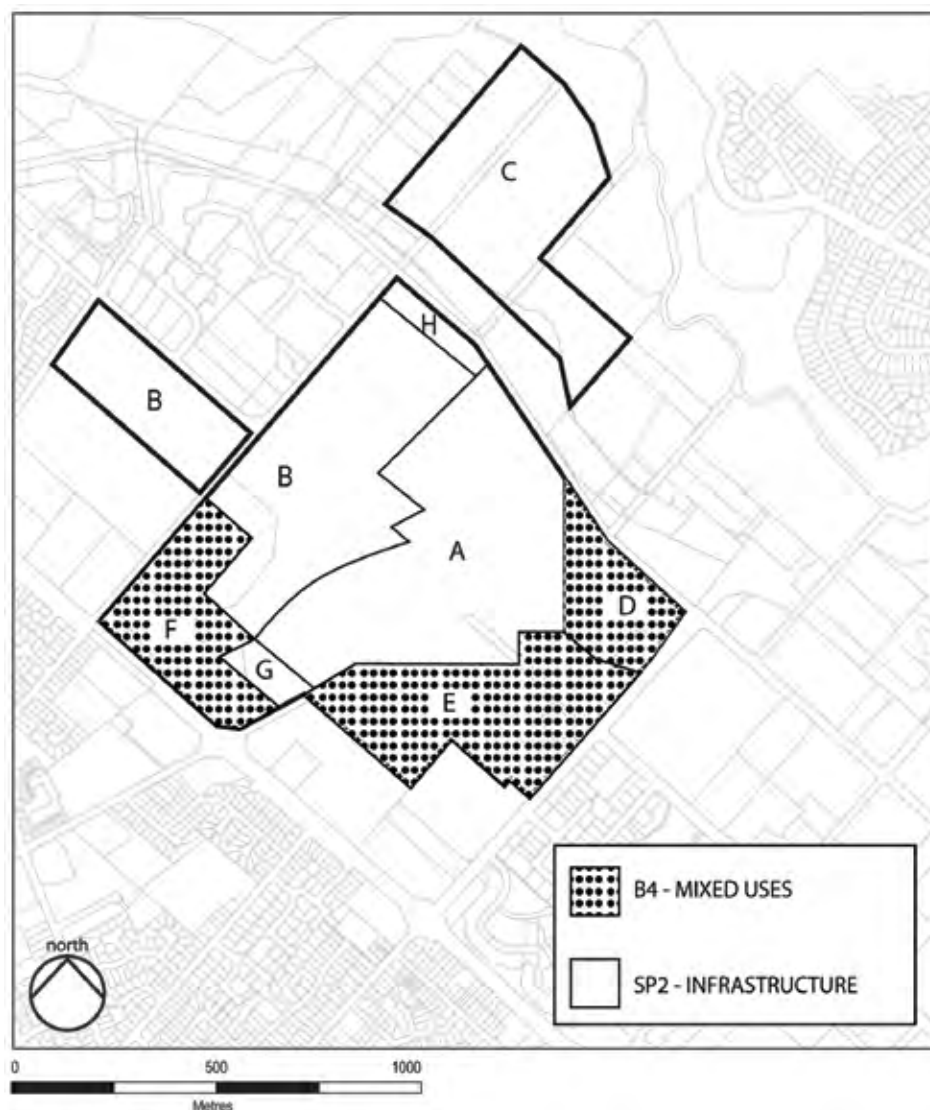


**Figure 9** – Development Precincts in the draft Macquarie University Concept Plan

The Stage 1 Building development site is located in Precinct E – Station South which is identified in the draft Concept Plan as one of the first precincts within the Campus that will be developed for research-orientated commercial facilities.

### Land Use

The majority of the Precinct is proposed to be zoned B4 – Mixed Uses under the draft Concept Plan and draft SEPP Amendment. The proposed zoning for the Macquarie University Campus is described in **Figure 10** below.



**Figure 10** – Proposed Land Use Plan from the draft SEPP Amendment

'Under the draft SEPP Amendment the whole of Precinct E is to be zoned B4 Mixed Use. The relevant objectives of Zone B4 Mixed Use identified in the draft SEPP Amendment are as follows:

- (a) *To provide a mixture of compatible land uses,*
- (b) *To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling,*
- (c) *To ensure that the Macquarie Park Corridor and Macquarie University Campus matures into a premium location for globally competitive businesses with strong links to the University and research institutions and businesses,*
- (d) *To ensure that the employment and educational activities within the corridor*  
*and campus are integrated with other businesses and activities,*
- (e) *To promote the principles of ecologically sustainable development,*
- (f) *To ensure an appropriate density, form, range and distribution of land-uses and development,*
- (g) *To promote appropriate retail development along the Epping Road frontage,*
- (h) *To ensure Macquarie University retains a competitive edge.*



The proposal will be consistent with the above objectives as it will provide for an A-grade commercial office building in a new commercial precinct in proximity to a rail station. It will accommodate the new global headquarters for Cochlear which is recognised as a world-leader in audiology research technologies which will integrate with research activities within the University. The new building will achieve a minimum 4.5 AGBR and is accompanied by the rehabilitation of the north-western bank of University Creek.

Office premises are proposed to be a permitted use in Zone B4. Despite the zoning provision, the Cochlear Stage 1 Building is a permitted use in accordance with Clause 80 of the *Environmental Planning and Assessment Regulation 2002* (EPA Reg). Approval can be granted for a project application that involves a use prohibited under an environmental planning instrument where a Concept Plan has been authorised and that part of the project does not occur on an environmentally sensitive area of State significance. As stated in the letter accompanying the Director General Environmental Assessment Requirements (dated 14 March 2008), the proposed Cochlear Stage 1 Building is reflected in the draft Concept Plan.

The proposed Cochlear Stage 1 Building will accommodate a mix of office, research/manufacturing and warehouse/storage with the primary function within the building will be the administration, accounting, marketing and IT functions associated with Cochlear Limited.

The draft Concept Plan provides a Land Use Diagram for Precinct E (Figure 11). Whilst most of the site is located within a mixed use area, a riparian zone adjoins the site at its south-eastern boundary and the part of the site is located within land ear-marked for public open space.



Figure 11 – Land use Diagram for the Station South Precinct from the draft Concept

As detailed above, the draft Concept Plan provides indicative planning parameters for development on the Campus. The exact location of the public open space area within the southern triangle of the Station South Precinct has not been determined yet and given the 40 year vision for the Concept Plan, definitive detailing and resolution of aspects of the draft Concept Plan may be resolved over time to ensure general or absolute compliance.

## Built Form Controls

**Table 2** below provides a summary of the planning controls that will apply to the site under the Concept Plan and SEPP Amendment.

**Table 2 – Draft Concept Plan Built Form Controls**

Control		Compliance
Maximum building height <sup>1</sup>	36 metres	A maximum building height of 34.2 metres is proposed. The proposal is consistent with the maximum height control set by the draft Concept Plan.
Front setback to University Avenue	10m landscape setback	In general, a 10 metre landscaped setback is proposed to University Avenue along the majority of the northern boundary of the site.
Maximum FSR	2:1	The site has a total area of 12,172m <sup>2</sup> and a maximum GFA of 24,343 m <sup>2</sup> resulting in an FSR of 1.98:1 on the site. The proposal is consistent with the maximum FSR set by the draft Concept Plan.
Parking	Maximum 1 space per 46 m <sup>2</sup> of GFA	A GFA of 24,343 m <sup>2</sup> is proposed for Stage 1 Building resulting in a parking requirements resulting in a parking rate requirement for 530 parking spaces. A total of 544 employee parking spaces is proposed on the site. The proposal is generally consistent with maximum employee parking control set by the draft Concept Plan. The additional 14 spaces results in a parking ratio of 1:45m <sup>2</sup> . Justification for this minor deviation is further addressed within this report.

## Public Domain, Pedestrian Links and Views Corridors

The primary open space on the Campus under the draft Concept Plan is proposed to be provided north of Macquarie Drive within the Academic Core – the University Common. This will link via a major pedestrian route along Macquarie Drive to a public domain area surrounding the new University Rail Station. A major east-west pedestrian link is proposed along University Avenue with one major and two secondary north-south pedestrian routes proposed between Macquarie Drive and University Avenue. View corridors are proposed along the primary and secondary pedestrian routes with vistas to bushland and riparian zones provided from the rail station to the north-west and to the north along University Avenue. A small public domain area is proposed within the Station South Precinct. The proposed public domain and pedestrian circulation arrangements are described in **Figures 12 to 13** below.

<sup>1</sup> Maximum building height is measured in accordance with the definition for building height under the Standard LEP: *'building height (or height of building) means the vertical distance between ground level (existing) at any point to the highest point of the building, including plant and lift overruns, but excluding communication devices, antennae, satellite dishes, masts, flagpoles, chimneys, flues and the like'*.

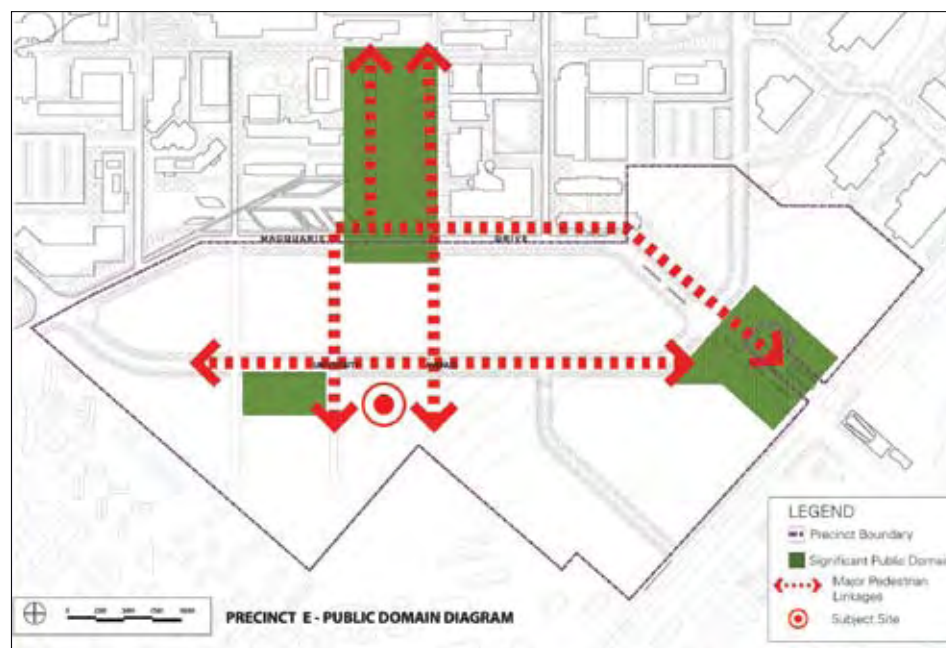


Figure 12 – Public Domain Strategy

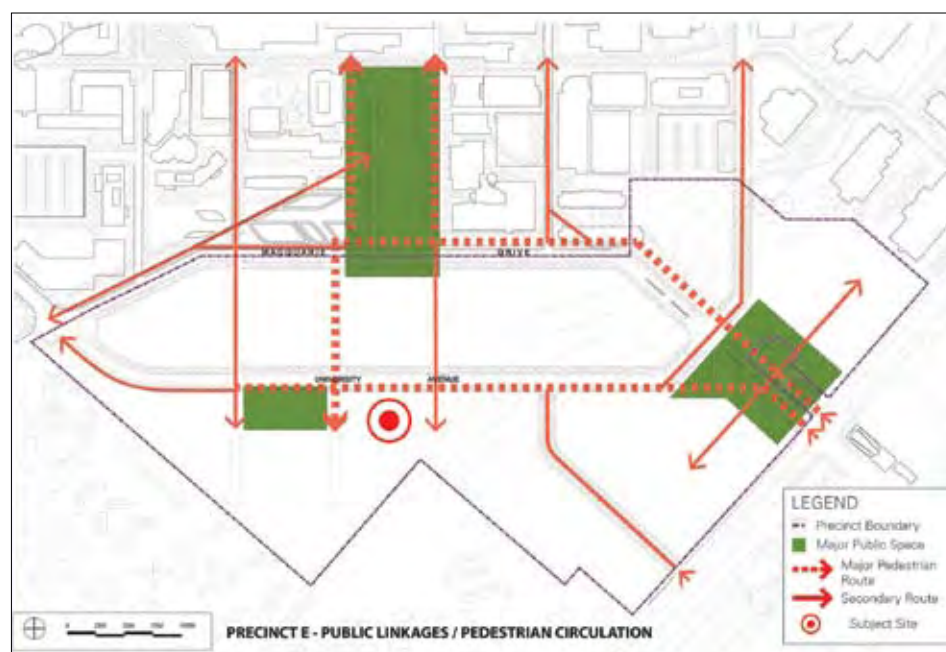


Figure 13 – Pedestrian Strategy

The public domain and pedestrian circulation arrangements for the Campus are indicative only, particularly the location of the public domain area within the southern triangle of the Station South Precinct, which may eventually be orientated north-south instead of east-west. Likewise, pedestrian links have been suggested with the possibility for relocation as the Campus progressively develops.

The Project Application for the Cochlear Stage 1 Building does not involve the development of any public domain areas identified under the draft Concept Plan. However, these areas will be progressively developed as development in accordance with the draft Concept Plan proceeds. Pedestrian links will be provided generally in accordance with the draft Concept Plan and will include pedestrian access to the site along University Avenue and pedestrian/cycle pathways within the riparian zone.



The draft Concept Plan provides design guidelines and indicative layouts for future development within the commercial-research precincts on the Campus. A certain amount of flexibility has been accommodated within the draft Concept Plan to allow for an appropriate built form and urban design response as the Campus develops to 2031 and beyond (noting the overall 40 year vision for the Campus).

### Relationship to Streetscape and Public domain

The draft Concept Plan provides indicative building footprints and encourages active street uses at ground floor adjoining key public domain areas. Although the exact location of the public domain area within the Station South Precinct has not been set, the orientation of the Cochlear Stage 1 Building towards the west will accommodate an address to future open space areas to the west and south.

Although only the Stage 1 Building is currently proposed, Cochlear is considering the potential to develop future stages within the vicinity of the Stage 1 Building. As development proceeds an appropriate amount of open space is to be provided on the site for the benefit of its employees. The University has committed to ensuring the Campus is developed in accordance with the principles established under the Concept Plan and a public domain area will be provided within the Station South Precinct within the vicinity of the Stage 1 Building.

Street tree planting is proposed along University Avenue in accordance with the draft Concept Plan.

### Design Guidelines

Design Guidelines have been established for the Station South Precinct under the draft Concept Plan. Those relevant to the Cochlear Stage 1 Building are as follows:

- Accommodate up to 330,000m<sup>2</sup> of commercial floor area within the precinct;
- Allow for the progressive demolition of existing buildings and parking structures;
- New buildings are to demonstrate a high level of architectural design quality and energy efficiency;
- Establish view corridors along primary pedestrian routes linked by public open space;
- Upgrade and visually strengthen the arrival and entry points to the precinct with landscaping and signage;
- Protect and enhance the University Creek riparian corridor; and
- Incorporate Water Sensitive Urban Design (WSUD) principles within new development.

The proposed Stage 1 Building development will achieve consistency with the above design guidelines. It will provide for 24,343m<sup>2</sup> of A-grade commercial floor area and will allow for the retention of the existing child care and occasional care centres on the Campus thereby allowing for progressive relocation of these uses. The building exhibits a high standard of design quality and will provide an appropriate address to University Avenue. Sensitive and attractive landscaping is proposed particularly along the landscaped setback to University Avenue and building identification signage is proposed on the western and eastern facades, as well as at the pedestrian entry to the site. Rehabilitation of the north-western side of the University Creek corridor within the site is also proposed, together with the incorporation of WSUD principles into the stormwater design for the proposal which will ensure that water quality within the Creek is maintained.

## Staging

The draft Concept Plan provides indicative staging for the development of the new commercial precincts on the Campus. The southern triangle within the Station South Precinct is identified as one of the earliest stages of development on the site with the proposed development of an approximately 24,000m<sup>2</sup> Stage 1 Building for the Cochlear headquarters highlighted as the one of the first development proposed in the Precinct.

## 2.4 Local Planning Framework

The draft Concept Plan and SEPP Amendment will provide the new planning framework under which development on the Campus will take place. In considering the proposal, the Minister is only obliged to consider the permissibility of the use (within the context of prevailing legislation including that for Major Projects) and relevant SEPPs. Nonetheless, the following local statutory planning instruments have been taken into account to ensure that the proposal will have no significant, adverse environmental or amenity impact on the locality:

- City of Ryde Planning Scheme Ordinance 1979 (RPSO);
- City of Ryde Development Control Plan (DCP); and
- City of Ryde Section 94 Contributions Plan 1997 (Section 94 Plan)

These plans are summarised in **Table 2** below.

**Table 3 – Local Planning Framework**

LEP / DCP	Requirement	Compliance / Relevance
RPSO	RPSO provides the planning framework for development on most of the Macquarie University Campus site. It identifies land use zones in which certain land uses and includes a number of provisions to be considered in determining development applications.	The provisions of the RPSO have been taken into consideration. However, the primary land use controls applying to the site are set by the draft Concept Plan and SEPP Amendment.
Zoning	The site is currently zoned for Special Uses 5(c) University under the RPSO.	Commercial development is not a permitted use in the Special Uses 5(c) zone. However, the new B4 – Mixed Use zoning for the Station South Precinct will allow for commercial office developments. Furthermore, the Cochlear Stage 1 Building is a "permitted use" in accordance with Clause 80 of the Environmental Planning and Assessment Regulation 2002 (EPA Reg). Approval can be granted for a project application that involves a use prohibited under an environmental planning instrument where a Concept Plan has been authorised. As stated in the letter accompanying the Director General Environmental Assessment Requirements (dated 14 March 2008), the proposed Cochlear Stage 1 Building is reflected in the draft Concept Plan.

LEP / DCP	Requirement	Compliance / Relevance
Clause 41 Preservation of Trees	This clause allows Council to make a tree preservation order (TPO) preventing the removal or cutting of certain trees with Ryde local government area (LGA) without the consent of Council.	Most of the trees on the development site which are proposed for removal are affected by Council's TPO. However, these trees have been planted by the University and replacement planting will be provided as part of the proposal in addition to extensive riparian vegetation planting along the north-western embankment of the University Creek corridor. A Tree Report for the proposal is included at <b>Appendix J</b> .
Part IX Heritage Conservation	This Part sets the development controls for development of, and within the vicinity of, heritage items, and development within heritage conservation areas.	<p>The only identified heritage item on the Macquarie University site is existing ruins. The site is not within the vicinity of any of these ruins.</p> <p>The existing 'Gumnut Cottage' Child Care Centre and 'Waratah' Occasional Care Centre do not have any heritage significance and are, in any case, proposed to be retained under the current proposal. Aboriginal heritage issues have also been considered; no record of Aboriginal heritage was found on the Campus or in the vicinity of the subject site. Further detail is provided in Section 2.5 below.</p>
Ryde DCP	The Ryde DCP sets more detailed development controls for development within the Ryde LGA.	The relevant sections of the DCP are addressed below.
Section 7.1 Energy Smart Waterwise	This section sets the objectives and controls for energy and water efficient in University buildings.	ESD initiatives and water efficiency measures have been incorporated into the design of the new Stage 1 Building. Further detail is provided in the ESD Report at <b>Appendix K</b> and the Stormwater Report at <b>Appendix D</b> .
Section 7.2 Waste Minimisation and Management	This section sets objectives and submission requirements for waste management during the construction and operational stages of development.	A Waste Management Plan has been prepared for the proposal and is included at <b>Appendix L</b> .
Section 8.1 Construction Activities	This section provides guidelines for the control and mitigation of adverse impacts during construction through appropriate Site Management	A Preliminary Construction Plan has been prepared for the proposal and is included at <b>Appendix M</b> .
Section 8.2 Stormwater Management	This section sets controls and design recommendations for stormwater management on development sites.	A Stormwater Report has been prepared for the proposal and is attached at <b>Appendix D</b> .
Section 9.2 Access for People with Disabilities	This section sets the minimum access standard for new development.	Appropriate disabled access will be provided to the site. A BCA Report is provided at <b>Appendix N</b> which provides an assessment of the proposal against the disabled access requirement of the BCA.

LEP / DCP	Requirement	Compliance / Relevance
Section 9.3 Car Parking	This section sets the minimum car parking requirements and loading and unloading facilities for new developments.	Employee parking will be provided consistent with the rates set by the draft Concept Plan and SEPP Amendment being 1 space per 46m <sup>2</sup> of floor area. This is consistent with the parking rates applied to the 3(h) zone under the RPSO. Additional loading and servicing bays will be provided for couriers and deliveries to the site.
Section 94 Plan (Dec 07)	The Section 94 Plan provides the developer contributions requirements for a range of development types and sets specific contribution rates for commercial development within the Macquarie Park Corridor.	The payment of developer contributions in accordance with the draft Concept Plan has been included in the Statement of Commitments at Section 5.

## 2.5 Site Analysis

### Road Network

The road network in the vicinity of Macquarie University is made up of Epping, Herring, Talavera, Culloden and Waterloo Roads (as illustrated in **Figure 14**). The key characteristics of these roads are described in Traffic and Parking Assessment at **Appendix I**.



Figure 14 – University and surrounding arterial road network

The primary vehicular access routes on the Campus include Macquarie Drive and University Avenue, and Research Park Drive which runs north-south adjoining the MURP. Macquarie Drive and University Avenue form the primary west-east links connecting the Balaclava Road entrance in the west to Herring Road in the east. Central Avenue runs perpendicular to University Avenue and provides access to car park structures on the northern side of University Avenue. Central Avenue connects to University Avenue at a roundabout which will be retained under the current proposal.

Vehicles accessing the new Cochlear Stage 1 Building will enter via a vehicle access off University Avenue, with a separate vehicle access provided further east along University Avenue for deliveries and servicing vehicles.

## Parking

The University has historically developed as a Campus dependent on vehicles with peripheral car parking provided in a crescent of parking structures along the southern perimeter of the Academic Core. Within the University, car parking is provided for a total of 5,060 spaces (excluding the MURP), in a mix of structured and at-grade car parking areas. The majority of these areas are accessed from the internal service roads linking Balaclava, Herring and Talavera Roads.

The car parking structures to the north of the site, on the other side of University Avenue, will be progressively demolished and replaced with new commercial development which will form part of the Station South Precinct. New developments within the commercial precincts will provide on-site parking in accordance with the parking rates specified under the draft Concept Plan. On-site parking will be made up of a mixture of at-grade and basement parking. For a short period (being the duration of the retention of the child care centres on the development site) 35 at-grade parking will be provided for the child care and occasional care centres.

## Public transport

While the University has developed primarily as a Campus dependent on the motor vehicle, it is also well served by a network of bus routes. These routes link the area with surrounding suburbs and commercial centres, as well as major regional centres such as the Sydney CBD, Parramatta and Chatswood. Further detail is provided in the Traffic and Parking Impact Assessment at **Appendix I**.

The completion of the new Macquarie University Rail Station (mid 2008) will significantly improve the accessibility of the Campus, linking it directly to the wider metropolitan rail network. An existing bus stop located on the southern side of University Avenue adjoining the subject site will be relocated to the west and provided with a pull-in bay as shown on the Site Plan prepared by Toland Williams (**Appendix A**).

Employees at the proposed Cochlear Stage 1 Building will have good access to a number of public transport facilities. Cochlear is committed to sustainable transport and will be considering the development of a Workplace Travel Plan prior to occupying the site.

## Pedestrian and cycle networks

The University's Academic Core was established as a pedestrian precinct, with only limited vehicular access north of Macquarie Drive for service, emergency and special vehicles. The pedestrian and cycle network within the main Campus is currently being developed and will provide good access to all facilities once complete.





**Figure 15** – Proposed pedestrian, cyclist and traffic network

As demonstrated in **Figure 15** pedestrian routes are proposed adjacent the southern triangle of the Station South Precinct in proximity to the Cochlear Stage 1 Building. The exact location of these pedestrian routes has not been specified at this stage. However, it is expected that pedestrian access will eventually be available to the development site directly from Waterloo Road. Furthermore, as detailed in **Figure 15** above, one of the primary pedestrian routes within the Station South Precinct will be along University Avenue which will provide direct pedestrian access to the site from the new rail station.

### Geotechnical and Site Contamination

The site and surrounding area are located on a gentle south-east-facing hill which generally falls towards the water-course. Within the site, the surface generally falls to the south-east from approximately RL 69.0 to RL 61.0, relative to Australian Height Datum (AHD), at an average slope of approximately 2 to 3 degrees. Along the south-eastern side of the site the surface falls more steeply towards the water course at an average slope of approximately 10 degrees. According to the geotechnical report, the site was generally covered with a paved carpark operated by Macquarie University.

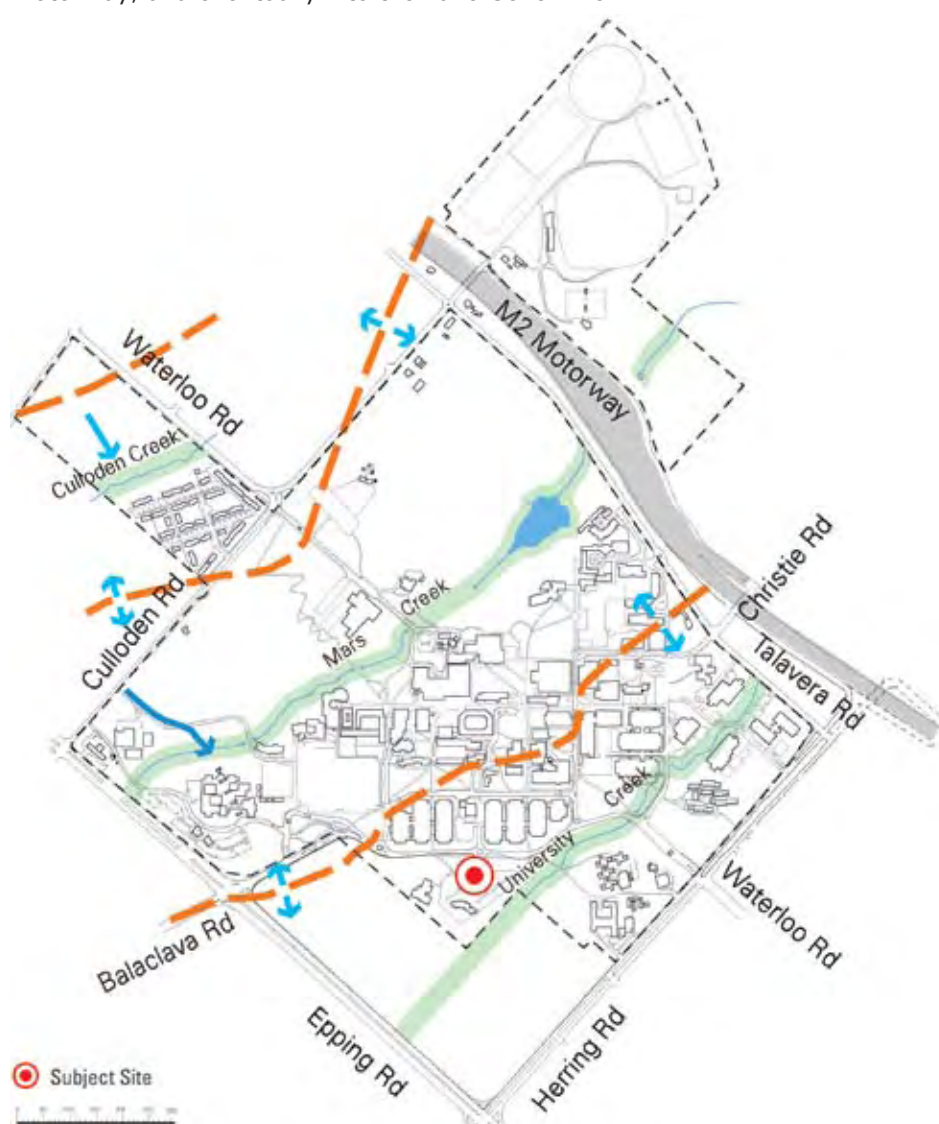
The site is underlain by Ashfield Shale and is close to the boundary with Hawkesbury Sandstone to the north and east of site. Ashfield Shale typically comprises black to dark grey shale and laminate (interbedded shale, siltstone and fine grained sandstone) and typically weathers to form clays of medium to high plasticity. Hawkesbury Sandstone typically comprises medium to coarse grained quartz sandstone with some shale bands or lenses.

The geological mapping was confirmed by the field work which identified residual soils then laminite overlying sandstone bedrock. The laminite may be part of the Mittagong Formation which is a transitional rock unit between the Ashfield Shale and Hawkesbury Sandstone.

A Phase 1 Contamination Assessment has been prepared for the site and surrounds by Douglas Partners (**Appendix G**). The Contamination Assessment concludes that the potential for contamination on the site is very low and that the site is suitable for the proposed development in this regard.

## Stormwater Management

As detailed in the draft Concept Plan, the main Campus is divided into two separate catchments – the Mars Creek and University Creek catchments (refer to **Figure 16**). Both creeks drain in a north easterly direction, approximately 150 to 250m apart from one another. They drain under Talavera Road and the M2 Motorway, and eventually into the Lane Cove River.



**Figure 16** – Stormwater analysis

A Stormwater Report and Plans have been prepared by Costin Roe Consulting for the project (**Appendix D**) which describes the existing stormwater arrangements on the site. Currently, stormwater run-off is collected within University Creek with only minimal water quality controls applied. Future stormwater drainage control on the site will continue to accommodate stormwater run-off to the Creek with extensive water quality measures to be included.

## Flora and Fauna

### Flora

A previous Campus-wide flora and fauna study was undertaken by EDAW in May 2006 and submitted with the draft Concept Plan. EDAW identified that the site had been largely cleared when Macquarie University Campus was established in 1964. Today five stands of non-contiguous remnant vegetation remain (identified in **Figure 17**) and parts of these include the following ecological communities:

- Sydney Turpentine Ironbark Forest (STIF);
- Sandstone Ridgetop Woodland; and
- Western Sandstone Gully Forest.

As shown in **Figure 17** below, the proposed location for the new Stage 1 Building is not located on land occupied by any of these identified pockets of ecological communities, although Remnant 3 of STIF adjoins the site to the south-east on the other side of University Creek. Accordingly, the development site is not an environmentally sensitive area of State significance.

A Flora and Fauna Assessment has been prepared by Total Earth Care for the site and is included as part of the VMP at **Appendix F**. The Flora and Fauna Assessment indicates that the majority of the site is characterised by a paved car park and mown lawn with planted eucalyptus trees randomly located on the site. University Creek, which is described in the Flora and Fauna Assessment as 'an open and eroded drainage line' runs along the south-east boundary of the site in the direction of the Lane Cove River. Open space incorporating a small area of native vegetation, planted native and exotic trees and mown lawn adjoins the southeast boundary and medium density housing adjoins the southwest boundary.

A total of 103 plant species were identified on the site, of which 51 are identified as locally endemic species, four are non-endemic species and 48 are introduced species. Nine of the introduced plant species are identified as noxious under the *NSW Noxious Weeds Act 1993* for the Ryde LGA. An additional eight native tree species have been identified in the arborist report prepared by Treescan (**Appendix J**).

In addition to the STIF remnant community which is located adjacent to the subject site at its south-eastern boundary, two other plant communities – planted woodland and exotic grassland – have been identified within the subject site. According to the Flora and Fauna Assessment the planted woodland community has very low natural resilience and significant resources would be required to reconstruct this community. The exotic grassland community mainly occurs over road verges and constructed embankments parallel to the south-eastern boundary. The community is predominantly mown lawn and an extension of the ground cover found below the planted woodland.

The Tree Report (**Appendix J**) identifies two tree species of conservation significance in the northern portion of the site – a Narrow-leaved Black Peppermint and a Wallangara White Gum. A search of the Department of Environment and Climate Change Wildlife Atlas identified 18 threatened plant species within a 10km radius of the site, 14 of which have a dual listing under the TSC Act and EPBC Act. However, the two above-mentioned trees identified in the Tree Report are the only threatened species located on the site. These single specimens do not represent a plant community and are proposed for removal due to their poor condition.





Figure 17 – Existing vegetation types

## Fauna

The Flora and Fauna Report identified 12 vertebrate fauna species on the site including two mammals, eight birds, one amphibian and one fish. All species recorded on the subject site are generally typical of urban areas, urban fringes and adjoining natural areas within the Sydney Basin region and are widespread in distribution and common to abundant within their ranges.

According to the Flora and Fauna Assessment, the Planted Woodland community on the subject site is likely to provide the majority of the fauna habitat resources. However, the habitat type is mainly limited to the provision of canopy with lower strata being discontinuous, highly modified and disturbed by past and current land use. Some general foraging for medium size birds and common reptiles or amphibians is provided by the exotic grassland but this is very marginal. Overall the Flora and Fauna Assessment identified the subject site as a highly modified landscape that lacks many of the natural habitat features and resources that are important in the maintenance of native fauna diversity and life cycles.

No threatened fauna species listed under the TSC Act and the EPBC Act were identified on the subject site, nor were any endangered fauna population identified in filed survey. The likelihood of habitat for threatened species being located in the site was identified as being very low.

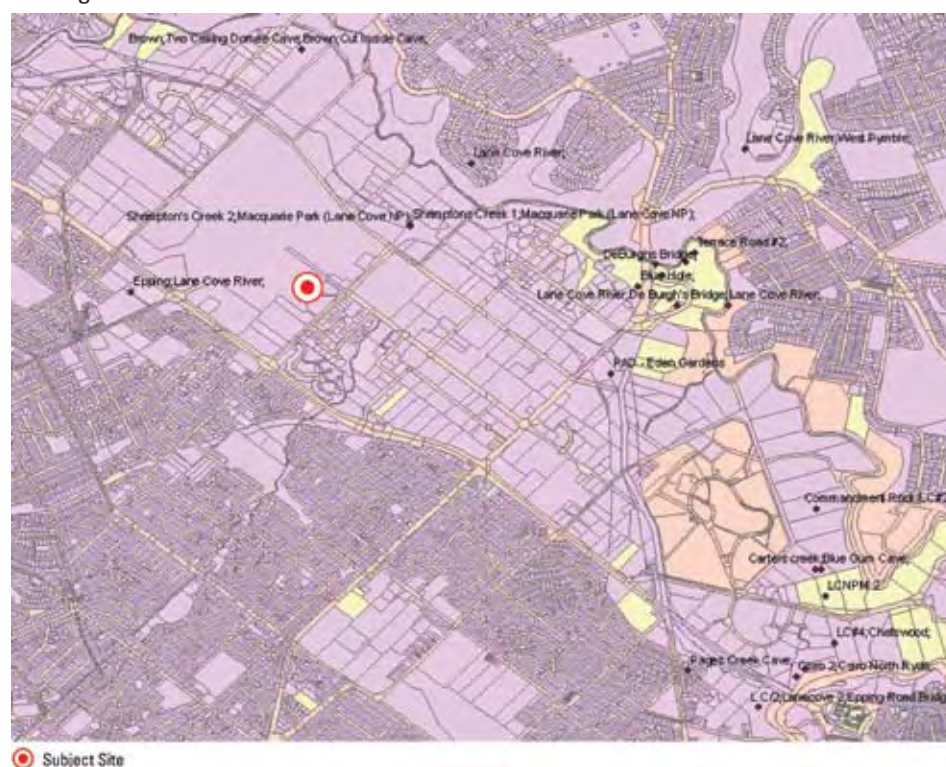
## Bushfire

The site is not located in the vicinity of any area identified as bushfire prone.

## European and Aboriginal Heritage

The only identified heritage item on the Macquarie University site is existing ruins. The site is not within the vicinity of any of these ruins. The existing 'Gumnut Cottage' Child Care Centre and 'Waratah' Occasional Care Centre do not have any heritage significance and are, in any case, proposed to be retained under the current proposal.

A search of the Aboriginal Heritage Information Management System (AHIMS) has been conducted which reveals that there are no aboriginal items recorded on the Campus site, and none within the vicinity of the Cochlear Stage 1 Building site. **Figure 18** below shows the location of identified Aboriginal heritage items.



**Figure 18 – Results of AHIMS search**

A condition can be imposed on the development requiring the notification of the DECC should any Aboriginal heritage items be discovered during excavation. However, the lack of Aboriginal heritage items on the University Campus suggests that Aboriginal heritage is unlikely to be found on the site.

## 2.6 Consultation

## Department of Environment Conservation and Climate Change

Sarah Burke from the Department of Environmental and Climate Change (DECC) was contacted regarding the proposed development and was provided with preliminary plans of the proposed development. She indicated that DECC does not consider that the proposed new Stage 1 Building will have any significant impact on threatened species given the lack of threatened species on the subject site. No specific comment relating to Aboriginal heritage was made. However, it is unlikely that the proposal will have any impact on Aboriginal heritage on the site. This is addressed in detail in Section 2.5.

## Department of Water and Energy

Discussion / liaison with Janne Grose of the Department of Water and Energy (DWE) was undertaken by phone and by e-mail, and a copy of preliminary drawings was provided to the DWE. The DWE acknowledged that there are existing 'pinch points' along the southern-most watercourse on the site (University Creek) and that, depending on the location of the project, there may be some flexibility in relation to the riparian corridor width.

The DWE stated that aerial photographs indicate that there may be some remnant vegetation along the Creek, and that the DWE would generally be seeking a 'Category 2' outcome for the Creek - which is a 20 metre wide core riparian zone (measured from top of bank) plus a 10 metre wide vegetated buffer. The comments made by the DWE have been taken into consideration if the landscaping and water quality management measures proposed, particularly along the University Creek riparian zone.

## Roads and Traffic Authority

Cardno has undertaken consultation with the RTA specifically in relation to the proposed Cochlear Stage 1 Building. Andrew Popoff of the RTA indicated that the RTA did not have any specific concerns outside of the issues mentioned in the letter accompanying the Director General's Environmental Assessment Requirements which have been addressed in this EAR. He emphasised the need for the Cochlear development to be consistent with the Transport Management and Accessibility Plan (TMAP) prepared for the draft Concept Plan and with the Macquarie Park Corridor Transport Study. The comments made by the RTA have been taken into consideration in the preparation of the Traffic and Parking Assessment.

## Ministry of Transport

Cardno has undertaken consultation with David Hartmann of the Ministry of Transport (MoT). The MoT raised the following key issues in relation to the development of the Campus in general:

- Minimise the provision of car parking spaces on the site to reduce the traffic generation on the Campus and promote the use of alternate transport.
- The provision of appropriate pedestrian and cyclist facilities;
- Travel demand management measures (TDM) to be implemented including the potential for Work Place Travel Plan or Green Travel Plan;
- The contributions or voluntary planning agreements proposed, particularly in relation to bus infrastructure; and
- Consistency with the draft Concept Plan.

The above comments have been taken into account and have been addressed in the Traffic and Parking Impact Assessment (**Appendix I**).

## Ryde City Council

A pre-lodgement meeting was held between the proponent and Ryde City Council on 26 November 2007 regarding the proposal. Council officers, including the Director of Planning (Sue Weatherley), indicated general support for the proposed development and for its location within the Macquarie Park Corridor and the University. Council officers acknowledged the strong ties the proposal will have with academia.



From a site and project-specific viewpoint Council raised a number of issues (as follows):

- Overland flow and drainage through should be addressed;
- WSUD treatments for the riparian corridor will be key in ensuring good water quality into the adjacent creek system;
- The car parking rate for the development should be in response to its proximity to the soon-to-be-opened railway station to ensure an equal distribution of parking around the station, with the view to reducing private car use;
- Review of traffic impacts of the development beyond existing impacts;
- The development should be a sustainable development from a built form perspective and contribute to integration with the surrounding areas within the Macquarie Park Corridor;
- Interface issues, such as height, overshadowing, amenity, privacy will need to be addressed; and
- The development should provide a strong active edge and address the street to ensure security and passive surveillance.

In general, Council's views were also based on ensuring the overall Campus Concept Plan suitably deals with wider planning and spatial issues and provides a strong basis for growth within the University to support the Macquarie Park Corridor. Council also provided specific comments in relation to the Preliminary Environmental Assessment Report (PEAR) for the Stage 1 Building Project Application which were attached the Director General's Environmental Assessment Requirements.

### Services and Utilities

In accordance with the agreement between Cochlear Limited and Macquarie University Campus, the site for the development of the Stage 1 Building is being provided as a serviced site. Thus, in preparing the servicing and infrastructure arrangements for the site (details of which are provided in the Site Infrastructure Services report prepared by Hyder Consulting and attached at **Appendix O**), the proponent has relied on previous consultation undertaken with utility providers in the preparation of the infrastructure requirements for the draft Concept Plan. Details of this consultation are provided at **Appendix I** of the draft Concept Plan and are outlined briefly below:

- Sydney Water – A meeting was held between Taylor Thompson Whitting (TTW) and Sydney Water in October 2007 to discuss the sewer infrastructure for the proposed Campus development including individual points of connection for water and sewer mains and amplification of the sewer carriers for future development purposes.
- Energy Australia – A meeting was held between Wood and Grieve Engineers (WGE) in October 2007 at which time options for achieving project supply loads for the Campus development were discussed. This was followed up by a formal letter to Energy Australia.
- Telstra – A meeting was held between WGE and Telstra in October 2007. Telstra confirmed in writing that the current network is not sufficient for the proposed development and will require an upgrade. Determination of the upgrade capacity will be made closer to the time of development commencement.

## 3.0 Project Application

### 3.1 Overview

The Project Application seeks approval for:

- Development of the first stage of the purpose-built Cochlear Global Headquarters consistent with the parameters of the draft Concept Plan and SEPP Amendment;
- Design (and general fit-out) of the building accommodating a mix of uses including warehouse/storage space, office facilities and research/manufacturing space;
- A maximum storey height of six to seven storeys;
- 24,343m<sup>2</sup> of gross floor area;
- 544 parking spaces of which 398 will be located below ground in two levels of basement parking and 146 spaces which will be located at grade;
- An additional 35 at-grade parking spaces for use by the childcare centres;
- Vehicle and pedestrian access to the site from University Avenue;
- Landscaping including riparian zone vegetation;
- Associated amenities, bicycle parking and services;
- Relocation of an existing bus stop along the southern side of University Avenue with a pull-in bay;
- Proposed retention of the existing 'Waratah' Occasional Care Centre and 'Gumnut Cottage' Childcare Centre which adjoin the subject site to the west and south (with relocation of the play areas associated with these centres); and
- Rehabilitation of the north-western side of the University Creek corridor within the site.

The development site and building footprint for the proposal is shown below at **Figure 19**. This also indicates the setback from the riparian corridor and University Creek and parking and access arrangements.

**Figures 20 and 21** indicate via a photomontage the resultant development of the site as proposed under the Environmental Assessment.

The proposed indicative staging of the development is shown below at **Figure 22**, with the subject application for this first stage shaded.



Figure 19 – Cochlear development site and building footprint



Figure 20 – Photomontage from north-east along University Avenue



Figure 21 – Photomontage from north-west along University Avenue





Figure 22 – Indicative staging of building footprints

## 3.2 Proposed Uses

The Stage 1 Building will comprise of a part six/part seven storey commercial office building with ancillary warehouse/storage and research/laboratory space. Warehouse/storage space will predominantly be located at the lower-ground to the south of the car park. A small proportion of warehouse/storage space will be provided at the ground floor with the remainder of the building accommodating a mix of commercial office space and research/manufacturing space. The topmost floor will accommodate office space only.

A floor-by-floor breakdown of the proposed development is described in **Table 4**.

**Table 4 – Breakdown of Proposed Development**

Level	Detailed Description
<b>Basement level</b> The basement level will accommodate employee parking spaces and cyclist facilities as well as plant rooms and other service rooms associated with the building's operation	<ul style="list-style-type: none"> <li>- 234 employee car spaces and 20 motor cycle spaces;</li> <li>- Bicycle storage for 152 bicycles and lockers, as well as male and female change rooms;</li> <li>- Plant room and service rooms including fire protection equipment; and</li> <li>- An underground on-site detention tank and rainwater re-use tank is also proposed and will be separated from the main building.</li> </ul>
<b>Lower ground</b> The lower ground floor will accommodate employee parking, some warehouse/storage space, a garbage room and substation. As the site slopes to the south-east, the basement car park at this level will be below ground and the warehouse/storage area will protrude above the ground. Entry to the basement car park is provided at this level at the building's eastern face. At-grade parking for deliveries and couriers, as well as space for servicing vehicles is proposed in the eastern section of the site and will have direct access to the warehouse/storage space, the goods lift and the waste storage area.	<ul style="list-style-type: none"> <li>- 164 employee car spaces including four disabled spaces and 22 motorcycle spaces in the lower ground car park level;</li> <li>- 1,765m<sup>2</sup> of warehouse/storage space;</li> <li>- A substation in the north-eastern corner;</li> <li>- A garbage and recycling room;</li> <li>- Toilet facilities including and accessible toilet; and</li> <li>- Electricity control room.</li> </ul>
<b>Ground floor</b> The ground floor will accommodate at-grade employee parking spaces in the western section of the site. The main pedestrian access to the site will be provided at this level with pedestrians entering the site from University Avenue via an accessible pedestrian pathway through the main foyer.	<ul style="list-style-type: none"> <li>- 126 at-grade employee parking spaces including seven disabled parking spaces with vehicle access provided from University Avenue along the westernmost boundary of the site;</li> <li>- 35 at-grade car parking spaces for use by the child care centre;</li> <li>- 3,712m<sup>2</sup> of GFA is proposed at this level which will mainly consist of commercial office space and some warehouse/storage and research/manufacturing space (as described in the Interior Zoning Diagrams prepared by Geyer and attached at <b>Appendix B</b>); and</li> <li>- 20 at-grade parking spaces in the service area to the east of the main building.</li> </ul>
<b>Level one</b>	Level one will accommodate 3,855m <sup>2</sup> of floor area which will predominantly consist of office space with some ancillary research/manufacturing space.
<b>Level two</b>	Level two will accommodate 3,861m <sup>2</sup> of floor area which will predominantly consist of office space with some ancillary research/manufacturing space.
<b>Level three</b>	Level three will accommodate 3,861m <sup>2</sup> of floor area which will predominantly consist of office space with some ancillary research/development space.
<b>Level four</b>	Level four will accommodate 3,833m <sup>2</sup> of floor area which will predominantly consist of office space with a minor component of ancillary research/manufacturing space.
<b>Level five</b>	Level five will accommodate 3,456m <sup>2</sup> of commercial floor area. No research/ manufacturing space is proposed at this level.
<b>Roof level</b>	Plant room space is proposed at the roof level. Cochlear Limited is considering incorporating a co-generation plant on the roof. However, the details of its provisions have not been finalised and an indicative location for the plant has only been shown at this stage.

The proposed use is identified as a commercial office (some 17,000m<sup>2</sup> of the total GFA of 24,343m<sup>2</sup>). All other uses including the research/manufacturing and warehouse/storage components are ancillary to the primary commercial office use.

The proposed Stage 1 Building will generally operate 16 hours per day (6am to 10pm), Monday to Friday and for a shorter time period on Saturday mornings. Staff associated with the manufacturing and warehouse (350 employees) businesses will work over 2 shifts - with skeleton staff working 24 hours per day. There will be some 200 staff (16%) manufacturing and warehouse working from 6am to 2 pm and 150 (12%) from 2pm to 10pm. The remainder of staff (900 employees) are expected to work normal business hours.

The proposal will have a capital investment value of approximately \$71 million, and will employ approximately 1250 people.

### 3.3 Vehicle Access

Vehicle access to the site will be provided from two vehicle crossings off University Avenue. The easternmost access to the site (located to the east of the existing roundabout from Central Avenue which connects to University Avenue) will provide access to the basement parking and courier/loading area. The easternmost vehicle access will provide four lanes for two-way vehicle traffic in either direction and will be able to accommodate heavy vehicles. A separate vehicle access to the at-grade parking will be provided at the westernmost boundary of the site via a double-lane driveway access.

### 3.4 Parking and Loading Facilities

Employee parking on the site is to be made up of a mixture of at-grade and basement parking. A total of 126 parking spaces including seven disabled access spaces will be provided in the western at-grade parking area and 20 parking spaces will be provided in the eastern at-grade loading and servicing area. A narrow extension of the western at-grade western carpark towards to south at the sites southern boundary will provide vehicular and drop-off points for the childcare and occasional care centres. Management measures will be applied to ensure that these drop-off spaces are not used by employees during the time-period in which they are used by the centres.

398 employee parking spaces will be provided in the lower-ground and basement carpark (including four disabled spaces). An additional 42 motorcycle spaces will be provided within the carpark.

For use by the childcare centres, 35 parking spaces will be provided along the western edge and in the southernmost extension of the at-grade carpark for use by the childcare centre. Appropriate signage will be provided to ensure that these spaces are reserved for the exclusive use of the childcare centres.

### 3.5 Pedestrian and Cyclist Facilities

Extensive provision has been made for bicycle storage facilities (183 spaces both within the basement and at-grade) and associated shower and locker facilities within the Stage 1 Building.

The main pedestrian access to the building will be from a central pedestrian access off University Avenue which will connect to main foyer of the Stage 1 Building. As noted in the draft Concept Plan, one of the primary pedestrian accesses to be provided on the Campus (under the Concept Plan redevelopment) will be from the new rail station and along University Avenue.

Pedestrians accessing the site from the new rail station will have a direct and amenable pedestrian route to the new Stage 1 Building. The pedestrian access to the site will accommodate a 1:20 slope from University Avenue to the proposed new building entry which is suitable for disabled access.

A separate pedestrian access will be provided along the site's western boundary which will provide pedestrian access to the childcare and occasional care centres.

Elevated pedestrian/paths are also proposed within the riparian zone at the site's eastern boundary. These riparian zones paths will provide access to this natural recreation area and will be constructed to ensure no adverse impact occurs on the natural characteristics of the riparian zone.

### 3.6 Signage

Illuminated building identification signage is proposed on the eastern and western façades of building and will have approximate dimensions of 5 metres by 5 metres. Some illuminated directional and building identification signage is proposed at the pedestrian entry from University Avenue which will have dimensions of 2 metres by 2 metres.

It is not possible to accurately determine the location and size of proposed signage at this stage. However, signage is shown indicatively on the architectural elevations and photomontages. Minor variations to the location and size of signage may be made at a later stage.

### 3.7 Landscaping

Landscape plans have been prepared for the proposal by DEM and are accompanied by a landscape report which is attached to the Vegetation Management Plan (VMP) prepared by DEM (**Appendix F**). It is proposed to provide landscaping at the pedestrian entry to the site which will emphasise the entry point to the new building from University Avenue. Accent planting is also proposed at the vehicle entrance points to the site. Planting along the frontage to University Avenue will be made up of a mix of shrubs, ground cover and tall trees which will define the Stage Building along its frontage.

Boundary planting is proposed along the perimeter of the site to differentiate the development site from the rest of the Station South Precinct. Tree planting within the carpark will provide screening and shade.

Plant species will constitute a mix of low-water usage and endemic plant species.

#### Riparian Vegetation

The proposal involves the rehabilitation of the riparian corridor along the north-western bank of University Creek at the site's south-eastern boundary. In accordance with the recommendation of the DWE, a 'Category 2' treatment of the riparian corridor has been applied which includes a 20 metre riparian zone and 10 metre buffer.

The riparian zone will form an open space area in the south section of the site. Planting along the creek's embankment will include local native plant species to the edge of the creek and on all of the adjacent slopes to the creek. The planting will be planted at sufficient densities to ensure a fully stabilised creek edge. The elevated pathways will not adversely affect stream and floodplain flows, exacerbate flooding or prevent adequate rainfalls and daylight reaching the watercourse and riparian vegetation.

The VMP for the riparian corridor is attached at **Appendix F** and includes water management and landscaping mechanisms for the rehabilitation of the north-western side of the University Creek corridor. As noted in VMP, due to previous farming activities, the site does not possess high environmental values at present. The proposed vegetation management and riparian vegetation rehabilitation, together with specific drainage mechanisms described in the Stormwater Management Report will seek to improve the ecological value on the site, particularly along that part of the University Creek corridor located on the subject site.

The remnant STIF community (identified above) is located on the south-western side of the University Creek corridor and will not be affected by the proposal.

### 3.8 Water Cycle Management

Costin Roe Consulting has incorporated specific water quality controls into the drainage design for the site including stormwater treatment measures. This will ensure that the quality of water flow from the site is appropriate.

### 3.9 Waste Management

A Waste Management Plan (WMP) has been prepared by CRI for the proposal and is included at **Appendix L**. A waste and recycling storage area is proposed at the lower ground floor with access to the eastern servicing area and delivery car park. Appropriate recycling measures will be applied in the operation of the premises and the removal of hazardous waste from the site will be undertaken in accordance with the *Protection of the Environment Operations Act 1997* (PEO Act).

## 4.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the Concept Plan proposal. It addresses the matters for consideration set out in the Director-General's Environmental Assessment Requirements (DGRs). The draft Statement of Commitments complements the findings of this section.

### 4.1 Director General's Environmental Assessment Requirements

**Table 5** provides a detailed summary of the individual matters listed in the Director General's Environmental Assessment Requirements (DGRs) and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

**Table 5 – Director General's Environmental Assessment Requirements**

Director General's requirements	Where addressed
<b>General Requirements</b>	
An executive summary	Pages ii - iv
Textual and diagrammatic articulation of the proposal.	Base building architectural plans, shadow diagrams and photomontages area included at <b>Appendix A</b> and internal layout plans and zoning diagrams are included at <b>Appendix B</b> .
Description of the site, including cadastre and title details.	A site description and site analysis is provided in Section 1.1 and Section 2.5 of the EAR respectively. Survey plans for the site are attached at <b>Appendix C</b> .
Design, construction, operation, maintenance, rehabilitation and staging as applicable.	The design and operation of the proposed development is described in Section 3.0 of this EAR. Operational issues associated with the development are also addressed in the WMP at <b>Appendix L</b> and the Acoustic Assessment at <b>Appendix P</b> . Details of the rehabilitation works associated with the riparian corridor are provided in Sections 3.0 and 4.10 of this EAR, the VMP at <b>Appendix F</b> and the Stormwater Report at <b>Appendix D</b> . A Preliminary Construction Plan (CP) is provided at <b>Appendix M</b> .
Project objectives and need.	Executive Summary and Introduction (page i) of this EAR.
An assessment of the environmental impacts of the project, with particular focus on the key assessment requirements specified below.	Section 4.0 of the EAR.
A statement on the validity of the Environmental Assessment, the qualifications of person(s) preparing the assessment and that the information contained in the Environmental Assessment is neither false nor misleading.	Statement of Validity provided at Page i
<b>Heads of Consideration</b>	
Suitability of the site.	Section 4.1 of EAR.
Likely environmental, social and economic impacts.	Section 4.2 of EAR.
Justification for undertaking the project.	Section 4.18 of EAR.
Public Interest.	Section 4.19 of EAR



Director General's requirements	Where addressed
<b>Relevant EPIS, Guidelines and Other Requirements to be Addressed</b>	
Planning provisions applying to the site including permissibility and the provisions of all plans and policies (including the Ryde PSO 1979, relevant DCPs, SEPP 55 and Infrastructure SEPP 2007)	Section 2.0 – Planning Framework of this EAR.
Nature and extent of compliance with relevant EPIs and policies.	Section 2.0 – Planning Framework of this EAR.
Consistency with the proposed concept plan for the wider campus.	Section 2.0 – Planning Framework of this EAR.
<b>Key Issues to be Addressed</b>	
<b>Urban Form and Design</b>	
Urban design, height, density, bulk and scale of the proposal in relation to the surrounding campus, landscape and topography.	Base building architectural plans, shadow diagrams and photomontages area included at <b>Appendix A</b> and internal layout plans and zoning diagrams are included at <b>Appendix B</b> . Built form is addressed in Section 4.10 of this EAR.
Impact on streetscape / landscape and view analysis / photomontages;	Base building architectural plans, shadow diagrams and photomontages area included at <b>Appendix A</b> and internal layout plans and zoning diagrams are included at <b>Appendix B</b> . Sections 4.11, 4.14, and 4.16 of this EAR address various amenity and streetscape impacts.
Details of proposed materials, colours, and finishes.	A materials board has been submitted with the Project Application.
Details of proposed areas of and nature of landscaping and open space.	Section 3.9 of this EAR and Landscape Plans and Report at <b>Appendix F</b> .
<b>Transport, Traffic &amp; Access</b>	
Demonstrate compliance with the RTA <i>Guidelines for Traffic Generating Development</i> .	Traffic and Parking Impact Assessment attached at <b>Appendix I</b> which addresses the RTA <i>Guidelines for Traffic Generating Development</i> addressed.
Existing traffic conditions, road network and road capacity on and in the vicinity of the site.	Section 2.5 of EAR and Traffic and Parking Impact Assessment attached at <b>Appendix I</b> .
Proposed internal road and access arrangements.	Sections 3.5 and 4.5 of this EAR and Traffic and Parking Impact Assessment attached at <b>Appendix I</b> .
Measures to promote public transport usage and modal share including bus and train networks and connections.	Traffic and Parking Impact Assessment attached at <b>Appendix I</b> .
Pedestrian and bicycle linkages.	Sections 2.5, 3.7 and 4.7 of this EAR.
Proposed car parking arrangements.	Sections 3.6 and 4.5 of this EAR and Traffic and Parking Impact Assessment attached at <b>Appendix I</b> .
Proposed emergency evacuation and public access.	Fire Safety Statement at <b>Appendix Q</b> and BCA Report at <b>Appendix N</b> .
<b>Biodiversity</b>	
Provision of a riparian zone along the creek.	VMP at <b>Appendix F</b> and Stormwater Report at <b>Appendix D</b> . Sections 3.9 and 4.9 of this EAR.
Vegetation Management Plan providing for the on-going care and improvement of the vegetated buffer along the creek.	VMP included at <b>Appendix F</b> .

Director General's requirements	Where addressed
Biodiversity continued...	
Impact of the development on any existing native flora and fauna and their habitats, including identified threatened species, having regard to the <i>Threatened Species assessment Guidelines</i> .	A Flora and Fauna Assessment is included as part of the VMP at <b>Appendix F</b> .
Assessment of the significance / conditions of any trees on the site proposed to be removed and details of tree protection measures for any trees to be retained.	A Tree Report is attached at <b>Appendix J</b> .
Stormwater Drainage and Flooding	
Flooding impacts, including details of the 1 : 100 year flood level, and any overland flow paths;	A Flood Study is attached at <b>Appendix R</b> .
Drainage and stormwater management, including on-site detention of stormwater, WSUD, and drainage infrastructure.	A Stormwater Report and Plans are attached at <b>Appendix D</b> which addresses these issues.
Construction and Operational Impacts	
Measures to minimise construction related impacts (e.g. traffic, noise, vibration, dust etc) on the existing childcare centre.	A CP has been prepared and is included at <b>Appendix M</b> . An Acoustic Assessment is attached at <b>Appendix P</b> .
Any likely geotechnical impacts for the development on the site;	A Geotechnical Report ( <b>Appendix H</b> ) and a Phase 1 Site Contamination Report ( <b>Appendix G</b> ) have been prepared for the project. A letter from the structural engineer which addresses the provision of the Geotechnical Report ( <b>Appendix H</b> ).
Details of any cut and fill and whether any fill is proposed to be imported or exported to / from the site.	Addressed in CP at <b>Appendix M</b> .
Noise, vibration and air pollution.	Addressed in the Acoustic Assessment at <b>Appendix P</b> and in Section 4.13 of this EAR. Air quality is addressed in Section 4.12
ESD Measures	
Details of the development's proposed ESD measures including thermal massing, water sensitive urban design measures, energy efficiency recycling and waste disposal; recycling and waste disposal.	An ESD Report has been prepared for the proposal by Hyder Consulting and is attached at <b>Appendix K</b> . A WMP ( <b>Appendix L</b> ) provides for the control of waste and recycling on the site. Also addressed in Section 4.12 of this EAR.
Services	
Capacity of water, sewer, stormwater, gas, power and telecommunications infrastructure which will serve the project.	A Site Infrastructure Report has been prepared for the proposal and is included at <b>Appendix O</b> demonstrating that appropriate infrastructure and servicing can be provided to the proposed Stage 1 Building. The provisions of the applicable Section 94 Plan are addressed in Section 2.3 above and a commitment has been made in the Statement of Commitments to pay contributions in accordance with the provisions of the applicable Section 94 Plan. Also addressed in Section 4.8 of this EAR.
Any upgrading works to infrastructure necessary to service the development of contributions applicable under any adopted contributions plans	
Draft Statement of Commitments	
A statement of Commitments detailing measures for environmental management and mitigation measures and monitoring for the project.	Section 5 of EAR.

Director General's requirements	Where addressed
Consultation Requirements	
<ul style="list-style-type: none"> <li>- City of Ryde Council</li> <li>- DECC</li> <li>- DWE</li> <li>- RTA</li> <li>- MoT</li> <li>- Utility Providers</li> </ul>	Section 2.6 of EAR.

Written submissions from City of Ryde Council and the RTA were attached the DGRs. These are addressed in **Table 6** below.

**Table 6** – Issues raised in written submissions from the RTA and City of Ryde Council

Issue raised	How / where addressed
Issues Raised by the RTA (Letter dated 19 March 2008)	
The RTA requested that the following issues be included in the traffic impact assessment of the proposed development:	
Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need / associated funding for upgrading or road improvement works (if required).	Addressed in Traffic and Parking Assessment at <b>Appendix I</b> .
Details on the proposed accesses and the adequacy of the parking provisions associated with the proposed development including subsequent compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc).	Addressed in Traffic and Parking Assessment at <b>Appendix I</b> .
Details on loading and servicing facilities.	Addressed in Traffic and Parking Assessment at <b>Appendix I</b> and in Sections 3.6 and 4.7 of this EAR.
The application must be consistent with the Macquarie University Concept Application.	Addressed in Section 2.4 of the EAR and <b>Appendix I</b> .
Proposed number of car parking spaces and whether it complies with the appropriate parking codes.	Addressed in Section 2.4 of the EAR and in the Traffic and Parking Assessment at <b>Appendix I</b> .
Details on public transport accessibility.	Addressed in Section 2.5 of the EAR and in the Traffic and Parking Assessment at <b>Appendix I</b> .
Details of proposed cycle ways and connections to the existing cycle network.	Addressed in Section 2.5 of the EAR and in the Traffic and Parking Assessment at <b>Appendix I</b> .
The report must also address the provision of appropriate pedestrian facilities and links that would serve this site.	Addressed in Section 2.5 of the EAR and in the Traffic and Parking Assessment at <b>Appendix I</b> .
Implementation of Travel Demand Strategies for the development site, such as: <ul style="list-style-type: none"> <li>- Allocation of shared car spaces (ie: for pooled cars).</li> <li>- Secure bicycle parking is to be provided on site together with change facilities.</li> <li>- Provision of Travel Guide documents for all employees.</li> </ul>	Addressed in Traffic and Parking Assessment at <b>Appendix I</b> .

Issue raised	How / where addressed
Issues Raised by the City of Ryde Council (Letter dated 6 March 2008)	
The zoning of Macquarie University is zoned Special uses 'C' University (5c) with a portion towards Herring Road zoned Business Special (Mixed Activity) (3h). The applicant will need to show permissibility with the RPSO.	Issues associated with the permissibility of the land use are addressed in Section 2.4 above.
Macquarie University is affected by a 1:100 year overland flowpath. The path appears to be in the vicinity of the proposal building. The proposal will need to take into consideration the City of Ryde DCP 2006: Part 8.2 – Stormwater Management.	A Flood Study is attached at <b>Appendix R</b> which addressed. The stormwater provisions of Council's DCP have been addressed in the Stormwater Report at <b>Appendix D</b> .
Macquarie University has some remnant bushland on site. The applicant is to refer to 'Urban Bushland in the Ryde LGA' document prepared by Oculus.	A Flora and Fauna Assessment has been prepared for the proposal ( <b>Appendix F</b> ) the provisions of 'Urban Bushland in the Ryde LGA' have been considered.
The City of Ryde has recently exhibited the draft Macquarie Park Corridor DCP and draft Public Domain Technical Manual. The draft requirements of this document are to be considered as part of the proposal.	The provisions of the draft Macquarie Park DCP and Technical Manual are addressed in Section 2.3 above.

### Site Suitability

The site is considered suitable for the proposed development. It has been identified as one of the first locations for redevelopment of the Macquarie University Campus for commercial development in accordance with the draft Concept Plan. The proposal initiates the transformation of this part of the Campus into a knowledge-based commercial precinct with direct links to the Academic Core. It is located in proximity to the new rail station and is within the vicinity of other public transport networks including regular bus routes. No contaminants have been identified on the site and it does not accommodate any identified European or Aboriginal heritage items.

The location of the new Cochlear Stage 1 Building on the Campus will accommodate significant setbacks to residential development to the south-west and will protect residential amenity at this boundary. The proposed development will also allow for the rehabilitation of the north-western side of University Creek which is located on the subject site. Appropriate servicing and infrastructure is capable of being provided to the site and the development will not necessitate the relocations of any existing uses on the Campus.

## 4.2 Social and Economic Issues

The relocation of the Cochlear global headquarters to the Macquarie University Campus will contribute to the vision for the Campus as a knowledge-based, research Campus by accommodating the co-location of research-orientated commercial activity in proximity to University research functions. An active reciprocal relationship between the University and Cochlear Limited will be strengthened through the proposed development which will assist in the promotion of the University as a world-class research institution.

Additionally, the proposed development will ensure that the Cochlear global headquarters remains in NSW and does not relocate overseas or elsewhere within Australia. Its relocation to the Campus will encourage other high-calibre companies to relocate or co-locate to the Campus in a pattern that is likely to replicate the popularity and take-up of commercial premises within the nearby MURP.

The project will provide employment for 1250 employees associated with the operation of the headquarters in addition to a significant number of jobs associated with the construction of the premises.

The proposal is entirely consistent with the NSW Government position of “NSW: Open for Business” and the direction on promotion of innovation and innovative businesses. The location of the proposal within Macquarie University, and the Macquarie Park Corridor also strengthens the position of this Specialised Centre and attraction of suitable businesses within this part of the Global Arc.

### 4.3 Water Quality and Management

Water quality management has been prioritised in the design development for the proposal due to the site’s location in proximity to the sensitive ecological environment along University Creek. The proposed stormwater design is described in the Stormwater Report and Plans at **Appendix D**. Stormwater run-off will continue to be discharged into University Creek in accordance with the current drainage arrangement on the site. However, significant improvements to the existing stormwater drainage system will be made as part of the development and will include the following:

- Underground on-site detention and rainwater collection tank; and
- The provision of grated inlets and a gross pollutant trap (in addition to the bio-retention basin) which will remove gross pollutants, sediment, grease, oil and some nutrients from the stormwater run-off before discharging into University Creek.

A possible future bio-retention basin which will collect stormwater run-off before discharging into the University Creek.

Water quality modelling measures using the MUSIC software have been incorporated into the stormwater design for the proposal to address aspects of WSUD.

The majority of the site is currently occupied by a hardstand carpark. The proposed development will not result in a significant change to the existing site coverage and there is unlikely to be a significant increase in stormwater run-off as a result of the proposed development.

### 4.4 Geotechnical and Contamination

A Geotechnical Report and Phase 1 Contamination Assessment have been prepared by Douglas Partners for the project. The Phase 1 Contamination Assessment concluded that the potential for contamination on the site is very low. The geotechnical Report indicates that the site is suitable for the proposed level of excavation and construction and is supported by a letter from the structural engineer (**Appendix S**).

## 4.5 Traffic, Public Transport, Vehicle Access and Parking

An assessment of the traffic, transport, vehicle access and parking issues associated with the proposal have been undertaken for the proposal and are included in the Traffic and Parking Assessment at **Appendix I**. A summary of these issues is provided below.

### Vehicle Access

Vehicle access to the site is proposed to be provided from University Avenue via two separate driveways. A two-way driveway is proposed approximately 75 metres west of the existing roundabout along University Avenue. This will provide access to the western at-grade employee carpark.

The basement carpark and service area will share the same access from a four-lane driveway which is located approximately 85 metres east of the roundabout.

Entrance to the basement carpark and eastern service carpark will be controlled by a boom gates and a roller shutter to the carpark.

The separation of vehicle accesses to the site, particularly the provision of a four-lane driveway for service vehicles will ensure that the proposed entry and exit of vehicles do not obstruct traffic flow within the University.

The width and location of vehicles access to the site is proposed in accordance with the relevant Australian Standard.

### Parking

A total of 544 parking spaces are to be provided on site including 146 at-grade parking spaces and 398 basement car spaces. All basement parking is reserved for employee parking only. All parking spaces are designed in accordance with the relevant Australian Standard.

42 motorcycle parking spaces will be provided within the basement and lower-ground carpark. These spaces are designed in accordance with the relevant Australian Standard.

Some of the at-grade employee parking spaces, in particular the 90 degree spaces located at the southernmost end of the eastern carpark, will be provided as drop-off and pick-up bays for the child care and occasional care centres. The provisions of these spaces for use by the centres during relevant drop-off and pick-up periods will be appropriately managed through signage and monitoring by Cochlear Limited.

Seven disabled parking spaces will be provided within the at-grade parking spaces and four at the lower-ground floor within the basement carpark. A total of 11 or 2% of the 544 employee car spaces will be provided as disabled. The provision of disabled access on the site is consistent with the Australian Standard 1428. -2001 Design for Access and Mobility.

Employee parking on the site is provided generally in accordance with the requirements of the draft Concept Plan which is consistent with those set by LEP 137 – a maximum of 1 space per 46m<sup>2</sup>. The total GFA proposed on the site is 24,343m<sup>2</sup> resulting in a maximum allowance of 530 parking spaces. The provision of employee parking spaces on the site is just above the maximum permitted / envisaged under the draft Concept Plan at 1:45m<sup>2</sup>. Additionally, an assessment of the proposed use against the RTA Guidelines for Traffic Generating Development has been undertaken in the Traffic and Parking Assessment (**Appendix I**). Based on the rates specified within this Guideline, the proposed Stage 1 Building would require a total of 538 employee parking spaces which is again in the vicinity of the proposed provision.



It should be noted that this development is Stage 1 of a potential multi-stage development for Cochlear. Over the duration of the staged development, compliance with the 1:46m<sup>2</sup> rate is likely to be achieved. Further, there are no parking controls in force for the University site under any of the relevant local planning instruments or plans.

Cochlear Limited is committed to encouraging the use of public transport. The relocation of its headquarters to the Campus and in proximity to the new rail station is part of this process. Employees at Cochlear Limited have historically used private vehicle to get to and from work due to the relatively remote (and public transport poor) location at Lane Cove West. The development of a Workplace Travel Plan, the headquarter's relocation in proximity to the new rail station, and the provision of extensive cyclist and pedestrian facilities on the site is part of Cochlear Limited's move to promote and encourage a reduction in the proportion of employees accessing the site by private vehicle. This will occur progressively over time as employees become more familiar with the use of public transport to get to work.

It is noted that number of employee parking spaces proposed to be provided on the subject site will be marginally more than the maximum permitted under the draft Concept Plan and the number recommended by RTA Guideline. Furthermore, employees on the site will work in shifts and use of parking spaces will be staggered. The provision of adequate parking spaces, particularly for employees working at night or in the early morning is essential for safety and security reasons.

The Traffic and Parking Impact Assessment recommends a number of Travel Demand Management mechanisms which have been incorporated into the Statement of Commitments.

In addition to the above employee parking provisions, 35 at-grade parking spaces are to be provided for the childcare centres as shown on the Site Plan prepared by Toland Williams Architecture (Drawing A02 Issue B).

## Public Transport

Extensive public transport facilities are provided within the vicinity of the subject site. These are described in detail in the Traffic and Parking Assessment at **Appendix I**. An internal network of bus stops exists within the University campus on Macquarie Drive and University Avenue, a short walk from the Cochlear development. These can be accessed along the well lit, pedestrian friendly footpaths and offer a range of bus services to the surrounding area and beyond.

Existing bus services in the vicinity of the site will be augmented by the opening of the new rail station in mid 2008. Employees at the new Cochlear global headquarters will have excellent access to regular and frequent transport services.

The Department has requested information regarding the target public transport mode-share for the project and whether it is consistent with the 40% public transport mode share proposed in Council's Draft Macquarie Park Traffic Study. A follow-up letter dealing specifically with this issue has been prepared by Cardno and is included at **Appendix I**. As detailed in the attached Cardno follow-up letter, no specific mode share target has been identified for the Stage 1 Building. However, the Macquarie University Transport Management and Accessibility Plan (MUTMAP) which was submitted with the draft Concept Plan identified a Public Transport motorised mode split of 23% as the worst case scenario.

The Draft Macquarie Park Traffic Study was only made available after the draft Concept Plan has been submitted and the targeted 40% mode-share was not known at the time the MUTMAP was prepared. Furthermore, significant concerns have been raised regarding the targeted 40% mode-share, in particular, the fact that the target mode-share of 40% relies on public transport capacities resulting from the completion of the North West Rail Link and the Redfern Chatswood Rail Link, the completion of which is not guaranteed. Further detail is provided in the follow-up letter prepared by Cardno (dated 30 June 2008) at **Appendix I**.

## Traffic

An analysis of the proposal's impact on traffic within the vicinity of the subject site has been undertaken in the Traffic and Parking Assessment at **Appendix I**. The analysis includes the estimated truck and vehicle movements into and out of the site. An analysis of the current performance of traffic intersections in the vicinity of the site has also been undertaken.

Overall the impact of the subject development on key surrounding intersections is minimal except for the intersections of Epping Road/Balaclava Road, Waterloo Road/Herring Road and University Avenue/Research Park Drive. Part of the impact is associated with the development of the Campus under the draft Concept Plan. A TMAP was submitted with the draft Concept Plan which recommended traffic augmentation works at the following intersections:

- Intersection of Waterloo Road/Herring road
- Intersection of Epping Road/Balaclava Road

These upgrade works form part of the commitments made under the draft Concept Plan. Any contribution to the upgrade works will be a matter for discussion between the University and Cochlear Limited.

## 4.6 Loading and Servicing

Loading and servicing facilities are located at the rear of the site. The eastern at-grade service carpark will provide access for couriers and deliveries, as well as other service vehicles. Two truck bays are also provided in this location, which are suitable for large rigid vehicles. The location of the main warehouse/storage area within the Stage 1 Building and the waste/recycling area will allow for appropriate servicing on the site to occur from this eastern carpark.

Adequate space for trucks to circulate and manoeuvre within the site has been provided. The Swept Path Analysis of the access driveway and the movements in and out of the loading docks indicated that delivery vehicle access is satisfactory. This analysis indicated that articulated vehicles are able to enter the site satisfactorily. Access to and from each of the loading docks has been assessed and it was found that vehicles can enter and exit satisfactorily.

## 4.7 Cyclist and Pedestrian Facilities

A total of 152 secure bicycle spaces (for staff), 16 showers and a change room area are proposed to be provided within the basement carpark. In addition, 31 visitor bicycle spots (located at-grade and the front entry area) are proposed. Ryde Council's draft Macquarie Park DCP provides bicycle parking rates for commercial development. The proposed development would require some 127 bicycle spaces for staff and 34 visitors in accordance with the draft Parking DCP. Although the draft Macquarie Park DCP does not strictly apply to the subject site, the proposed provision of bicycle parking spaces on the site will exceed the requirements for employee bicycle spaces, and is generally consistent with the requirements for visitor bicycle spaces.

The proposed Stage 1 Building is located along University Avenue, which is a key pedestrian route within the University pedestrian network. The development proposed a footpath along the frontage of the site to University Avenue, which will connect to the existing pedestrian network within the University.

Further improvements to the pedestrian network are proposed as part of the draft Concept Plan. This includes improvements to quality of facilities, new links and improved way-finding signage. This will provide excellent pedestrian access to the proposed development from public transport, local attraction such as Macquarie Shopping Centre and local residential areas.

## 4.8 Infrastructure and Utilities

A Site Infrastructure Services report has been prepared for the proposal which addresses the infrastructure and servicing requirements for the Stage 1 Building as well as the potential requirements for future stages of the Cochlear headquarters development. The following infrastructure components are addressed:

### Sewerage Services

A Sydney Water sewer main crosses the southern corner of the site and should be available for connection of the proposed building subject to Sydney Water Corporation approval and in accordance with the draft Concept Plan. Sewer connections for the Stage 1 Building will discharge to sewer sidelines and/or connections to University sewer mains at the boundary of the Cochlear site.

### Water Supply

Water services are required for potable water supply and for fire fighting purposes for the new development. Water services for the Stage 1 Building will be connected to existing University watermain, subject to Sydney Water Corporation approval. New connections to existing watermain will be made for potable cold water, fire hydrant and fire sprinkler services.

### Gas Services

A new University gas main will be provided in accordance with the draft Concept Plan at the boundary on the northern side of Cochlear site. Gas services for the Stage 1 Building will be connected to the new University gas main subject to AGL/Alinta approval. Size, available gas load and pressure of the service will to be assessed for suitability for the new project. It is assumed the new gas main will provide the required gas loads for the Cochlear site.

### Electrical Services

The Cochlear Global Headquarters development at Ryde will be provided with High Voltage (HV) underground cable reticulated to the site to allow for Stage 1. Further consideration for future interconnection of chamber substations serving the appropriate staged developments will be undertaken.

Street lighting within the Cochlear development at Ryde will run throughout the site along private roads. The lighting will be in accordance with the University, Energy Australia, local City Council and Australian Standard requirements.

There is also the potential to include a cogeneration plant within the development (at roof level) subject to further design development.

## Communication Services

Telstra is obliged, under its universal services, to provide base telephony services to the development via existing copper infrastructure. Online application for 'intent of development' has been lodged with Telstra.

Fibre optic lead-in cables from the Telstra network will be provided depending on agreement with the carrier. There is the potential that Fibre Optic cables located at Waterloo Road could be extended to the site.

## Stormwater Management

A Stormwater Report and Plans has been prepared for the proposal and is included at **Appendix D**. Appropriate stormwater management measures which include WSUD and water quality management have been included as part of the stormwater design for the project.

## 4.9 Biodiversity, Flora and Fauna

A Flora and Fauna Assessment is incorporated as part of the VMP at **Appendix F** and assesses the proposal against the provisions of the EPBC Act and TSC Act and includes an assessment of the seven-part test under Section 5A of the EP&A Act and an Assessment of Significance under the EPBC Act. It concludes that there is unlikely to be an impact on the STIF endangered ecological community adjacent to the subject site as a result of the proposed development provided precautionary measures to protect the area are implemented during construction. The Flora and Fauna Assessment also concludes that the proposal is unlikely to have a significant impact on the known native flora and fauna on the subject site and threatened biodiversity of adjacent areas. The recommendations made in the Flora and Fauna Assessment have been included in the Statement of Commitments.

A Tree Report (**Appendix J**) has been prepared for the proposal. Most existing trees on the subject site are to be removed and replaced with new ones as described in the Landscape Plans and Report. Only two of the proposed trees identified for removal are protected species under the TSC Act and EPBC Act. These trees are in poor condition and their removal will not have a significant impact.

The VMP (**Appendix F**), together with the Stormwater Report and Plans (**Appendix D**) provides appropriate landscaping and water quality control measures to allow for the revitalisations and protection of the riparian zone along the north-western bank of the University Creek. In accordance with the recommendations of the DWE, a Category 2 treatment has been applied to the riparian corridor which includes a 20 metre setback and 10 metre buffer zone.

## 4.10 Built Form

The proposed six to seven storey Stage 1 Building is consistent with built form controls established under the draft Concept Plan including the maximum building height and FSR control. It will be orientated towards the west to allow for an appropriate pedestrian entry to the site from University Avenue and potential connection to future stages of the Cochlear headquarters and potential areas of public domain.

Warehouse/storage areas have been appropriately located at the lower levels of the buildings with office space and research/manufacturing space provided from ground level upwards. The majority of car spaces are provided within the basement carpark to reduce the site coverage. The separation of the building into a northern and southern wing allows for the location of services around a central core and the separation of pedestrian access (to the west) and servicing functions which are orientated to the east.

## 4.11 Solar Access & Overshadowing

Shadow diagrams have been prepared for the proposal (**Appendix A**) which assess the shadow impact from the proposal in midsummer, midwinter and at the equinox. The shadow diagrams demonstrate that the proposal will have very little impact on residential development to the south-west, the child care and occasional care centres, and the riparian zone in mid summer or at the equinox.

In midwinter, the 'Waratah' Occasional Care Centre will be overshadowed in the morning but will have good sunlight access from midday onwards. The riparian zone will be overshadowed in the afternoon on midwinter but will have excellent sun access during the morning. No shadow impact will occur on the 'Gumnut Cottage' Child Care Centre or residential development to the south-west. Surrounding development and the riparian zone will have access to at least three hours of sunlight in midwinter.

## 4.12 ESD and Air Quality

An ESD Report has been prepared for the proposal and is attached at **Appendix K**. The proposal has been assessed against the Green Star rating system, as well as the ABGR system. The proposal will achieve a minimum 4 star Green Star rating and a minimum 4.5 ABGR. This has been included in the Statement of Commitments.

Proposed mechanisms to include this high Green Star and ABGR rating include:

- Carefully designed built form;
- Performance glazing;
- Sun shading at the northern façade;
- Provision of recycling facilities;
- Provision of appropriate cyclist facilities;
- The selection of energy efficient mechanical services;
- Functional lighting design; and
- Efficient water and hydraulic systems.

The proposed development does not involve any heavy industrial activity and is not a polluting activity. The proposed ESD measures will ensure a reduced amount of emission from the development and the proximity of the development to public transport nodes will reduce car dependency.

## 4.13 Noise & Vibration Impact

An Acoustic Assessment has been prepared for the proposal which assesses the proposal in terms of its acoustic impact on the surrounding environment, particularly the adjoining childcare and occasional care centre, and the level of acoustic comfort for workers within the Stage 1 Building. It also provides for the control and minimisation of construction noise for the development.

Particular attention has been given to the protection of acoustic amenity of the childcare centres during both the construction and operation stages for the new headquarters building with one of the noise loggers placed at the boundary to the 'Waratah' Child Care Centre during noise monitoring.

Noise and vibration criteria have been established for the construction and operational stage of the proposed Stage 1 Building in accordance with Department of Environment and Climate Change (DECC) guidelines including the DECC's *Environmental Noise Control Manual* and the *Industrial Noise Policy*.

The Acoustic Assessment notes that construction noise levels may exceed the maximum amenity criteria established by relevant policies. However this exceedence is the worst case scenario and is typical of construction sites in close proximity to noise-sensitive receivers. To minimise the construction noise impact on the childcare centres, acoustical shielding is proposed to be provided by hoardings at the boundary between the proposed works site and child care centres.

The Acoustic Assessment concludes that the noise impacts associated with the operation of the proposed Stage 1 Building will be within the criteria set by relevant guidelines, particularly in relation to impacts on the nearby childcare centres. Additionally, the acoustic amenity levels within the Stage 1 Building are considered to be appropriate for the use.

A number of recommendations are made in the Acoustic Assessment to ensure that appropriate noise control can be provided within and surrounding the proposed new commercial premises both during the construction and operational stage of the project. These include:

#### **Construction**

- Following the recommendations of the Construction Plan provided in Section 7 to 9 of the Acoustic Assessment;
- Providing hoardings between the work site and childcare centre during construction;
- Consider the installation of air-conditioning within the childcare centres; and
- In consultation with the childcare centre management, agree upon a strategy to ensure extremely noisy construction activities do not occur during particularly noise sensitive activities such as outdoor play time and sleep time.

#### **Operation**

- Appropriate selection and placement of plant equipment;
- Apply convention noise control measures;
- Review of mechanical scheme at detailed-design stage to ensure compliance with relevant criteria outlined in the Acoustic Assessment.

The above recommendations are included in the draft Statement of Commitments which provides for general compliance all the recommendations made in the Acoustic Assessment.

## **4.14 Amenity**

The proposed Stage 1 Building is set back by more than 50 metres from the nearest residential boundary to the south-west. The proposed setback and design of the building will ensure that no adverse impacts - in terms of amenity, shadow impact and privacy - on the amenity of residents to the south-west occur.

Boundary landscaping will ensure that appropriate separation to the nearby child care and occasional care centres is maintained. At the same time, pedestrian and vehicular access to the centres will be provided at the western boundary of the site.



## Amenity of childcare centres

The amenity of the existing childcare centres will be maintained during construction and operation of the Stage 1 Building. Hoarding will be placed between the construction site and the childcare centres during construction to mitigate any noise and vibration impacts. Additionally, as recommended in the Acoustic Assessment, consultation with the childcare centres management will be undertaken to ensure that noisy construction activities do not coincide with the sleep and outdoor play periods for the Centres.

The Preliminary CP (**Appendix M**) provides additional information on the consultation and the process to ensure access and amenity to the childcare centres during construction. It provides information on consultation that has been undertaken with the Centres' management (by Macquarie University) and provides details on the ownership and operational arrangements for the childcare centres in the future. No new enrolments have been accepted for the construction period of the Stage 1 Building and one of the centres currently operates under capacity.

The Preliminary CP also includes information on the proposed access and car parking provisions to be made available for the childcare centres during the construction of the Stage 1 Building, as well as the mitigation measures that will be put in place to minimise the noise and vibration impacts.

Additionally, a number of measures have been incorporated to ensure that the appropriate access and amenity to the childcare centres is maintained during the operation of the Stage 1 Building. These include:

- The relocation of the play areas associated with the childcare centres as shown in the Overall Landscape Plan (drawing la-501 revision a07) prepared by DEM;
- The provision of 35 park spaces in the at-grade carpark for use by the childcare centres as shown in the `and
- Provision of pedestrian access to the childcare centres from pathways along the western side of the site.

## 4.15 Access and Mobility

A BCA Report is included at **Appendix N**. Appropriate access will be provided to the Stage 1 Building in accordance with the accessibility of requirements of the BCA and the relevant Australian Standards.

## 4.16 Views and Visual Impact

Photomontages and a View Analysis for the proposed development are incorporated at **Appendix A**. Views of the site from the south, south-west, north-east and north-west are provided. The analysis demonstrates that the proposed development and surrounding landscaping will be appropriately placed within its setting. No view corridors are available or proposed over the subject site (as demonstrated in the draft Concept Plan). The careful selections of colours and materials will ensure that the proposal is appropriately integrated with its surroundings.

## 4.17 Crime and Public Safety

The proposed Stage 1 Building is orientated so that it allows for overlooking of pedestrian accesses to the site. Additionally, a boom gate is proposed at the eastern vehicle access to the site and another boom gate at the entry to the service and loading area. A roller shutter door is proposed at the entrance to the basement car park. It is expected that the proposed development will improve safety and security in this part of the Campus as it will result in a steady flow of pedestrians and vehicles into and out of the premise and will ensure that causal surveillance of the site and surrounds occurs. Pedestrian access to the site is provided from University Avenue which is well-lit.

## 4.18 Climate Change

The Stage 1 Building for the Cochlear global headquarters will be one of the first buildings to be developed on the site in accordance with the vision set out in the draft Concept Plan.

Consistent with the vision for the new Campus as a sustainable and energy-efficient new commercial centre, the proposed Stage 1 Building will achieve a minimum 4 star Green Star rating and a minimum 4.5 ABGR. Additionally, the building's location in proximity to the new rail station will encourage the use of public transport.

A Flood Study has been prepared for the proposal and is included at **Appendix R**. It assesses the flood levels adjacent to the site so that potential impacts on the development can be assessed.

The following critical flood levels were determined:

- Five year ARI two hour duration storm water level RL57.844.
- 20 year ARI two hour duration storm maximum water level RL58.041.
- 50 year ARI two hour duration storm maximum water level RL58.124.
- 100 year ARI two hour duration storm maximum water level RL 58.198.

The finished floor level (FFL) of the proposed underground basement of the proposed Stage 1 Building is almost 1 metre above the maximum water level identified for the 100 year ARI, and the ground floor FFL is more than 4 metres above the maximum water level. Thus an adequate flood level barrier has been allowed for in the design and construction of the proposed Stage 1 Building.

A letter from Costin Roe Consulting which provides information on the climate change considerations has been included at **Appendix R**. The letter confirms that the Flood Study considered that effects of climate change and included the following:

- The overall freeboard from the PMF storm event is 0.9m to the basement level. This increases the safety factor to that in a 0.2% flood.
- Sea level change will not impact this development. The local catchment is a tributary creek flowing into the Lane Cove River.
- Increased rainfall or more intense events have been considered in the model. The proposed development is located well above the predicted flood levels.

## 4.19 Justification for the Project

The proposal will allow for the relocation of the Cochlear global headquarters to a suitable location on the Macquarie University Campus which is identified for future commercial development. It will initiate the transformation of the Campus into a knowledge-based commercial centre with close ties to the University. This is in line with the State Government's visions for the Macquarie Park Corridor, the Specialist Centre, and this part of the Global Arc. The proposed development will ensure that this innovative and successful company remains within Sydney and NSW and will encourage economic growth and clustering of like activities within the locality, in addition to further enhancing the reputation and status of Macquarie University.

## 4.20 The Public Interest

The public interest is well served by the proposed development. The proposal will promote the research alliances between research-orientated companies and the University and will allow for the development of an A-Grade office building with excellent ESD performance and a high quality of design excellence. The proposal will also accommodate an improvement to ecological features on the subject site including the rehabilitation of the riparian corridor. No adverse impacts are expected to result from the proposal.

## 5.0 Draft Statement of Commitments

Subject	Commitments	Approved by Whom	Timing
General	The development will be undertaken generally in accordance with the Environmental Assessment report dated May 2008 prepared by JBA Urban Planning Consultants (including accompanying Appendices) and drawings prepared by Toland Williams Architects and Geyer.	Lachlan Project Development Pty Ltd	Construction and Operation
Stormwater	Stormwater and drainage works on the site will be undertaken generally in accordance with the Stormwater Management Plan and Concept Stormwater Drainage Plan prepared by Costin Roe ( <b>Appendix D</b> ).	Lachlan Project Development Pty Ltd	Construction
Flora and Fauna	The protection of flora and fauna on the site will be carried out generally in accordance with the recommendations made in the Flora and Fauna Assessment prepared by Total Earth Care dated June 2008 ( <b>Appendix F</b> ).	Lachlan Project Development Pty Ltd	Construction
Landscaping	Landscaping of the site will be undertaken generally in accordance with the Landscape Report dated 16 June 2008 and Landscape Plans dated 17 June 2008 prepared by DEM ( <b>Appendix F</b> ).	Lachlan Project Development Pty Ltd	Construction and Operation
BCA / Australian Standards	The development will comply and satisfy all relevant requirements under the Building Code of Australia and Australian Standards. The development will be carried out generally in accordance with the recommendations made in the BCA Report prepared by McKenzie Group and dated May 2008 ( <b>Appendix N</b> ) and the Fire Safety Statement prepared by RawFire and dated 23 May 2008 ( <b>Appendix Q</b> ).	Lachlan Project Development Pty Ltd	Construction
Noise Management	The control and mitigation of noise and vibration during construction, as well as the protection of acoustic amenity for the premises and surrounds during operation, will be carried out generally in accordance with the recommendations made in the Acoustic Assessment prepared by Heggies dated 13 June 2008 ( <b>Appendix P</b> ).	Lachlan Project Development Pty Ltd	Construction and Operation
Riparian Zone	Management and maintenance of the Riparian Zone will be undertaken generally in accordance with the recommendations made in the VMP prepared by DEM and dated 16 June 2008 ( <b>Appendix F</b> ).	Lachlan Project Development Pty Ltd	Construction and Operation
Management of Contaminated Soils	Management of soils on the site will be undertaken generally in accordance with the recommendations made in the Phase 1 Contamination Assessment prepared by Douglas Partners and dated March 2008 ( <b>Appendix G</b> ).	Lachlan Project Development Pty Ltd	Prior to construction
Traffic, Transport and Parking	The development will be carried out generally in accordance with the recommendations made in relation to Travel Demand Management in the Traffic and Parking Impact Assessment prepared by Cardno Eppel Olson and dated June 2008 ( <b>Appendix I</b> ). Intersection improvements will be addressed as part of the Macquarie University Concept Plan.	Lachlan Project Development Pty Ltd	Construction and Operation
Protection of Existing Trees	Trees identified for retention in the Tree Report prepared by Treescan and dated March 2008 ( <b>Appendix J</b> ) will be protected during construction generally in accordance with Construction Plan (CP).	Lachlan Project Development Pty Ltd	Construction and Operation
ESD	The proposal will achieve a minimum 4 star Green Star rating and a minimum 4.5 ABGR. The ESD measures identified in the ESD Report prepared by Hyder Consulting dated 19 June 2008 ( <b>Appendix K</b> ) will be generally implemented during the construction and operation of the Stage 1 Building.	Lachlan Project Development Pty Ltd	Construction and Operation

Subject	Commitments	Approved by Whom	Timing
Waste Management	The waste management, minimisation and re-use procedures identified in the Preliminary Waste Management Plan (WMP) prepared by CRI and dated 16 May 2008 ( <b>Appendix L</b> ) will be generally implemented during construction and operation.	Lachlan Project Development Pty Ltd	Construction and Operation
Construction Management	The management of construction activity during the construction of the Stage 1 Building will be undertaken generally in accordance with the measures set out in the CP prepared by CRI and dated May 2008 ( <b>Appendix M</b> ).	Lachlan Project Development Pty Ltd	Construction
Developer Contributions	Developer Contributions will be made in accordance with the draft Macquarie University Concept Plan (Section 7.7). Namely, commercial, research and business uses with no direct correlation and relationship with educational uses and functions associated with the University (ie, not ancillary), and clearly for commercial gain shall pay contributions consistent with Council's applicable (and indexed) s94 plan, unless contributions are offset by works in kind undertaken by the University. Works and offsets are proposed.	Lachlan Project Development Pty Ltd	Developer contributions will be paid prior to occupation of the premises.
Relocation of bus stop with a pull in bay	The existing bus stop at the frontage to the site on the southern side of University Avenue (existing bus stop location shown in survey plan prepared by Lockley Land Title Solutions and dated 27.06.07 at <b>Appendix C</b> ) will be relocated and provided with a bus pull in bay as shown in the Stage 1 Landscape Plan (drawing la-502 revision a06) prepared by DEM ( <b>Appendix F</b> ) and Site Plan (Drawing No A02) prepared by Toland Williams Architecture.	Lachlan Project Development Pty Ltd	Construction
Preservation of amenity and access to the 'Gumnut Cottage' Child Care Centre and 'Waratah' Occasional Care Centre	<ul style="list-style-type: none"> <li>- Portions of the playgrounds associated with the Centres will be relocated (prior to construction) to the nominated locations shown on the Overall Landscape Plan (drawing la-501 revision a07) prepared by DEM (<b>Appendix F</b>).</li> <li>- 35 parking spaces will be provided for the Centres within the western at-grade carpark as shown on the Site Plan (Drawing A02 Issue B) prepared by Toland Williams Architecture (<b>Appendix A</b>) on completion of the Stage 1 Building.</li> <li>- Pedestrian and vehicular access to Centres to be provided during construction in accordance with the CP and during operation as shown on the Site Plan (Drawing No A02) prepared by Toland Williams Architecture.</li> <li>- Consultation with the Centre's management will be undertaken prior to construction to ensure that the general amenity of the childcare centres is maintained.</li> <li>- Hoarding will be erected between the Centres and the development site to create an effective barrier to the childcare centres,</li> </ul>	Lachlan Project Development Pty Ltd	Construction and Operation

## 6.0 Conclusion

The proposed building to accommodate Stage 1 of the relocation of Cochlear Limited's global headquarters from Lane Cove to Macquarie University provides the significant opportunity to align research and technology synergies. The proposed development of the Cochlear global headquarters on the Campus will provide a suitable platform for future expansion and growth, and will also provide a high-tech research "hearing" hub with Macquarie University's Audiology Departments and Clinics.

The ultimate objective is to facilitate a research hub within the University to make the research, development, innovation and manufacturing process of hearing implant technology more easily accessible to prospective and existing recipients and the broader worldwide community.

The Stage 1 Building will accommodate some 1250 employees within a 6 to 7 storey building with a gross floor area of 24,343m<sup>2</sup>. It will include 544 parking spaces in basement and at grade parking areas and will have a capital investment value of approximately \$71 million.

The preceding environmental assessment demonstrates that the matters for which approval is sought address the Director-General's Requirements, are generally consistent with the current draft Concept Plan, and consistent with the proposed zoning and development controls contained in the State Significant Site proposal for the wider Macquarie University Campus site.

Given the findings in the previous sections of this EA Report, and the proposed State Significant Site listing and draft Concept Plan, the proposal is justified from a Strategic planning basis due to:

- The proposed development being consistent with the objectives for the Station South Precinct (described in the draft Macquarie University Concept Plan) as it will encourage the co-location of an innovative research and technology industry in close proximity to University-related research activities thereby promoting the vision for Macquarie University Campus as an internationally-recognised research hub;
- The retention of Cochlear within Sydney, and its placement within the Macquarie Park Corridor and Macquarie University, promoting and reinforcing the role of the Corridor as a Specialised Centre within the "global arc" and the State Government's direction in fostering growth in innovation.
- The use of the site will seeking to maximise use of Government investment in transport infrastructure, particularly the soon to be completed Chatswood-Epping rail link;
- Existing infrastructure being able to be upgraded where necessary to accommodate the proposed Stage 1 Building;
- It providing a key element of the Concept Plan design that will initiate the transformation of the Campus into a research and technology-oriented commercial centre;
- Potential environmental impacts being mitigated through appropriate building design and management procedures; and
- The development providing a new A-grade commercial office building with a minimum 4 star Green Star rating and a 4.5 star ABGR in close proximity to a new rail station.

There are no significant issues or impacts that would prevent the approval of the development in its current form.

The measures outlined in the Statement of Commitments describe the range of actions that will be undertaken to manage on-site impacts during the construction and ongoing operation of the development.