
THE UNIVERSITY OF SYDNEY

PRELIMINARY HAZARD ANALYSIS FOR THE NEW A01 BUILDING FOLLOWING STATE ENVIRONMENTAL PLANNING POLICY (RESILIENCE AND HAZARDS) 2021 GUIDELINES

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1. INTRODUCTION

1.1. THE A01 BUILDING

The proposed Teaching and Learning Hub (i.e. A01) building is a new structure designed to accommodate flat floor teaching spaces for up to 1,500 students and 30 staff members. The University of Sydney aims to increase face to face teaching by utilizing the proposed large seminar type rooms throughout this facility.

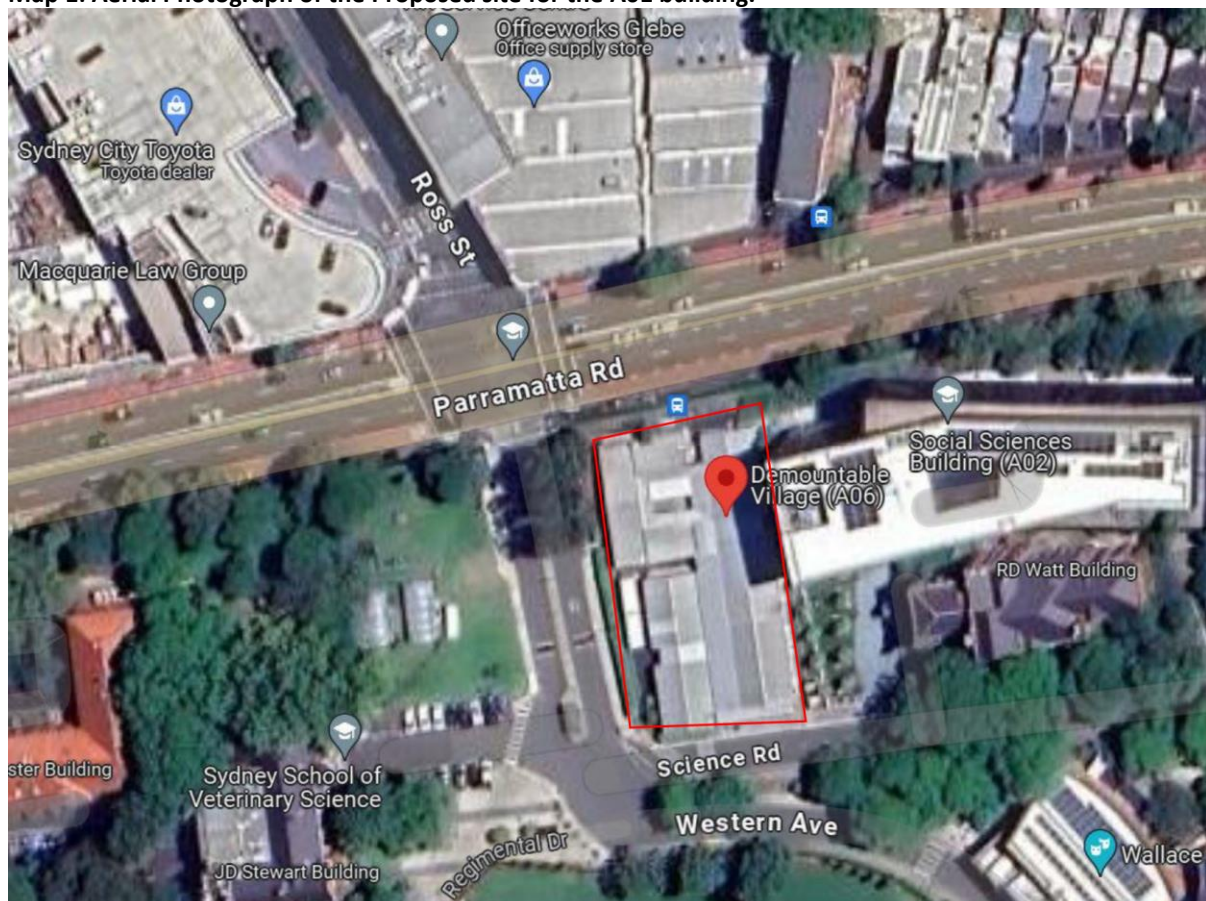
1.1.1. THE SITE

The site is located at the gateway to the University, adjoining Ross Street, Science Road and Parramatta Road in Camperdown. The site is bound by the A02 Social Sciences building and the RD Watt building on the east.

The overall site has an area of 1,273 m² and currently, is the area allocated to the Demountable Village which is a number of temporary single storey demountable buildings.

An aerial photograph of the site detailing the development footprint is provided in Map 1.¹

Map 1: Aerial Photograph of the Proposed site for the A01 building.



¹ Source: Urbis 2023

1.1.2. THE PROPOSAL

The proposed A01 Teaching and Learning Hub building on Ross Street will comprise of approximately 5800 m² of GFA over 5 floors and will have a maximum building height of 24m from the ground level. The spaces within the building will be dedicated to:

- Flat floor seminar rooms
- Plant room
- Circulation space
- Food and beverage area on level 1
- Dry teaching areas (no chemical usage will occur in this building)

The proposed development also includes supporting services infrastructure, power amplification via new kiosk substations and modifications to the existing fire hydrant main.

This Preliminary Hazard Analysis Report for the A01 building is provided following the State Environmental Planning Policy (resilience and Hazards) 2021 guidelines and has been prepared for the University of Sydney (the applicant) to support the preparation of the State Significant Development Application as per the Secretary's Environmental Assessment Requirements (SEARs).

This report has been prepared with reference to proposed development plans provided by the University of Sydney which are shown within Appendix A.

1.2. BACKGROUND TO THE STATE ENVIRONMENTAL PLANNING POLICY (RESILIENCE AND HAZARDS) 2021 (RESILIENCE AND HAZARDS SEPP)

The State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) consolidates and repeals the provisions of the following 3 SEPPs:

1. SEPP (Coastal Management) 2018 (Coastal Management SEPP).
2. SEPP 33 – Hazardous and Offensive Development (SEPP 33).
3. SEPP 55 – Remediation of Land (SEPP 55).

These changes are part of a broader administrative consolidation of SEPPs. No policy changes have been made to this consolidation. The SEPP consolidation does not change the legal effect of the existing SEPPs, with section 30A of the Interpretation Act 1987 applying to the transferred provisions. The SEPP consolidation is administrative in nature. It has been undertaken in accordance with section 3.22 of the Environmental Planning and Assessment Act 1979. The Resilience and Hazards SEPP:

- Transfers most existing provisions from the 3 SEPPs (as shown above) being consolidated into chapters 2, 3 and 4. Chapter 1 contains the preliminary information and commencement details.
- Repeals the 3 SEPPs being consolidated.

The Resilience and Hazards SEPP incorporates provisions from the SEPPs being consolidated as follows:

- 'Chapter 2 - Coastal Management' contains planning provisions from the Coastal Management SEPP for land use planning within the coastal zone consistent with the Coastal Management Act 2016.
- 'Chapter 3 – Hazardous and Offensive Development' contains planning provisions from SEPP 33 to manage hazardous and offensive developments.
- 'Chapter 4 – Remediation of land' contains planning provisions from SEPP 55, which provides a state-wide planning framework for the remediation of contaminated land and to minimise the risk of harm.

Therefore, this report will form part the Environmental Assessment and details the Preliminary Hazard Analysis undertaken for the proposed building following the guidelines and methodology as detailed within NSW Planning & Environment document titled '*Hazardous and Offensive Development - Application Guidelines, Applying SEPP 33*'.²

1.3. PURPOSE OF THIS POLICY

The State Environmental Planning Policy (Resilience and Hazards) 2021 guidelines have been prepared to provide advice on interpreting and implementing the policy. They have been written principally for councils who must act as consent authorities for developments affected by this policy. The guidelines are also useful for industry, consultants and other government agencies to determine and assist in identifying developments which should be considered under the State Environmental Planning Policy (Resilience and Hazards) 2021 guidelines, and on the broad assessment requirements of the policy.

1.4. APPLYING STATE ENVIRONMENTAL PLANNING POLICY (RESILIENCE AND HAZARDS) 2021 GUIDELINES TO DETERMINE IF IT IS APPLICABLE

1.4.1. CHAPTER 2 - COASTAL MANAGEMENT

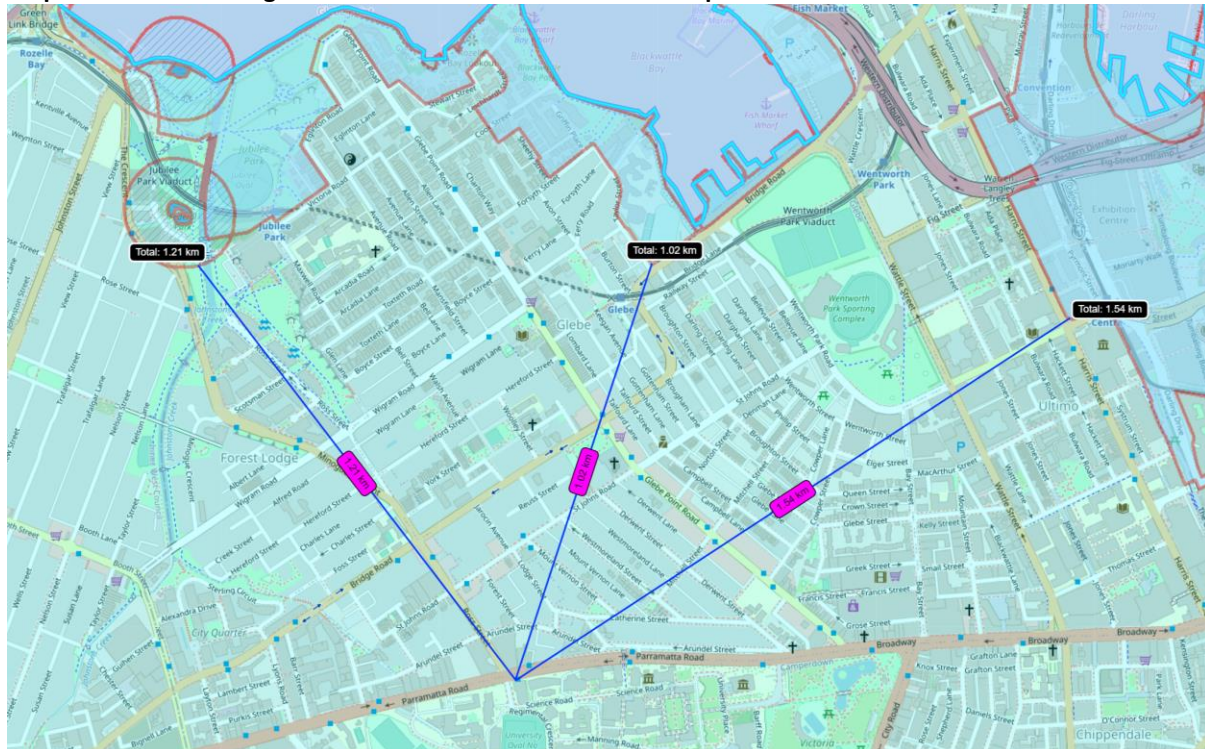
Under the State Environmental Planning Policy (Resilience and Hazards) 2021, from Chapter 2 it aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by:

- Managing development in the coastal zone and protecting the environmental assets of the coast.
- Establishing a framework for land use planning to guide decision-making in the coastal zone.
- Mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016.

² <http://www.planning.nsw.gov.au/Policy-and-Legislation/~media/3609822D91344221BA542D764921CFC6.ashx>

Currently in this instance and as per the State Environmental Planning Policy (Coastal Management)-maps,³ the proposed site for the A01 Teaching and Learning Hub (refer to Map 2) is approximately 1.0 to 1.6 Km to the south of designated Coastal Wetland areas, i.e. the site does not fall within an area which is defined as a Coastal Wetland and Chapter 2 - Coastal Management of the State Environmental Planning Policy (Resilience and Hazards) 2021 guidelines in this instance is not applicable.

Map 2: The A01 building as shown on the Coastal Wetlands Map



1.4.2. CHAPTER 3 - HAZARDOUS AND OFFENSIVE DEVELOPMENT

This Chapter aims to:

- Amend the definitions of hazardous and offensive industries where used in environmental planning instruments.
- Render ineffective a provision of any environmental planning instrument that prohibits development for the purpose of a storage facility on the ground that the facility is hazardous or offensive if it is not a hazardous or offensive storage establishment as defined in this Chapter.
- Require development consent for hazardous or offensive development proposed to be carried out in the Western Division.
- Ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account.
- Ensure that in considering any application to carry out potentially hazardous or offensive development,

³ <https://datasets.seed.nsw.gov.au/dataset/state-environmental-planning-policy-resilience-and-hazards-2021>

the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

- Require the advertising of applications to carry out any such development.

Therefore, Chapter 3 of the State Environmental Planning Policy (Resilience and Hazards) 2021 will apply if a proposal for an 'industrial development' requires consent, and it is either a potentially hazardous industry, potentially an offensive industry, or in some instances both.

In this instance, as the facility will not be using hazardous chemicals (i.e. it is just dry teaching spaces) and there will be no dangerous goods storage, it will not be defined as a hazardous and offensive development, therefore this will be further discussed in subsequent sections of this report.

Because the facility does not use chemicals, it does not meet the requirements of Chapter 3 of the State Environmental Planning Policy (Resilience and Hazards) 2021 as the chemical volumes are not exceeded.

1.4.3. CHAPTER 4 – REMEDIATION OF LAND

The objective of this Chapter is to provide for a Statewide planning approach to the remediation of contaminated land. In particular, this Chapter aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment:

- By specifying when consent is required, and when it is not required, for a remediation work.
- By specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular.
- By requiring that a remediation work meet certain standards and notification requirements.

In conducting this audit and reviewing the NSW EPA website on registered Contaminated Land Record of Notices⁴, the following was identified for the suburb/LGA. Refer to Table 1 for Notices and Table 2 for further information on notices.

⁴ <https://app.epa.nsw.gov.au/prclmapp/searchregister.aspx>

Table 1: Contaminated Land Record of Notices

Search results

Your search for: Suburb: CAMPERDOWN

Matched 1 notice relating to 1 site.

[Search Again](#)

[Refine Search](#)

Suburb	Address	Site Name	Notices related to this site
CAMPERDOWN	Salisbury LANE	O'Dea Reserve	1 former

Page 1 of 1

Table 2: Further Information on Notices⁵

Notice No:	26029
Date:	20 December 2002
Party:	Marrickville Council
Site:	O'Dea Reserve located at Ross Street, Cardigan Lane and Salisbury Lane, Camperdown NSW Lots 1, 2, 3 & 4 in DP 600644

On 7 October 2005 the EPA gave notice that the terms of this voluntary proposal had been satisfactorily completed.

Therefore, there are no contaminated land notices for the site.

⁵ <https://app.epa.nsw.gov.au/resources/clm/docs/html/n26029.htm>

2. CHAPTER 3 - HAZARDOUS AND OFFENSIVE DEVELOPMENT

2.1. SCOPE AND AIM OF STUDY

The objective of this assessment is to present the hazards and risks associated with the proposed development through the evaluation of the likelihood and consequences of an event through the identified hazards, the risks to the immediate community with the proposed refurbishment and compared to the NSW Department of Planning risk criteria. These criteria are detailed in the SEPP 33 document “Hazardous and Offensive Development Application Guidelines: Applying SEPP 33” (NSW Department of Planning, 2011) under the “Multi-Level Risk Assessment Approach”. Any hazard analysis will be conducted according to the Department of Planning’s HIPAP No. 6 document entitled “Hazard Analysis”.

The scope of this report includes the following:

- Systematic identification and documentation of conceivable hazards based on information supplied and relevant experience from similar projects.
- Establishment of the consequence of each identified hazard and determination of any offsite effects.
- Where offsite effects are identified, the frequency of occurrence is determined based on historical data for the site.
- Proposed risk reduction measures as deemed necessary will also be recommended and applied to the analysis.

2.2. HOW TO IDENTIFY A POTENTIALLY HAZARDOUS INDUSTRY

The following points demonstrate how to determine if a proposed facility is hazardous using the risk screening method (Appendix 4 of the SEPP 33 document²). The information required to determine this is highlighted below:

- As the proposed new facility are only general teaching spaces, it is understood that there are no hazardous chemicals used in the entire building.
- It is also expected that there will be no dangerous goods on-site.
- There will only be a food and beverage provision area on level 1 as an additional facility for the users of the building.

From the above information, it is then possible to determine that the site will not be considered a hazardous or offensive site under SEPP 33 methodology.

3. PRELIMINARY HAZARD ANALYSIS

3.1. NO HAZARDOUS OR DANGEROUS GOODS ON-SITE

Because no chemicals will be used on-site, the Chapter 3 of the State Environmental Planning Policy (Resilience and Hazards) 2021 does not apply.

3.2. GAS PIPELINE CORRIDOR

As part of this assessment, there was a requirement to discuss the gas pipeline adjacent to the development (refer to Figure 1). The A01 Teaching and Learning Hub is bound by the Jemena medium pressure line on the north (Parramatta road) and the University medium pressure line on the south (Science road).

CETEC contacted Jemena as well as their infrastructure maintenance provider, Zinfra for their consultation on any potential concerns on the development being adjacent to their gas pipelines (refer to the Appendix A – Documents Provided by the Client,). It was confirmed by both Jemena and Zinfra that any works conducted (such as excavations) within 3m to a high-pressure gas pipeline will require standby until Jemena is supervising on-site. However, as the gas pipelines adjacent to the proposed A01 building are of medium pressure, the infrastructure protection officer for Jemena confirmed that no supervision is required during construction and there is no concern on their end. CETEC was referred to the gas networks engineer at Jemena however, there was no response. CETEC has assumed that Jemena has no further concern about the gas pipelines adjacent to this development.

Figure 1: The A01 building as shown on the University of Sydney's Hydraulic Services Trunk Infrastructure



4. CONCLUSION

CETEC was engaged by the University of Sydney to:

- Conduct a preliminary risk screening in accordance with Chapter 3 of SEPP (Resilience and Hazards) 2021.
- Where required by SEPP (Resilience and Hazards) 2021, provide a Preliminary Hazard Analysis prepared in accordance with *Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis and Multi-Level Risk Assessment*.
- Determine if the development meets the requirements, as per Chapter 3 of SEPP (Resilience and Hazards) 2021, to be classified as a “Hazardous and Offensive Development”.
- Report on consultation outcomes with the operator of the pipeline and prepare a hazard analysis (pipeline).

As the A01 Teaching and Learning Hub does not store or use any hazardous chemicals or dangerous goods, it does not meet the criteria for Chapter 3 of the State Environmental Planning Policy (Resilience and Hazards) 2021.

Therefore, as per the guidelines of the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP), the proposed A01 building development is not considered to be a “Hazardous and Offensive Development”.

CETEC also contacted Jemena, the operator of the gas pipeline adjacent to the A01 building site. According to their infrastructure protection officer, as long as a high-pressure gas pipeline is more than 3m away from any excavations for the site, Jemena does not have any concerns on the proposed development.

APPENDIX A – DOCUMENTS PROVIDED BY THE CLIENT, EMAIL CORRESPONDENCE WITH JEMENA



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THE UNIVERSITY OF
SYDNEY

Building Standards for Learning Space

The University of Sydney

DVC (Education), ICT & CIS

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Purpose

The Building Standards for Learning Space sets out the University's minimum requirements and principles for architects, consultants and contractors involved in planning, design, documentation, construction and management of learning spaces across the University of Sydney.

The purpose of these standards is to ensure new and refurbished building projects consistently meet the University's design and engineering objectives whilst being aesthetically creative, environmentally sustainable, flexible and cost-efficient to build, operate and maintain.

The University's vision of learning space for the 21st century is a student-centred, quality assured, seamless environment encompassing physical and virtual networks that promote collaborative, social and interactive learning and are inclusive of the needs of all staff and students. To achieve this, the Office of the DVC (Education), Campus Infrastructure Services (CIS) and Information Communication Technology (ICT) are leading a joint project on learning space standards. Standards for learning space (both physical and virtual) are shaped by evidence with data drawn through their use, student, staff and faculty evaluation and iterated through innovation. They are conceived from expectations of the educational function provided by the spaces and are based on best practice internationally.

The University Learning Space review and follow up investigations, subsequent annual feedback from faculties and international benchmarks with our international counterparts contribute to a student-centred and informed view of learning space at the University. Learning space will be developed and evaluated in response to the feedback we receive from students, staff and faculties with reference to the international sector.

These standards will continue to be updated through evaluation of existing facilities. These standards are based on the recently completed spaces in Charles Perkins Centre (CPC), the Australian Institute of Nanoscience (AIN) and the Abercrombie Business School Building.

Scope

These design standards describe minimum requirements for design, construction and maintenance of new and refurbished learning spaces owned, operated and managed by The University of Sydney. It applies to:

- 1) New building construction;
- 2) Refurbishment projects for both General Teaching Space (GTS) in both University owned and leased buildings; and
- 3) Facilities maintenance services.

The standards cover the minimum requirements for learning spaces for a range of formal and informal teachings spaces. They do not cover:

- All typologies of laboratories;
- Faculty Studios; and
- Ancillary Spaces.
- Research spaces

These standards apply to planners, architects, project managers, consultants, contractors, sub-contractors, tenants, managing agents, University staff and others involved in the design, construction and maintenance of existing, new and proposed University buildings and facilities.

Glossary of Terms

Acronym	Definition
ABS	Acrylnitril-Butadien-Styrol (protective edging to laminate tables)
AFFL	Above Finished Floor Level
AS	Australian Standards
AV	Audio Visual
CIS	Campus Infrastructure and Services
DALI	Digital Addressable Lighting Interface
DVC-E	Deputy Vice-Chancellor Education
EFTSL	Equivalent Full-Time Student Load
FFL	Finished Floor Level
FTE	Full-Time Equivalent
GFA	Gross Floor Areas
Go8	Group of Eight
GPO	General Power Outlet
GTS	General Teaching Space
HDR	Higher Degree by Research
ICT	Information Communication and Technology
NCC	National Construction Code
PC	Personal Computer
Rw	Weighted Sound Reduction Index
SoE	Standard Operating Environment (a standard implementation of an operating system and associated software)
STI	Speech Transmission Index
T&L	Teaching and Learning
TEFMA	Tertiary Education Facilities Management Association
UEM	University Economic Model
UFA	Useable Floor Area
USB	

Authorities and Responsibilities

These building standards are owned by CIS. They are approved and signed-off by the Director of CIS. The CIS Planning Team are responsible for maintaining these standards and keeping them up-to-date. The Standards must be reviewed biannually or as required.

Deviations from these standards should be referred to the DVC-Education, CIS and ICT for review and endorsement. Innovation projects will be reviewed on a case by case basis and be assessed after implementation on a 6 and 12-month basis. If successful, these projects may be integrated into these standards moving forward. This process will be covered in a separate document.

Technical Requirements

5.1 University Specific Planning Requirements

This document must be interpreted in conjunction with the following documents, including but not limited to:

- 1) University of Sydney Strategic Plan (2016-2020)
- 2) Learning and Teaching Policy and Procedures
- 3) Campus Improvement Plan (2014 – 2020)
- 4) Heritage Asset Management Strategy 2006 as amended
- 5) Faculty Management Strategy
- 6) Disability Action Plan (2013-2018)
- 7) All CIS Design Standards, including but not limited to:
 - a) CIS Accessibility Standard;
 - b) CIS Interior Fit out Standard
 - c) CIS Design Standard Heritage
 - d) The University of Sydney Sustainability Framework
 - e) Building Projects Approval and Management Policy
 - f) CIS Mechanical Services Standard
 - g) Building Management and Control Systems
 - h) CIS Electrical Services Standard
 - i) CIS Lighting Services Standard
 - j) CIS Security Services Standard
 - k) CIS Essential Fire Safety Measures Standard
 - l) CIS Hydraulic Services Standard
 - m) CIS Advanced Utilities Monitoring System Standard
- 8) All ICT Design Standards, including but not limited to:
 - a) Viewed Image Size for Audio Visual Installation Standard (Vis-à-vis)
 - b) AETM Audio Visual Guidelines – Tertiary Teaching Spaces, Edition 2
 - c) Audio Coverage Uniformity in Enclosed Listener Areas ANSI/INFOCOMM A102.01:2017
 - d) Audio Visual Structured Cabling Standard
 - e) ICT Communications Cabling Standard
 - f) Lighting Energy Sustainability Standard (LESS)

5.2 Functional Planning and Zoning

Learning spaces, in particular those used for large format teaching, are encouraged to be located on or near the ground floor. This is for ease of navigation and accessibility. Informal spaces and retail should be located near formal spaces, where possible, to encourage student use. See diagrams below.

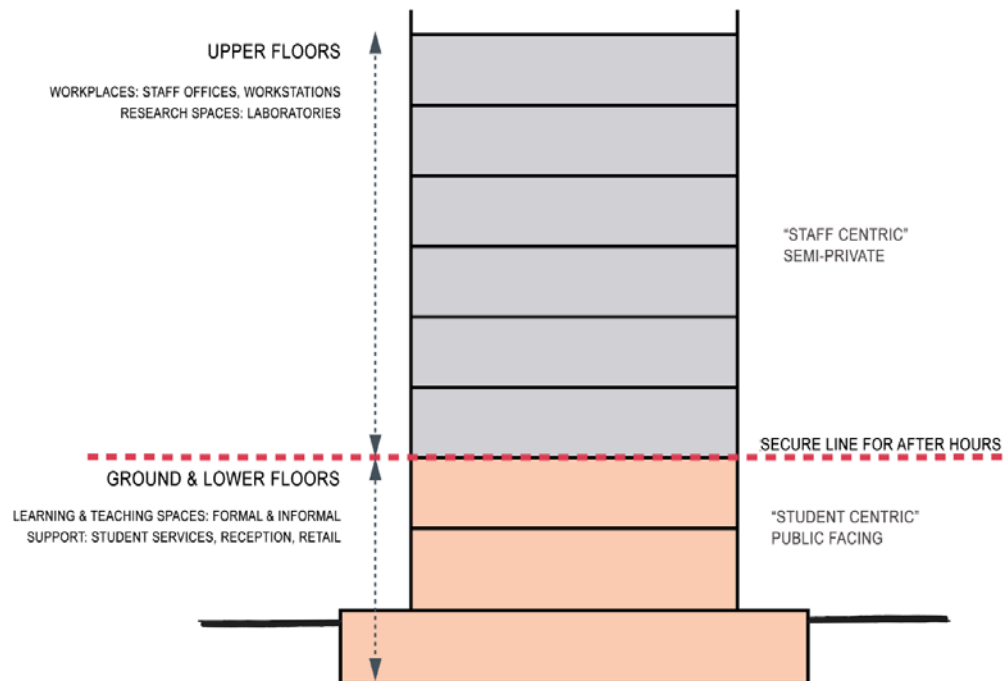


Figure 1: Section showing planning principles for buildings

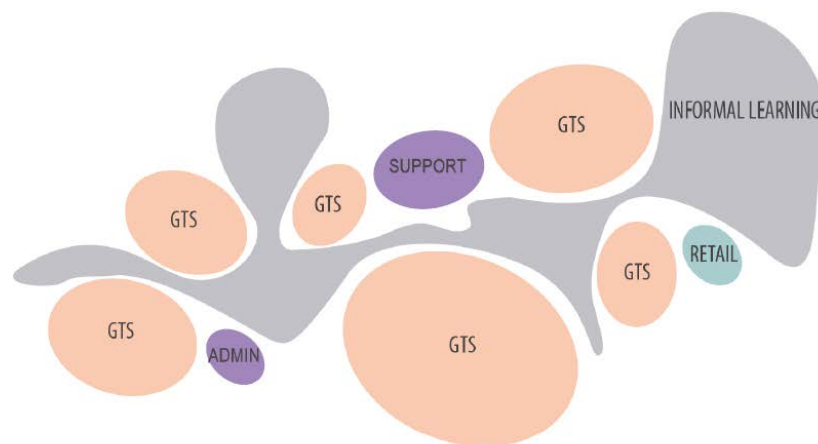


Figure 2 Indicative relationship between informal learning, formal space and ancillary support

Nomenclature

The University of Sydney owns and operates many learning spaces. As such, the definition and categorisation of these spaces is critical for planning, improvement and management purposes. Moreover, the naming convention ensures consistency in information management systems, such as those use for space registry and timetabling, and in information reported both internally and externally (to bodies such as Go8 and TEFMA).

Below is a list of the defined teaching and learning (T&L) spaces across the institution. For more information on the naming conventions used in the University Economic Model (UEM) purposes, please refer to **Campus Assist Online: Space Planning & Management – Editing Space Data User Guide** (<https://campusassist.sydney.edu.au/archibus/schema/ab-core/views/process-navigator/navigator-details.axvw>).

6.1 Formal Learning Spaces

T&L Category	T&L Code	Description
Lecture theatre	LT	A large room typically over 100 seats, seating in rows, with a raked floor and teaching computing designed for lecturing large cohorts of students.
Case study Lecture theatre	CSLT	A room with 100 seats or less, seating in a horseshoe shaped, with a tiered floor and teacher computing and AV suitable for small group discussions during lectures.
Seminar room	SR	Rooms typically with 90 seats or less, with seating on a flat floor with teacher computing.
Learning studio	LS	Rooms with 90 seats or less, with configurations of seating and student usable technologies. These studios offer pods providing different configurations of furniture and student computing to promote enquiry, collaboration and problem solving. Student computing pods are typically shared.
Computer teaching laboratory	CL	Rooms with 90 seats or less, with a desktop computer to student ratio of 1:1 on a flat floor.
Teaching Laboratory (Dry)	T_D_LAB TR_D_LAB	Rooms with 240 seats or less, with specialist equipment required for specialist teaching purposes, flat floor, and teacher computing. This is typically computing teaching lab with specialist equipment such as microscopes.
Teaching Laboratory (Wet)	T_W_LAB TR_W_LAB	Rooms with 240 seats or less, with specialist equipment required for specialist teaching purposes, flat floor, teacher computing, characterised by a high use of chemical or biological consumables and the use of sinks, safety showers, and various types of gas lines

6.2 Informal Learning Spaces

T&L Category	T&L Code	Description
HDR desk seats	HDR	Desks, lab benches, individual design areas, and other seats designed for higher degree research students to engage in their studies.
Learning Hubs	LH	Informal learning spaces to support interaction, creativity and reflection. These spaces incorporate elements defined by a standards-based approach: informal pods, individual, pair and group seating with computing and BYOD, banquette seating. These are shared.
Library Seats	LIB	Informal learning spaces located in the library.
Student common rooms	SCR	Small room provided for students to study in between classes. Not used for formal teaching. These spaces are typically not shared.

6.3 Room Signage for Learning Spaces

Room signage should for learning spaces conform to the University of Sydney Guidelines, refer to <http://sydney.edu.au/about/working-with-us/contractors.shtml>

At a minimum, an ID9 should be located adjacent to the handle side of the door to identify the room and allow space for A4 notifications to appear on the pin board as required. The name should appear as per the naming convention “Room Type Room Name (Legacy Name)”.

If there is hearing augmentation appropriate signage should be located at the entry to the room, and additional signage with infra-red as per AS1428.5. See combined sign pictured right.

If electronic signage is provided, it is in addition to fixed signage and not in lieu of.



Figure 3 Example of Room ID9 sign

Lecture Theatres

Lectures at the University are used to present research, ideas and course materials to students and the public. Modern lectures involve the presentation of various materials in various formats and may also include physical demonstrations and group or individual activities. Intelligibility of the lecturer's speech and legibility of the presentation materials is key to audience understanding of the topics presented. The audio and presentation of coursework lectures are captured for distribution and archiving.

Lecture theatres are large rooms with, typically, over 100 seats. They are designed for teaching large cohorts of students, with styles ranging from traditional teacher-led presentations to fully interactive discussion or activity-based sessions. The furniture in these rooms is usually fixed in a tiered arrangement to optimise sightlines. Bench furniture is often provided to offer more space for student notes and devices and optimise opportunities for collaboration. These venues are designed with consideration to sightlines, acoustics, lighting, and accessibility.

In addition, some facilities may need to be suitable for hosting public events. As such consideration needs to be given to the design of the adjacent spaces in terms of catering, securing zones and emergency planning.

7.1 General Provisions

Space Provision	Approximately 1.2 – 1.8 m ² UFA per student.
Furniture Provision – General	Fixed seats with numbering row and seat numbering (for ease of use and for maintenance). Seats to be a combination of at least 3 colours in a randomised pattern to enable easy replacement. Seats to be 550-600 mm centre to centre. Central aisles are less favoured. Tablet to be provided for writing/laptop use. If side mounted tablet it must be A3 so it is suitable for both right-hand and left-handed use.
Furniture Provision - Front of Room	Height adjustable lectern. Hard-wired. Designed to meet AS1428 Adjustable lectern chair – 5-star base Six whiteboards – movable up and down for presentation min each 2400mm wide by 1200mm high, located 900 mm 1000mm from the ground. Internet Connected (IP) Clock, bin.
Acoustics - Internal	Refer to AS/NZS 2107:2000 – Acoustics – recommended design sound levels and reverberation times for building interiors. See “Lecture Theatre – with speech reinforcement”. Electro-acoustic systems shall achieve an average STI of no less than 0.75 across the audience area.
Acoustic Separation	Lecture Theatre to circulation: Rw 50, LT to LT: Rw 50 Lt to Plant Room: Rw 55
Accessibility	Physical functions to meet accessibility requirements Push button actuator for all entrance doors 2 - 3% of spaces (spread between the front and rear) should be wheelchair spaces with adjacent companion seating. Power point is to be within reach zone (0.5 m AFFL) Clearance of 1.5 m around furniture. Signage to comply with CIS and AS1428 standards
FINISHES	
Floor	Tiered Floor Floors – to be textured with at least 3 colours to hide wear and tear. broadloom carpet preferred, Stairs and circulation to be hardwearing.

Walls	Walls to be acoustically treated as required Walls behind white-board to be painted in contrasting colour
Entry Door	Entry door to lecture theatre should have a vision panel or side light to enable vision into the room. Entry door should ideally not be located in presentation wall so that latecomers or amenity users cause minimum disruption. There must be an airlock with sufficient clearance for all lecture theatres.
Windows	Windows to have motorised blinds (black out and brown out), preferably not in presentation wall as light causes projection issues.
SERVICES	
Power	1 single GPO mounted every 2 seats (i.e. 1 GPO: 2 Students) 15 Amp Cleaning outlets to each aisle Blinds to be motorised – controlled from AMX and wall panel. To AV lectern and all field AV equipment (e.g. motorised projection screens, data projectors etc.). All cleaning outlets and motorised equipment (projection screens, projector lifters etc.) to be electrically isolated from AV lectern and other field AV equipment.
Security	Card reader to provide access to room / zone.
Data Provision	Wi-Fi to meet capacity, no data points provided for students. Powered data point for clocks at front of the room. Powered data point at entry for external signage.
Lighting	DALI dimmable, Multiple scenes required (beam-shaping spotlights and low spill lighting) Motion Sensors required to interface Lighting, AV and Mechanical Systems. LED tread lighting to stairs All lighting including all other maintainable electrical/dry fire devices to be on electric winches to lower the services to 1mm AFFL. Lighting to be wall and AMX controlled, timer to comply with BCA requirements. Refer to AV/CIS LESS and CIS lighting Standards
HVAC	Temperature: 23 °C +/-3 °C The design of the HVAC system needs to be in accordance with the AV design. For example, Location of diffusers should not interfere with the screen, and sufficient ventilation should be provided for projectors. Refer to CIS Mechanical Standard.

7.2 AV Requirements for Lecture Theatre – Large

Indicative Capacity	201-500 +
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via projector and motorised projection screen (16:9); Secondary Content Display – typically via projector and motorised projection screen (16:9); Interactive Preview Monitor – mounted on lectern. Include details of digital whiteboard.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Wireless Handheld Microphone; Additional Wireless Microphones (optional), 3.5 mm Aux Audio Input; Balanced Aux Audio In/Out Connection Plate; Hearing Augmentation.
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera; DVD; High Definition Camera (optional).

Control System	Touch-Panel Control System; Hardware Lecture Capture; Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone; Lighting Integration with AV System, Bio-Box with Separate AV Rack (if required); Digital Signage for Scheduling; Staging / Conference Facilities (optional).



Figure 4 – A31 Sydney Nanoscience Hub



Figure 5 - H70 ABS Lecture Theatre

7.3 AV Requirements for Lecture Theatre – Medium

Indicative Capacity	101-200
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via data projector and motorised projection screen (16:9); Interactive Preview Monitor – mounted on lectern.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Wireless Handheld Microphone; 3.5 mm Aux Audio Input; Balanced Aux Audio In/Out Connection Plate; Hearing Augmentation.
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera; High Definition Camera (optional).

Control System	Touch-Panel Control System; Hardware Lecture Capture; Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone for Assistance; Lighting Integration with AV System; Digital Signage for Scheduling (optional).

Case Study Lecture Theatre

Tiered teaching spaces that enable students to face each other, rather than just facing the lecturer. This promotes discussion-based interaction in a more intimate environment.

Suitable for lectures and group work. A room with typically 100 seats or less, seating in a horseshoe shape or cabaret style, with a raked floor and teaching computing suitable for small group discussions during lectures. Consideration must be given to the arc and geometry of the room.

8.1 General Provisions

Space Provision	Approximately 1.8 m² UFA per student.
Furniture Provision – General	Tables to be fixed with two rows per tier. Minimum 450mm deep. Tables to be curved to enable discussion. Seats to be 5-star swivel height adjustable on glides to enable students to work with table behind/in front of them. Central aisles are less favoured.
Furniture Provision - Front of Room	Height adjustable lectern Fixed lectern. Hard-wired. Designed to meet AS1428 Adjustable lectern chair – 5-star base with glides 4-6 whiteboards – movable up and down for presentation, located 1000 mm from the ground. Internet Connected (IP) Clock, bin.
Acoustics - Internal	Refer to AS/NZS 2107:2000 – Acoustics – recommended design sound levels and reverberation times for building interiors. See “Lecture Theatre – with speech reinforcement”. Electro-acoustic systems shall achieve an average STI of no less than 0.75 across the audience.
Acoustic Separation	Lecture Theatre to circulation: Rw 50, LT to LT: Rw 50; LT to Plant Room: Rw 55
Accessibility	Physical functions to meet accessibility requirements 2 - 3% of spaces should be wheelchair spaces with power within reach zone (0.5 m AFFL). Clearance of 1.5 m around furniture. Push button actuated entrance door for venues with more than 80 students. Signage to comply with CIS and AS1428 standards
FINISHES	
Floor	Floors – to be textured with at least 3 colours to hide wear and tear. Carpet tiles preferred. Stairs and circulation to be hardwearing.
Walls	Walls to be acoustically treated as required Walls behind white-board to be painted in contrasting colour Where appropriate whiteboards around the periphery of the room to foster group work.
Entry Door	Entry door to room should have a vision panel or side light to enable vision into the room.

	Entry door should ideally not be located in presentation wall so that latecomers or amenity users cause minimum disruption.
Timetable Screen	
Windows	Windows to have motorised blinds, preferably not in presentation wall.
SERVICES	
Power	1 single GPO mounted every 2 seats (i.e. 1 GPO: 2 Students) 15 Amp Cleaning outlets to each aisle Blinds to be motorised To AV lectern and all field AV equipment (e.g. motorised projection screens, data projectors etc.). All cleaning outlets and motorised equipment (projection screens, projector lifters etc.) to be electrically isolated from AV lectern and other field AV equipment.
Security	Card reader to provide access to room / zone.
Data Provision	Wi-Fi to meet capacity, no data points provided for students. Powered data point for clocks at front of the room. Powered data point at entry for external signage.
Lighting	DALI dimmable, Multiple scenes required (beam-shaping spotlights and low spill lighting) Motion Sensors required to interface Lighting, AV and Mechanical Systems. LED tread lighting to stairs. Refer to AV/CIS LESS and CIS lighting Standards Lighting to be wall and AMX controlled, timer to comply with BCA requirements.
HVAC	Temperature: 23 °C +/-3 °C, Refer to CIS Mechanical Standard

8.2 AV Requirements for Case Study Lecture Theatre

Indicative Capacity	Up to 100
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via data projector and motorised projection screen (16:9); Secondary Content Display (optional) – typically via data projector and motorised projection screen (16:9); Interactive Preview Monitor – mounted on lectern; Note: Typical room geometry for this type of space may require distributed video system to meet applicable standards.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Wireless Handheld Microphone; Room Microphones (optional), 3.5 mm Aux Audio Input; Balanced Aux Audio In/Out Connection Plate; Hearing Augmentation.
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera; High Definition Camera (optional).
Control System	Touch-Panel Control System; Hardware Lecture Capture; Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone for Assistance; Lighting Integration with AV System, Bio-Box with Separate AV Rack, Staging / Conference Facilities (optional); Digital Signage for Scheduling (optional).



Figure 6 F10 Law School Case Study Lecture Theatre

Seminar Rooms

Flat floor teaching spaces with mobile desks and chairs. The room can be set up for lecture mode or interactive mode. These venues are designed with consideration to visual and accessibility.

Classes providing intensive instruction on course material often serving as re-enforcement of concepts introduced during lectures. Tutorials and seminars provide opportunities for students to ask specific questions of their tutors and for students to collaborate on exercises and group projects. Tutorials often involve presentations by tutors and student groups

Increasingly seminar rooms are requiring more whiteboards around the periphery of space to enable problem-based learning (PBL) and related pedagogies. PBL is a student-centred instructional strategy in which students collaborate solve problems and reflect on their experiences typically in groups of 5. Students may require access to physical and or digital resources and require a means to collate and present their results.

9.1 General Provisions

Space Provision	Approximately 2.5-3.5 UFA per student.
Furniture Provision – Front of Room	Height adjustable lectern. Hard-wired. Designed to meet AS1428 Adjustable lectern chair – 5-star base Whiteboards to be across the full extent of the front teaching wall 1000mm AFFL, 1200mm high Internet Connected (IP) Clock, bin.
Furniture Provision – Student Chairs	Performance requirements for seminar chairs: - Chair should be lightweight and Stackable to be used with a trolley. - Need to be comfortable for sitting for 2-3 hours in class - Chair should have Mesh or similar back - Base to be sled or 4-legs with castors - GECA certified or equivalent, 10-year warranty
Furniture Provision – Student Tables	For approval of seminar rooms, the rooms must be shown laid out in group, lecture and exam mode. Minimum table sizes are as follows: - Tables for exams – 800 x 600 - Minimum tables for classrooms – 1200 x 600 - Preferred tables for classrooms – 1800 x 600 (can sit 3 in class or 2 for exams with a divider) Table finishes are to laminate – white, charcoal, oyster grey or beech. ABS edging can vary. Note – 10-15% of tables to be accessible.
Furniture Provision – Student whiteboards	Whiteboards need to be provided around the periphery of the room to facilitate group work for students in a ratio of 1 whiteboard per 5 students. These should be vitreous porcelain or colour-back glass. Size should be 1.5 m ² per whiteboard, these can be fixed to the walls, or on castors.
Acoustics – Internal	Refer to AS/NZS 2107:2000 – Acoustics – recommended design sound levels and reverberation times for building interiors. See “Lecture Room up to 50 seats” for seminar room small. See “Lecture Theatre – with speech reinforcement” for seminar room medium and large. Electro-acoustic systems shall achieve an average STI of no less than 0.75 across the audience area.

Acoustic Separation	Seminar Room to circulation: Rw 50, SR to SR: Rw 50
Accessibility	Physical functions to meet accessibility requirements Clearance of 1.5 m around fixed furniture.
Signage	Signage detailing category of space, room number, name (if relevant) and braille as per guidelines
Storage	To facilitate flexible use of the space, storage must be provided to rooms over 100 seats.
FINISHES	
Floor	Floors to be flat Floors – to be textured with at least 3 colours to hide wear and tear. Carpet tiles preferred
Walls	Walls to be acoustically treated as required Walls behind white-board to be painted in contrasting colour Whiteboards to be maximised around the periphery of the room to foster group work.
Entry Door	Entry door to room should have a vision panel or side light to enable vision into the room. Entry door should ideally not be located in presentation wall so that latecomers or amenity users cause minimum disruption.
Windows	Windows to have motorised blinds, preferably not in presentation wall as light causes projection issues.
Timetable screen	
SERVICES	
Power	GPOs to be mounted 700-900 AFFL (for accessibility) approximately every 3 lineal metres around the perimeter of the room under the whiteboards, To AV lectern and all field AV equipment (e.g. motorised projection screens, data projectors etc.). All cleaning outlets and motorised equipment (projection screens, projector lifters etc.) to be electrically isolated from AV lectern and other field AV equipment.
Security	Card reader to provide access to room / zone.
Data Provision	Wi-Fi to meet capacity, no data points provided for students. Powered data point for clocks at front of the room. Powered data point at entry for external signage.
Lighting	DALI dimmable, Multiple scenes required (beam-shaping spotlights and low spill lighting) Motion Sensors required to interface Lighting, AV and Mechanical Systems. Lighting to be wall and AMX controlled, timer to comply with BCA requirements. Refer to AV/CIS LESS and CIS lighting Standards
HVAC	Temperature: 23 °C +/- 3 °C Refer to CIS Mechanical Standard



Figure 7 Typical seminar room furniture



Figure 8 C13B Business School Seminar Room

9.2 AV Requirements for Seminar Room - Large

Indicative Capacity	Typically more than 61, will vary with the room geometry
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via data projector and motorised projection screen (16:9); Secondary Content Display – typically via data projector and motorised projection screen (16:9); Interactive Confidence Monitor – mounted on lectern.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Wireless Handheld Microphone; Wireless Handheld Microphone (optional); Room Microphone (optional); 3.5 mm Aux Audio Input; Hearing Augmentation.
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera; High Definition Camera (optional).
Control System	Touch-Panel Control System; Hardware Lecture Capture; Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone for Assistance; Lighting Integration with AV System; Digital Signage for Scheduling (optional). Blinds to be motorised

9.3 AV Requirements for Seminar Room – Medium

Indicative Capacity	Typically 21-60, will vary with the room geometry
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via data projector and motorised projection screen (16:9); Interactive Confidence Monitor – mounted on lectern.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Wireless Handheld Microphone (optional); Room Microphone (optional); 3.5 mm Aux Audio Input Hearing Augmentation.
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera; High Definition Camera (optional).

Control System	Touch-Panel Control System; Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone for Assistance; Lighting Integration with AV System; Digital Signage for Scheduling (optional). Blinds to be motorised (optional)

9.4 AV Requirements for Seminar Room – Small

Indicative Capacity	Up to 20, will vary with the room geometry
AV SYSTEM	
Video System	Primary Content Display – typically via interactive flat-panel display (16:9).
Audio System	Room Microphone, Hearing Augmentation (under review).
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; High Definition Camera (optional).
Control System	Push-Button Control System; Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone for Assistance; Credenza to House AV Equipment; Digital Signage for Scheduling (optional).

Learning Studios

Flat floor learning spaces that are designed for interactive group work, enhanced with collaborative technologies. Furniture is set in groups. There are 'Bollard – interactive – Pods' centred around fixed computers. There are also 'Collaborative Pods' which centre around wall mounted flat panel displays. These studios offer pods providing different configurations of furniture and student computing to promote enquiry, collaboration and problem solving with the use of technology. There are several types of pods in learning studios where the design is being shaped by approaches to teaching.

A venue where students may gather independently or with an instructor for scheduled classes and activities. Work may take place individually or in groups using collaboration oriented computer assets such as 'Pods' provided for student use. These spaces provide systems to distribute the instructor's computer display in sufficient detail to all students and provide a means for student's computer displays to be shared with the instructor or the rest of the class. These spaces are designed to foster collaboration with consideration for sightlines, acoustics, lighting, VDU glare, equipment integration and accessibility.

Unlike computer labs which have a 1:1 ratio of computers, learning studios have a sharing ratio of 1 computer shared by 2-6 students, with the preferred size being 4-6 to enable problem based learning.

10.1 General Provisions – apply previous teaching space comments

Space Provision	Approximately 3.5 UFA per student.
Furniture Provision - Front of Room	Fixed lectern. Hard-wired. Designed to meet AS1428 Adjustable lectern chair – 5-star base 4-6 whiteboards – movable up and down for presentation, located 900 mm from the ground. Internet Connected (IP) Clock, bin.
Furniture Provision – Student Chairs	Chairs to be either 'seminar Room' type chairs or 'computer lab' type chairs
Furniture Provision – Student Tables	Table size and cabling to suit technology provision. Collaborative pods: - Each pod contains two flexible tables, one with power supply located under screen, Indicative minimum sizing – 1200 mm x 600 mm for 1:4 pods or 1800 mm x 600 mm for 1:3 pods. -Each pod has a custom-built structure for PC and screen. Interactive pods: Each pod contains two fixed tables, 1500 mm x 750 mm for four people and sled chairs. - Each pod has wall space or a custom-built structure for PC and screen. Bollard pods: round table designed and built. Approximate diameter 1600 mm for six people. Tablet pods: round table designed and built. Approximate diameter 1600 mm for six people. Table finishes are to laminate – white, charcoal, oyster grey or beech. ABS edging can vary. Note – 10-15% of tables to be accessible.
Acoustics - Internal	Refer to AS/NZS 2107:2000 – Acoustics – recommended design sound levels and reverberation times for building interiors. See "Lecture Theatre – with speech reinforcement". Electro-acoustic systems shall achieve an average STI of no less than 0.75 across the audience area.
Acoustic Separation	LS to LS: Rw 50

Accessibility	Physical functions to meet accessibility requirements Push button to entrance door for rooms >80 capacity Note power to be within reach zone (0.5 m AFFL). Clearance of 1.5 m around fixed furniture.
Signage	Signage detailing category of space, room number, name (if relevant) and braille as required.
Storage	To facilitate flexible use of the space, storage must be provided to rooms over 100 seats.
FINISHES	
Floor	Floors to be flat Floors – to be textured with at least 3 colours to hide wear and tear.
Walls	Walls to be acoustically treated as required Walls behind white-board to be painted in contrasting colour Whiteboards to be maximised around the periphery of the room to foster group work.
Entry Door	Entry door to room should have a vision panel or side light to enable vision into the room. Entry door should ideally not be located in presentation wall so that latecomers or amenity users cause minimum disruption.
Windows	Windows to have motorised blinds, preferably not in presentation wall as light causes projection issues.
SERVICES	
Power	Ratio of 1 GPO per 2 students, located under screen at 700-900 mm AFFL Blinds to be motorised To AV lectern and all field AV equipment (e.g. motorised projection screens, data projectors etc.). All cleaning outlets and motorised equipment (projection screens, projector lifters etc.) to be electrically isolated from AV lectern and other field AV equipment.
Security	Card reader to provide access to room / zone.
Data Provision	Wi-Fi to meet capacity, no data points provided for students. Powered data point for clocks at front of the room. Powered data point at entry for external signage.
Lighting	DALI dimmable, Multiple scenes required (beam-shaping spotlights and low spill lighting) Motion Sensors required to interface Lighting, AV and Mechanical Systems. Lighting to be wall and AMX controlled, timer to comply with BCA requirements. Refer to AV/CIS LESS and CIS lighting Standards.
HVAC	Temperature: 23 °C +/-3 °C. Refer to CIS Mechanical Standard

10.2 Collaborative pods

These pods support collaboration and engaged enquiry in slightly larger groups. Student to computer ratios are typically 4:1 or 6:1, with a large screen at the end of a table. The design of this solution is for groups of students to work to solve problems, work on cases and project-based tasks which involve research and discussion. Examples can be found on level 2, PNR building, Darlington campus.



Figure 9: J03 PNR Learning Studio

10.3 Bollard Pods

These pods support collaboration and engaged enquiry in pairs or trios with intensive computing. Student to computer ratios are typically 2:1 or 3:1. These spaces can be used in numerous approaches to teaching, particularly those that involve collaborative work on technology mediated objects. Examples can be found on level 2, PNR building, Darlington campus.

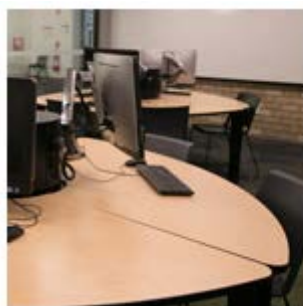


Figure 10 - J02 PNR - Learning Studio (Bollard Pods)

10.4 AV Requirements for Learning Studio

Indicative Capacity	Typically more than 60, will vary with the room geometry
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via data projector and motorised projection screen (16:9); Secondary Content Display – typically distributed via student displays; Interactive Preview Monitor – mounted on lectern.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Wireless Handheld Microphone (optional); Room Microphone (optional), 3.5 mm Aux Audio Input; Balanced Aux Audio In/Out Connection Plate; Hearing Augmentation.
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera; High Definition Camera (optional).
Control System	Touch-Panel Control System; Hardware Lecture Capture (optional); Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone for Assistance; Lighting Integration with AV System; Bio-Box with Separate AV Rack (if required); Digital Signage for Scheduling.

Computer Laboratories

A venue for instruction in and working on computer systems and software. Computer teaching labs have some means of presenting an instructor's computer display to all students in sufficient detail. Computer installations typically require special furniture for security and safe cable management of the computer assets. These spaces are designed with consideration to sightlines, visual acuity, thermal regulation, data and electrical cabling, VDU glare reduction, security and accessibility.

Rooms with 90 seats or less, with a desktop computer to student ratio of 1:1 on a flat floor. When designing computer labs, key to their layout is considering the pedagogy. At the University, the goal is for collaborative peer learning. As such the preference is for tables to be arranged into clusters of 4-6 to encourage active conversation in teams.



Figure 11: H70 Abercrombie Business School Room 1090

11.1 General Requirements

Space Provision	Approximately 3.5 UFA per student.
Furniture Provision - Front of Room	Height adjustable lectern. Hard-wired. Designed to meet AS1428 Adjustable lectern chair – 5-star base Internet Connected (IP) Clock, bin. Whiteboards to be across the full extent of the front teaching wall 1000mm AFFL, 1200mm high
Furniture Provision – Student Chairs	Performance requirements for computer laboratories: - Chair should be height adjustable, no arms - Need to be comfortable for sitting for 2-3 hours in class - Chair should have Mesh or similar back - Base to be 5-star base on glides - GECA certified or equivalent, 10-year warranty
Furniture Provision – Student Tables	Minimum table sizes are 750 x1500 for two students. This size would increase for dual screen. Cable management required. Table finishes are to laminate – white, charcoal, oyster grey or beech. ABS edging can vary. Note – 10-15% of tables to be accessible.

Acoustics - Internal	Refer to AS/NZS 2107:2000 – Acoustics – recommended design sound levels and reverberation times for building interiors. See “Computer Rooms - Teaching”. Electro-acoustic systems shall achieve an average STI of no less than 0.75 across the audience area.
Acoustic Separation	LS to LS: Rw 50
Accessibility	Physical functions to meet accessibility requirements Push button to entrance door Note power to be within reach zone (0.5 m AFFL). Clearance of 1.5 m around furniture. Signage detailing category of space, room number, name (if relevant) and Braille equivalent for these.
Signage	To facilitate flexible use of the space, storage must be provided to rooms over 100 seats.
FINISHES	
Floor	Floors to be flat Floors – to be textured with at least 3 colours to hide wear and tear. Carpet tiles preferred.
Walls	Walls to be acoustically treated as required Walls behind white-board to be painted in contrasting colour Whiteboards to be maximised around the periphery of the room to foster group work.
Entry Door	Entry door to room should have a vision panel or side light to enable vision into the room. Entry door should ideally not be located in presentation wall so that latecomers or amenity users cause minimum disruption.
Windows	Windows to have motorised blinds (brown out and black out blinds), preferably not in presentation wall as light causes projection issues.
SERVICES	
Power	Ratio of 1 GPO per 2 students, located under screen at 700-900 mm AFFL To AV lectern and all field AV equipment (e.g. motorised projection screens, data projectors etc.). All cleaning outlets and motorised equipment (projection screens, projector lifters etc.) to be electrically isolated from AV lectern and other field AV equipment.
Security	Card reader to provide access to room / zone.
Data Provision	Wi-Fi to meet capacity, no data points provided for students. Powered data point for clocks at front of the room. Powered data point at entry for external signage.
Lighting	DALI dimmable, Multiple scenes required (beam-shaping spotlights and low spill lighting) Motion Sensors required to interface Lighting, AV and Mechanical Systems. Lighting to be wall and AMX controlled, timer to comply with BCA requirements. Refer to AV/CIS LESS and CIS lighting Standards
HVAC	Temperature: 23 °C +/-3 °C. The heat load of the computers must be factored into the HVAC design. Refer to CIS Mechanical Standard

11.2 AV Requirements for Computer Lab – Large

Indicative Capacity	Typically more than 61, will vary with the room geometry
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via data projector and motorised projection screen (16:9); Secondary Content Display – typically distributed via student displays; Interactive Confidence Monitor – mounted on lectern.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Wireless Handheld Microphone; Hearing Augmentation.
Program Sources	Specialised Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera (optional); Specialist Equipment Input (optional); High Definition Camera (optional).
Control System	Touch-Panel Control System; Hardware Lecture Capture (optional); Software Lecture Capture; Lecture Capture Status Indicator.
General	Telephone for Assistance; Lighting Integration with AV System; Digital Signage for Scheduling.

11.3 AV Requirements for Computer Lab – Medium

Indicative Capacity	Typically 20-60, will vary with the room geometry
Lectern	Equipment rack for lectern-based components with necessary connection plates and cables See below AV requirements, refer to Appendix for more information.
AV SYSTEM	
Video System	Primary Content Display – typically via data projector and motorised projection screen (16:9); Secondary Content Display (optional) – typically distributed via student displays; Interactive Confidence Monitor – mounted on lectern.
Audio System	Lectern Microphone; Wireless Lapel Microphone; Hearing Augmentation.
Program Sources	Specialised Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; Document Camera (optional); Specialist Equipment Input (optional); High Definition Camera (optional).
Control System	Touch-Panel Control System; Software Lecture Capture (ad-hoc); Lecture Capture Status Indicator.
General	Telephone for Assistance; Lighting Integration with AV System; Digital Signage for Scheduling.

Teaching Laboratory (Wet)

Shared flat floor room, often with multiple teaching points and specialist equipment required for disciplinary purposes, characterised by a high use of consumables. Incorporates teacher and student computing. Management processes are aligned with the shared lab model.

The planning of these spaces needs to consider the level of physical containment required (PC1 or PC2); and if provision needs to be made for a later conversion.



Figure 12: D17 CPC PC2 Lab student bench (left), and teaching point (right)

12.1 General Requirements

Space Provision	Approximately 4-6.5 UFA per student.
Furniture Provision - Front of Room	Fixed lectern. Hard-wired. Designed to meet AS1428 Adjustable lectern chair – 5-star base 4-6 whiteboards – movable up and down for presentation, located 900 mm from the ground. Internet Connected (IP) Clock, bin.
Furniture Provision – Student Chairs	Performance requirements for laboratory chairs - Swivel Stool should be height adjustable, no arms consideration for PC1/PC2 - Base to be 5-star base on glides - GECA certified or equivalent, 10 year warranty
Furniture Provision – Student Tables	Approximate bench size 1500 mm x 750 mm bench space allocated per student. Table finishes are to be suitable for PC2 provisions Note – 10-15% of tables to be accessible.
Storage	Portable storage cupboards below student benches for lab equipment Student lockers 1:1 provision.
Acoustics - Internal	Refer to AS/NZS 2107:2000 – Acoustics – recommended design sound levels and reverberation times for building interiors. See “Computer Rooms - Teaching”. Electro-acoustic systems shall achieve an average STI of no less than 0.75 across the audience area.
Acoustic Separation	LS to LS: Rw 50
Accessibility	Physical functions to meet accessibility requirements Push button to entrance door Clearance of 1.5 m around furniture.

Signage	Signage detailing category of space, room number, name (if relevant) plus braille.
FINISHES	
Floor	Floors to be flat Floors – to be vinyl with at least 3 colours to hide wear and tear.
Walls	Walls to be acoustically treated as required Walls behind white-board to be painted in contrasting colour Whiteboards to be maximised around the periphery of the room to foster group work.
Entry Door	Entry door to room should have a vision panel or side-light to enable vision into the room. Entry door should ideally not be located in presentation wall so that latecomers or amenity users cause minimum disruption.
Windows	Windows to have motorised blinds, preferably not in presentation wall as light causes projection issues.
SERVICES	
Power	Ratio of 1 GPO per 2 students Blinds to be motorised To AV lectern and all field AV equipment (e.g. motorised projection screens, data projectors etc.). All cleaning outlets and motorised equipment (projection screens, projector lifters etc.) to be electrically isolated from AV lectern and other field AV equipment.
Security	Card reader to provide access to room / zone.
Data Provision	Wi-Fi to meet capacity, no data points provided for students. Powered data point for clocks at front of the room. Powered data point at entry for external signage.
Lighting	Dali dimmable, Multiple scenes required (beam-shaping spotlights and low spill lighting) Refer to CIS Lighting Standard
HVAC	Temperature: 23 °C +/-3 °C Refer to CIS Mechanical Standard
Specialist Services as required	Oxygen, nitrogen and other gases as required. Glove holders, paper towel holders, emergency shower and eye wash station, hand wash, sink with hot and cold water (approximately 1 per 60 students).
Safety Provisions	To comply with standards - Fire Blanket, Eye wash, Fire extinguisher, First Aid Kit as required.

12.2 AV Requirements for Wet Laboratory (Teaching)

To be assessed on case-by-case basis dependant on user requirements. The AV solution in this space type varies according to teaching modes, flexibility requirements, environment and specialist needs, hence a full needs-assessments is required. These spaces often require a separate, centralised AV rack with three-sided access, 800 mm clearance.

Informal Learning Spaces

Informal learning spaces allow students to engage in self-guided study and coursework as individuals or collaborate in small groups. These spaces support interaction, creativity and reflection. Students make use of physical texts and resources and digital resources accessed via their own devices or University provided computer assets. Informal learning spaces can be located along a circulation path, or incorporated into a venue such as a learning hub, library or student common room.

Informal learning spaces incorporate elements defined by a standards-based approach: informal pods, individual, pair and group seating with computing and BYOD, banquette seating, express technology areas, help desks, kitchenette, printing facilities and back office provision. These are shared spaces.

A venue where students may gather independently in groups or individually to study and work on group assignments. These spaces provide a convenient, comfortable and sheltered space to access virtual learning resources. Student use computing may be provided in the form of individual computers or 'Pods' for group work. Wireless network and power outlets are provided for student owned devices. Custom furniture is often provided to support various modes of study or collaboration. Informal learning spaces are designed with consideration for comfort, acoustics, security and accessibility.

12.3 General Provisions

Space Provision	Approximately 2.5-3.5 UFA per student.
Furniture Provision – Student Chairs	Performance requirements for chairs: need to be comfortable for sitting for 2-3 hours; Base to be sled or on castors; GECA certified or equivalent, 10-year warranty
Furniture Provision – Student Tables	Table finishes are to laminate – white, charcoal, oyster grey or beech. ABS edging can vary. Note – 10-15% of tables to be accessible.
Furniture Provision – Student whiteboards	Whiteboards need to be provided around the room to facilitate group work for students in a ratio of 1 whiteboard per 10 students. These should be vitreous porcelain or colour-back glass. Size should be 1.5 m ² per whiteboard, these can be fixed to the walls, or on castors.
Accessibility	Physical functions to meet accessibility requirements There should be 10 - 15% of desks allocated to accessibility, including height adjustable desks. Push button actuated entrance door for venues with more than 80 students Clearance of 1.5 m around fixed furniture.
Signage	Signage detailing category of space, room number, name (if relevant) and braille as per guidelines
FINISHES	
Floor	Floors to be flat Floors – to be textured with at least 3 colours to hide wear and tear.
Walls	Walls to be acoustically treated as required Walls behind white-board to be painted in contrasting colour
Entry Door	Entrance door should have a vision panel or side light to enable vision into the room.
Windows	Natural light is encouraged into this space.
SERVICES	
Power	GPOs to be provided to suit room layout, plus cleaning point.
Security	Card reader to provide access to room / zone.
Data Provision	Wi-Fi to meet capacity, no data points provided for students. Powered data point for clocks in room.

Lighting	Refer to AV/CIS LESS and CIS lighting Standards.
HVAC	Temperature: 23 °C +/-3 °C Refer to CIS Mechanical Standards.

12.4 Informal Open Meeting Space

Detail	This area provides power and networking in all areas. The purpose is for students to bring their own devices as technology provision is minimal or none. Flexible and fixed seating and tables are provided to support this. Some of these areas are intended for short-term use. Approximately 60% of a total learning hub is dedicated to BYOD.
Indicative Capacity	This space consists of various lengths of benches and banquettes. Students determine group size in these areas.
ICT provision	No computers provided in this area.
Power	Fixed tables provide power, flexible tables do not although various floor boxes are provided. Each fixed seat has one or two power points.
Data Provision	All spaces have access to wireless access points, the banquettes have data points as well.
Space Provision	Capacity is determined at 2 m ² per person.
Furniture Provision	Tables are round, hexagonal, curved or slide up laptop tables. Chair and table options are flexible: portable stools, multi-purpose chairs, standard, banquette, high bar stool or portable stools. Banquettes are provided with power and upholstered with heavy duty vinyl. Banquettes must be designed to enable sectional replacement/ re-upholstery. Bean bags of commercial grade with heavy duty vinyl are provided. Tables that are joinery range in size: approximately 750 mm x 750 mm per student, 1000 mm x 1500 mm, or slide-up laptop tables 500 mm x 350 mm.

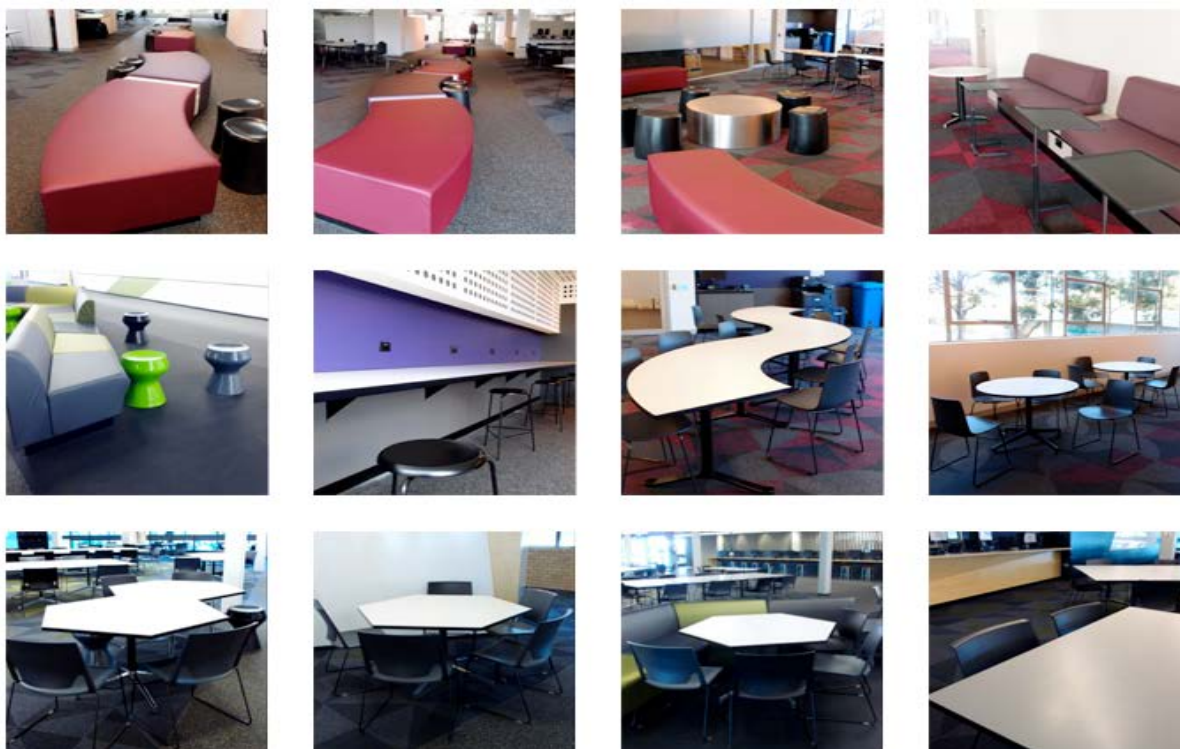


Figure 13 - F07 Carslaw Learning Hub

12.5 Informal Learning Lounge

Detail	Quiet reading, discussion and laptop work
Indicative Capacity	This space consists of various lengths of benches and banquettes. Students determine group size in these areas. Capacity is calculated at 2-3m ² per student.
ICT provision	No computers provided in this area.
Power	Fixed tables provide power, flexible tables do not although various floor boxes are provided. Each fixed seat has one or two power points.
Data Provision	All spaces have access to wireless access points, the banquettes have data points as well.
Space Provision	Capacity is determined at 2 m ² per person.
Furniture Provision	Lounges settings with side tables or coffee tables combined single ottomans or arm chairs Banquettes are provided with power and upholstered with heavy duty vinyl. Banquettes must be designed to enable sectional replacement/ re-upholstery. Tables that are joinery range in size: approximately 750 mm x 750 mm per student, 1000 ,mm x 1500 mm, or slide-up laptop tables 500 mm x 350 mm.

12.6 Informal Pod

Detail	Semi-enclosed meeting space.
No. of People	Number of people in each pod ranges from six to eight. Capacity is calculated at 2 m ² per student.
Power	Each table has a floor box (for computer) and two double power points (integrated into the table). Alternately, this can be incorporated into the wall adjacent to the table.
Data Provision	Approximately 2.2% of the learning hub is dedicated to individual group study. Capacity is determined at 2m ² per person. Each table has one data point.
Space Provision	≈15 m ² per pod
Furniture Provision	Tables are preferred to sit 6 people, be trapezoidal typically 2.8 x 1.4 m; these tables can be movable and the power located in the wall and/or under the screen Chairs can be portable stools or multi-purpose chairs.
AV SYSTEM	
Video System	Primary Content Display – typically via interactive flat-panel display (16:9).
Audio System	Room Microphone (optional)
Program Sources	Specialised SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; High Definition Camera (optional).
Control System	Push-Button Control System
General	Credenza to House AV Equipment this should be located adjacent/under the screen and be fixed; Digital Signage for Scheduling (optional).

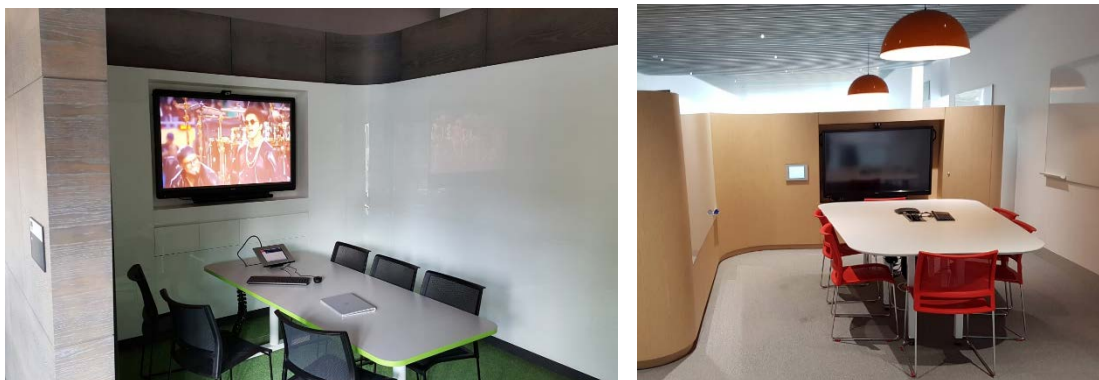


Figure 14 - Informal Pods at H70 ABS and A31 SNH

12.7 Student Meeting Room - Small to Medium

Detail	Bookable Group meeting room
Indicative Capacity	Small 2 – 6, Medium 7 - 14
Entrance	Viewing panel into room for safety; Room Signage
Power	Power in wall or below AV screen; additional power to peripheral walls
Data Provision	All spaces have access to wireless access points, the banquettes have data points as well.
Space Provision	Capacity is determined at 2m ² per person.
Furniture Provision	Table and chairs to suit capacity.
AV SYSTEM (if required)	
Video System	Primary Content Display – typically via interactive flat-panel display (16:9).
Audio System	Room Microphone, Hearing Augmentation (under review).
Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; High Definition Camera.
Control System	Push-Button Control System; Software Lecture Capture.
General	Telephone for Assistance; Credenza to House AV Equipment this should be located adjacent/under the screen and be fixed; Digital Signage for Scheduling.

12.8 Student Meeting Room - Large

Detail	Bookable Group meeting room
Indicative Capacity	More than 15
Entrance	Viewing panel into room for safety; Room Signage
Power	Power in wall or below AV screen; additional power to walls around room; floor box under table
Data Provision	All spaces have access to wireless access points, the banquettes have data points as well.
Space Provision	Capacity is determined at 2 m ² per person.
Furniture Provision	Table and chairs to suit capacity
AV SYSTEM	
Video System	Primary Content Display – typically via flat-panel display (16:9);
Audio System	Room Microphone, Wireless Lapel Microphone (optional); Hearing Augmentation.

Program Sources	Standard Teaching SoE PC with DVD Drive; HDMI Laptop Input; Network Presentation Gateway; High Definition Camera.
Control System	Touch-Panel Control System; Software Lecture Capture.
General	Telephone for Assistance; Lighting Integration with AV System, Credenza to House AV Equipment; Digital Signage for Scheduling.

12.9 Informal Research Seating

Detail	These spaces consist of individual seats, pairs, groups of six, eight, 10 or 12, or various lengths of benches.
Indicative Capacity	These desks are designed for one or two people per space. Some are in rows, others are in tables seating six, eight, 10 or 12 people. Capacity is calculated at 2 m ² per student.
ICT provision	Minimum of 50% ICT provision.
Power	Each seat has one double power point or two double power points.
Data Provision	All spaces have access to wireless access points. All of these spaces have one data point.
Space Provision	Approximately 32.6% of the learning hub is dedicated to individual/pair research. Capacity is determined at 2 m ² per person.
Furniture Provision	Desks range in size (depending on number of students); each desk provides a minimum of 750 mm x 750 mm. Some desks have dividers, some are carrels. Chairs are multi-purpose chairs, a high bar stool or a bench chair. Chairs must be provided to suit capacity. Card reader to provide access to room.



Figure 15 - J02 PNR Learning Hub

12.10 Kitchenette

Detail	Smaller kitchenette with facilities to make tea and reheat food for student amenity.
No. of People	n/a
ICT provision	None
Power	Double GPO for microwave
Data Provision	All spaces have access to wireless access points
Space Provision	15 m ²
Furniture Provision	One sink, one chilled water and boiling water tap with caravan sink under, two cupboards, two microwaves
Accessibility	Kitchenette must comply with AS1428
Other	Vending machine space and service provisions must be provided.



Figure 16 - J02 PNR Learning Hub

12.11 Print Areas

Detail	This area is for printers and photocopiers.
No. of People	N/A
ICT provision	Printers are provided - colour, duplex MFDs for A4 and A3 printing. Print release station beside each printer which supports "follow me" and wireless printing.
Power	None for student devices.
Data Provision	All spaces have access to wireless access points.
Space Provision	6.00 m ² ; these should be integrated into the floorplate rather than a separate print rooms for safety and security.

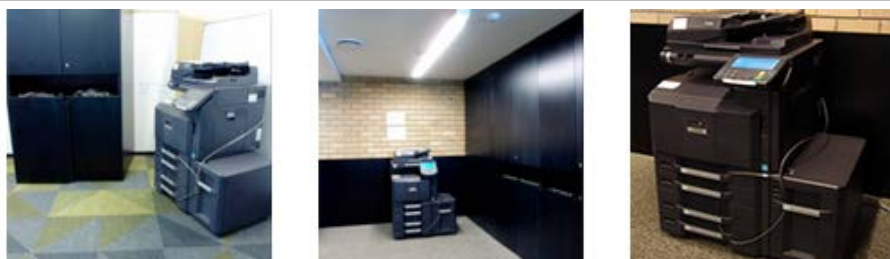


Figure 17 - J02 PNR Learning Hub

12.12 Staffed Help Point

Detail	In some informal learning spaces there is a requirement for staff to be stationed at help point.
No. of People	2-3 staff
ICT provision	100% computer provision. ALNIP signage above the desks is displayed on a 46" screen.
Power	The desk has six double power points altogether.
Data Provision	All spaces have access to wireless access points. The desk has six double data points altogether.
Space Provision	3.00 m ²
Furniture Provision	Bench is joinery, height adjustable chairs
Accessibility	Must be designed to be met AS1428

12.13 Outdoor Areas

Detail	This area provides power and networking in some areas. The purpose is for students to bring their own devices as there is no technology provision. Flexible and fixed seating and tables are provided to support BYOD and collaboration.
ICT provision	No computers provided in this area.
Power	There is power provision at a ratio of approximately 1:6

Data Provision	All spaces have access to wireless access points.
Space Provision	Capacity is calculated at 4 m ² per student.
Furniture Provision	Tables are round or hexagonal.
Accessibility	Chairs and tables are flexible, stools are portable, also fixed benches.



Figure 18- F07 Carslaw Courtyard

12.14 HDR Shared Desks

Desks, lab benches, individual design areas, and other seats designed for higher degree research students to engage in their studies. These desks are shared, at varying ratios based on Faculty allocation

Detail	This area provides power and networking in all areas. The space is designed for dedicated use by HDR students.
No. of People	This space consists of standard HDR benches.
ICT provision	One computer is provided per student/desk. One printer is provided per space.
Power	All tables have power – four power points for each desk.
Data Provision	All spaces have wireless access points and two data points at each desk.
Space Provision	Capacity is calculated at 4 m ² per student; desks are not allocated.
Furniture Provision	Tables are 1200 mm x 750 mm and should be numbered. All chairs are height adjustable and ergonomically designed for long periods of use. Ancillary meeting space and kitchenette to in proximity to facilitate informal meetings.
Storage	Lockers provided - approximately 3 x capacity.
Accessibility	There should be 10 - 15% of desks allocated to accessibility, with height-adjustable desks. Signage to comply with CIS as AS1428 standards.
Security	Card reader to provide access to room.

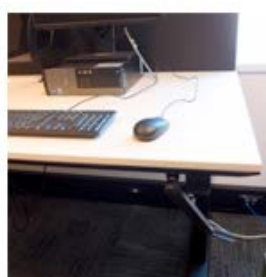
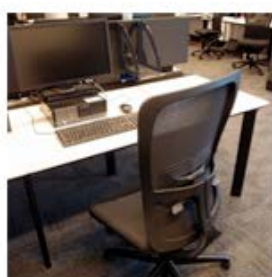


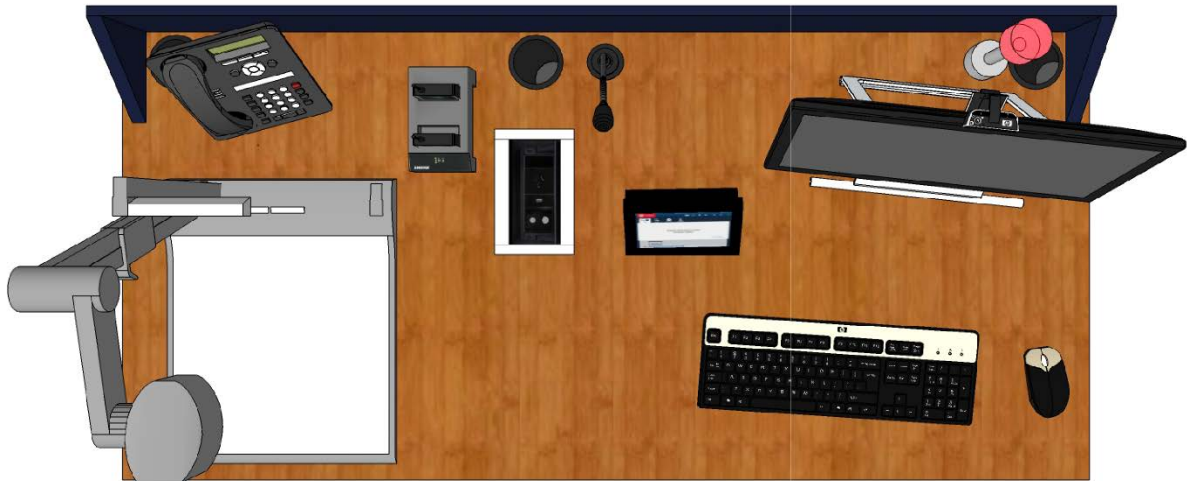


Figure 19 - A21 Wallace HDR Hub

Appendices

13.1 Typical Lectern Equipment

For detailed design of lecterns, please contact AV.



Note – all lecterns to allow for accessible circulation to comply with AS1428 (minimum 1500 mm).
Lecterns are available with equipment rack on either left or right side – where a lectern is fixed near a wall, the equipment rack shall be on the side of the lectern, closest to the wall.

13.2 AV Functionality Matrix

See below matrix for high-level AV technology briefing. Contact AV Engineering for more information.

	Small Seminar Room	Medium Seminar Room	Large Seminar Room	Medium Lecture Theatre	Large Lecture Theatre	Case Study Lecture Theatre	Learning Studio	Medium Computer Lab	Large Computer Lab	Small Meeting Room	Large Meeting Room	Informal Pod
Program Sources												
Standard Teaching SoE PC with DVD Drive	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N
Specialised SoE PC with DVD Drive	N	N	N	N	N	N	Y	Y	N	N	Y	
HDMI Laptop Input	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Network Presentation Gateway	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Document Camera	N	Y	Y	Y	Y	Y	Y	O	O	N	N	N
Bluray	N	N	N	N	N	N	N	N	N	N	N	N
Specialist Equipment Input	N	N	N	N	O	O	O	O	O	N	N	N
High Definition Camera(s)	O	O	O	O	O	O	O	O	O	Y	Y	N
Video System												
Primary Content Display	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Secondary Content Display	N	N	Y	N	Y	O	Y	O	Y	N	N	N
Interactive Lectern Preview Monitor	N	N	N	Y	Y	Y	Y	N	N	N	N	N
Interactive Lectern Confidence Monitor	N	Y	Y	N	N	N	Y	Y	N	N	N	N
Audio System												
Lectern Microphone	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Wireless Lapel Microphone	N	Y	Y	Y	Y	Y	Y	Y	Y	N	O	N
Wireless Handheld Microphone	N	O	O	Y	Y	Y	O	N	Y	N	N	N
Additional Wireless Microphones	N	N	N	N	O	N	N	N	N	N	N	N
Room Microphones	Y	O	O	N	N	O	O	N	N	Y	Y	N
3.5mm Aux Audio Input	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N
Balanced Aux Audio In/Out Connection Plate	N	N	N	Y	Y	Y	Y	N	N	N	N	N
Hearing Augmentation	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Control System												
Push Button Control System	Y	N	N	N	N	N	N	N	N	Y	N	Y
Touch-Panel Control System	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N
Software Lecture Capture	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	
Hardware Lecture Capture	N	N	Y	Y	Y	Y	O	N	O	N	N	N
General												
Telephone (For Assistance)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lighting Integration With AV System	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N
Staging/Conference Facilities	N	N	N	N	O	N	N	N	N	N	N	N
Lectern With Integrated AV Rack	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Credenza To House Equipment	Y	N	N	N	N	N	N	N	N	N	Y	N
Bio-Box With Separate AV Rack	N	N	N	N	O	N	O	N	N	N	N	N
Digital Signage for Scheduling	O	O	O	O	Y	O	Y	Y	Y	Y	Y	O

13.3 AV Descriptions

13.3.1 Program Sources

Standard Teaching SoE PC with DVD Drive

Presentation computers are provided in teaching spaces to give access to and presentation of digital resources including prepared presentations, web sites, images, videos, software and other texts. The presentation computer shall provide a standard operating environment with access to internet and network resources, portable storage and an agreed standard catalogue of software. A DVD drive is provided to allow for playback of video material stored on optical disc formats (DVD).

Specialised SoE PC with DVD Drive

Presentation computers are provided in teaching spaces to give access to and presentation of digital resources including prepared presentations, web sites, images, videos, software and other texts. The presentation computer shall provide a standard operating environment with access to internet and network resources, portable storage and an agreed specific catalogue of software. A DVD drive is provided to allow for playback of video material stored on optical disc formats (DVD).

HDMI Laptop Input

Many presenters prefer to present from their own personal devices. A means to present audio and video from personal laptops, tablets and other devices shall be provided. An HDMI connection point is provided based on maximising compatibility and connection quality to the devices in use.

Network Presentation Gateway

A Network Presentation Gateway is a convenient tool to allow users to connect to the AV system wirelessly via their own devices, such as laptops, tablets, phones and student computers within a space. In this way, any users' digital media can be presented via the AV system for display, comparison, recording and streaming. These devices also typically support multiple user connections at the same time for improved collaboration.

Document Camera

Document Cameras (also referred to as Visualisers) are an improved replacement for obsolete overhead transparency projectors. Visualisers can present a variety of document formats and physical objects in full colour and high detail from a fixed position.

DVD

DVD players are provided to allow for the easy playback of video material.

Specialist Equipment Input

A variety of specialist equipment is used in a range of disciplines and it is sometimes necessary to incorporate interfaces for this equipment into teaching space presentation systems. Examples include microscopes, video cameras, medical imaging devices, signal generators and musical instruments.

High Definition Camera

As education and collaboration extend further into online forms of communication via lecture-capture, web and video conferencing, teaching and meeting venues must be equipped with appropriate cameras to allow video capture of people for display at the far-end or for ad-hoc recordings. A camera may be required for presenters, the audience, or both.

13.3.2 Video System

Primary Content Display

Primary content display refers to the ability to present a single video source to the audience. This may be achieved by a single display or via a distributed video method. Displays allow the effective presentation of visual materials to an individual or audience. The effectiveness of displays can depend on a number of factors including ambient light, contrast ratio, visual acuity, brightness, glare and reflection. Particular display technologies shall be selected based on the individual requirements of the spaces and use modes. 'VISA VIS' is the University of Sydney's viewing coverage standard that shall be used to determine appropriate display sizes, heights and locations when designing fit-for-purpose video systems.

Secondary Content Display

Secondary content display refers to the ability to present a second video source (in addition to the primary content display) to the audience (simultaneously). This may be achieved by a single display or via a distributed video method. Displays allow the effective presentation of visual materials to an individual or audience. The effectiveness of displays can depend on a number of factors including ambient light, contrast ratio, visual acuity, brightness, glare and reflection. Particular display technologies should be selected based on the individual requirements of the spaces and use modes. 'VISA VIS' is the University of Sydney's viewing coverage standard that shall be used to determine appropriate display sizes, heights and locations when designing fit-for-purpose video systems.

Interactive Preview Monitor

The interactive preview monitor is used to show and prepare all program video sources prior to presentation on the primary and/or secondary content display(s). The interactive component of the preview monitor allows an intuitive interface for control and 'mark-up' of digital resources (via the House PC only).

Interactive Confidence Monitor

The interactive confidence monitor is used to duplicate the program video presented on the primary content display(s). The interactive component of the preview monitor allows an intuitive interface for control and 'mark-up' of digital resources (via the House PC only).

13.3.3 Audio System

Lectern Microphone

A lectern microphone is provided as a basic input to a speech reinforcement system. Audio from the lectern microphone may be channelled to the local speech re-enforcement system, hearing assistance system, recording system or remote sites.

Wireless Lapel Microphone

A wireless lapel microphone is provided as a convenient and mobile input to a speech reinforcement system allowing a presenter to roam around the venue. Audio from the wireless lapel microphone may be channelled to the local speech re-enforcement system, hearing assistance system, recording system or remote sites.

Wireless Handheld Microphone

A wireless handheld microphone is provided as a convenient and mobile input to a speech reinforcement system allowing a presenter to roam around the venue. Wireless hand held microphones are also often the most convenient means of receiving audience questions and comments in large venues. Audio from the wireless handheld microphone may be channelled to the local speech re-enforcement system, hearing assistance system, recording system or remote sites.

Additional Wireless Microphones

Additional permanent wireless microphones (lapels or handhelds) can be provided in these venues on request. Applications that may demand additional wireless microphones may include frequent conference / discussion panels or similar.

Room Microphones

Whilst moving images need to be captured for the purposes of video, web and recording functionality, so to do the voices of participants in teaching and meeting spaces. Room microphones will vary depending on room shape and functionality and need to be fit-for-purpose to clearly capture all audience members for the purposes of free-flowing discussion and collaboration. An ability to mute the microphones shall be provided via hardware and/or software depending on the specific solution.

3.5 mm Auxiliary Audio Input

A 3.5 mm auxiliary audio input is provided as a basic input to an audio play-back system. Audio from the 3.5 mm auxiliary audio input may be channelled to the local sound system, hearing assistance system, recording system or remote sites.

Balanced Auxiliary Audio In/Out Connection Plate

The balanced auxiliary audio in/out connection plate is a standard size single gang plate installed on the lectern. A balanced XLR input (switchable between mic/line level) to the audio system is provided, audio from this input may be channelled to the audio play-back system, hearing assistance system, recording system or remote sites. A balanced XLR output (line level) is provided also, this output contains a mix of all audio sources for connection to an external recording device (or similar).

Hearing Augmentation

Hearing augmentation systems allow the communication of audio information to users with hearing impairments. Typical systems at the University of Sydney use an infrared (IR) emitter that can be received via a belt-pack and headphones or neck-worn hearing induction loop. Other systems employ a hearing induction loop. IR receivers are centrally-managed and available via Disability Services.

13.3.4 Control System

Touch-Panel Control System

Touch panel control systems provide a simplified means of controlling otherwise complex technical systems. The touch panel systems provide a consistent and familiar interface across a range of different venues and systems. Touch panel systems also allow a means of remote assistance and troubleshooting by technical support staff.

Push-Button Control System

Push button control systems provide a standardised and economical means of controlling less complex AV systems. The push button control system provides a consistent and intuitive interface for small room systems and collaboration pods.

Hardware Lecture Capture

The University provides a centrally managed lecture capture and distribution system. Lectures are captured using a hardware captured device integrated into the AV system that provides high reliability and the ability to capture video and audio from a wide variety of sources. The captured material is automatically sent via the data network to the central system for distribution via the Learning Management System. Lectures captured via the hardware system are scheduled in advance.

Software Lecture Capture

The University provides a centrally managed lecture capture and distribution system. Lectures can be captured using software on the presentation PC. This software captures lecture audio and any material shown using the presentation PC. It cannot capture external video sources such as laptops or the visualiser. Lecture captures via the software can be scheduled or initiated ad-hoc.

13.3.5 General

Telephone (For Assistance)

Internal dialling telephone provide a simple and immediate means of accessing support and assistance. Telephones also provide a safety and security function in providing access to security and emergency services.

Lighting Integration with AV System

Lighting scenes can be recalled via simple wall panels at all entry points and via the AV system control panel. Occupancy sensors must be included for energy efficiency. Careful lighting design is crucial in teaching spaces. Students must have sufficient light to make notes and the presenter must be well light. Conversely excess ambient light can be significantly detrimental to the effective performance of many display technologies. Beam-shaping spotlights are required in many learning spaces to sufficiently illuminate the presenter at the lectern in a dimmed room without causing excess ambient light spill onto display surfaces. Dimmable 'stage area' lights are required in many learning spaces to sufficiently illuminate the presenter in a dimmed room as they walk around the stage area and preform demonstrations without causing excess ambient light spill onto display surfaces.

Staging/Conference Facilities

Staging and conference facilities encompass a wide variety of technology and design elements that may be included in a venue to enhance its value in for both internal and external commercial users. Enhancements for conferencing and staging can include but are not limited to: Control rooms, projection booths, control desk locations, lighting control interface, advanced system control interfaces, video/audio/data 'tie lines' and patch panels, three-phase power outlets, additional microphones, additional audio/video/data connection points, 'congress' microphone systems, additional confidence monitors, presenter preparation areas, venue overflow capability, broadcast truck and antennae cabling channels.

Lectern with Integrated AV Rack

A lectern with integrated AV rack refers to a standardised fixed table with a dedicated cabinet to house audio-visual infrastructure. All installations of lecterns to allow for accessible circulation to comply with AS1428 (minimum 1500 mm). Lecterns are available with equipment rack on either left or right side – where a lectern is fixed near a wall, the equipment rack shall be on the side of the lectern, closest to the wall.

Credenza to House Equipment

A credenza to house required audio-visual equipment is required in smaller spaces where there is no lectern. The credenza shall be low-profile, while still providing adequate accessibility and environmental conditions for the equipment to be installed within it.

Bio-Box with Separate AV Rack

A bio-box is a dedicated area or room in a large venue, used to house audio-visual infrastructure and other hardware / equipment. The room must be fit-for-purpose, including adequate space for best practice installation and ongoing maintenance / servicing of equipment within the bio-box, as well as appropriate environmental conditions (e.g. best practice ventilation, air-conditioning etc.).

Digital Signage for Scheduling

Digital signage for scheduling refers to either a dedicated display for venue time-tabling information (in teaching venues), or a meeting room manager with room availability information (for meeting rooms).

References

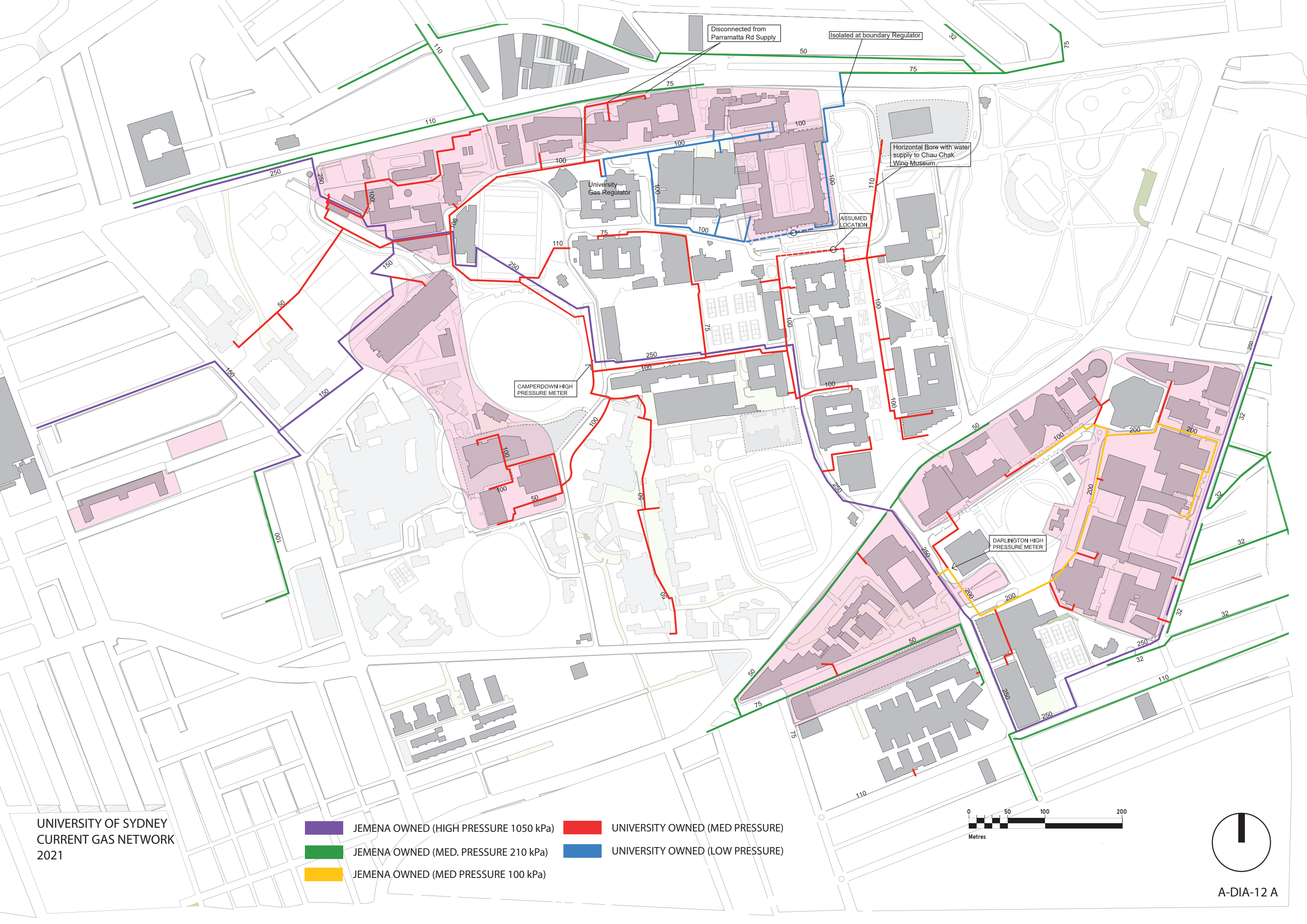
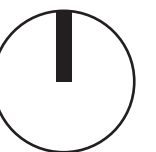
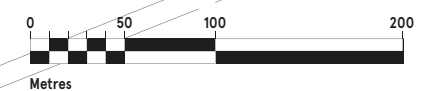
Standard	Title
TEFMA Guidelines	http://www.tefma.com/uploads/content/26-TEFMA-SPACE-PLANNING-GUIDELINES-FINAL-ED3-28-AUGUST-09.pdf
AETM Guidelines	https://www.aetm.org/wp-content/uploads/2014/10/AETM_Audio_Visual_Design_Guidelines_2nd_Edition_2015_protected.pdf
CIS Standards	http://sydney.edu.au/about/working-with-us/contractors.shtml

Document Amendment History

Revision	Amendment	Commencing
A.1 – A.6	DRAFT - Issued for internal circulation to DVC-Education, ICT and CIS	24.03.2017
B	DRAFT - Issued for UE-Education review (7 August 2017). APPROVED – UE-Education 7 August 2017	27.07.2017
C.2	PUBLISHED - CIS Design Standards	26.06.2018

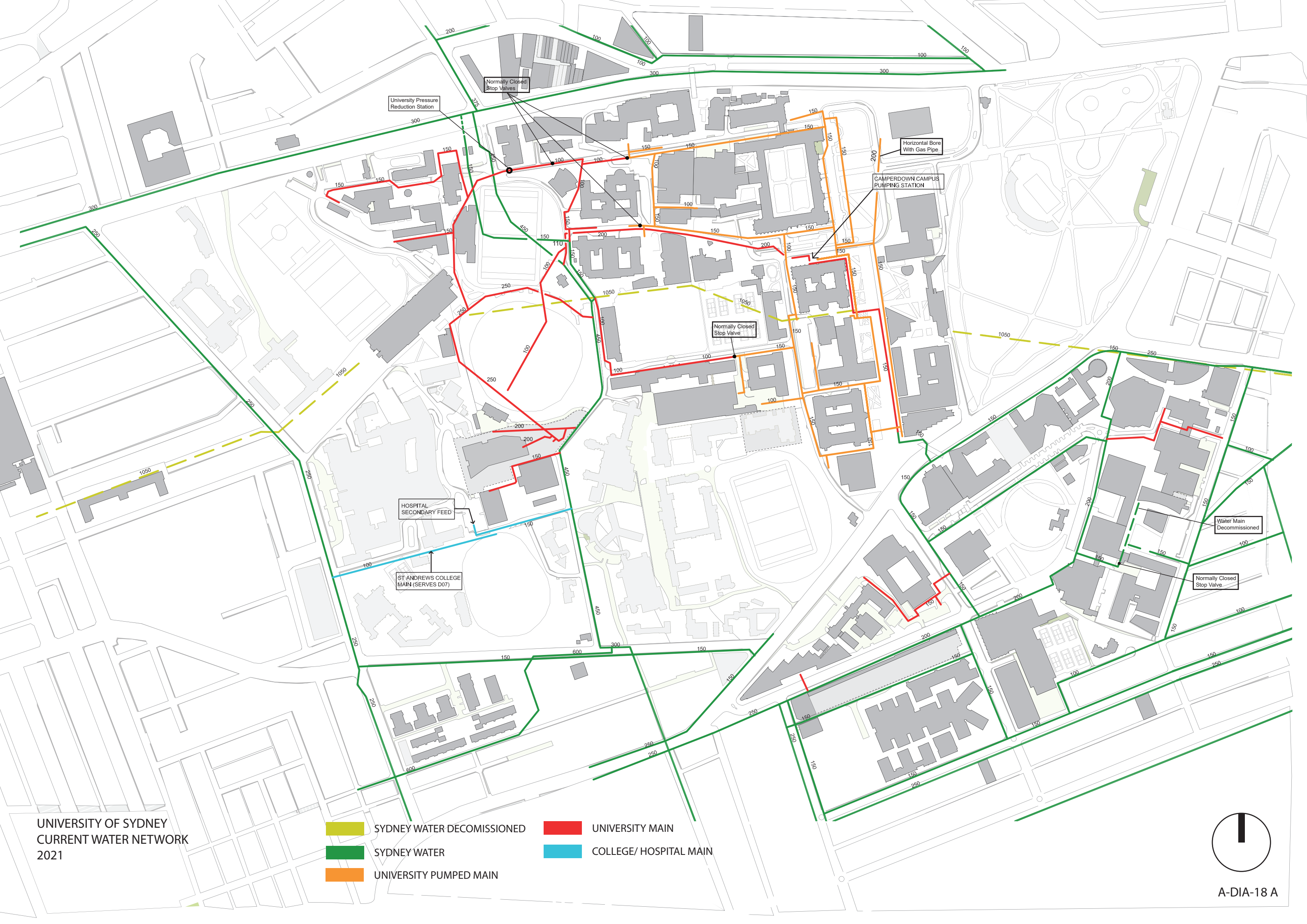
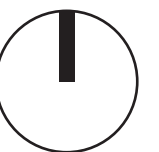
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CURRENT GAS NETWORK
2021

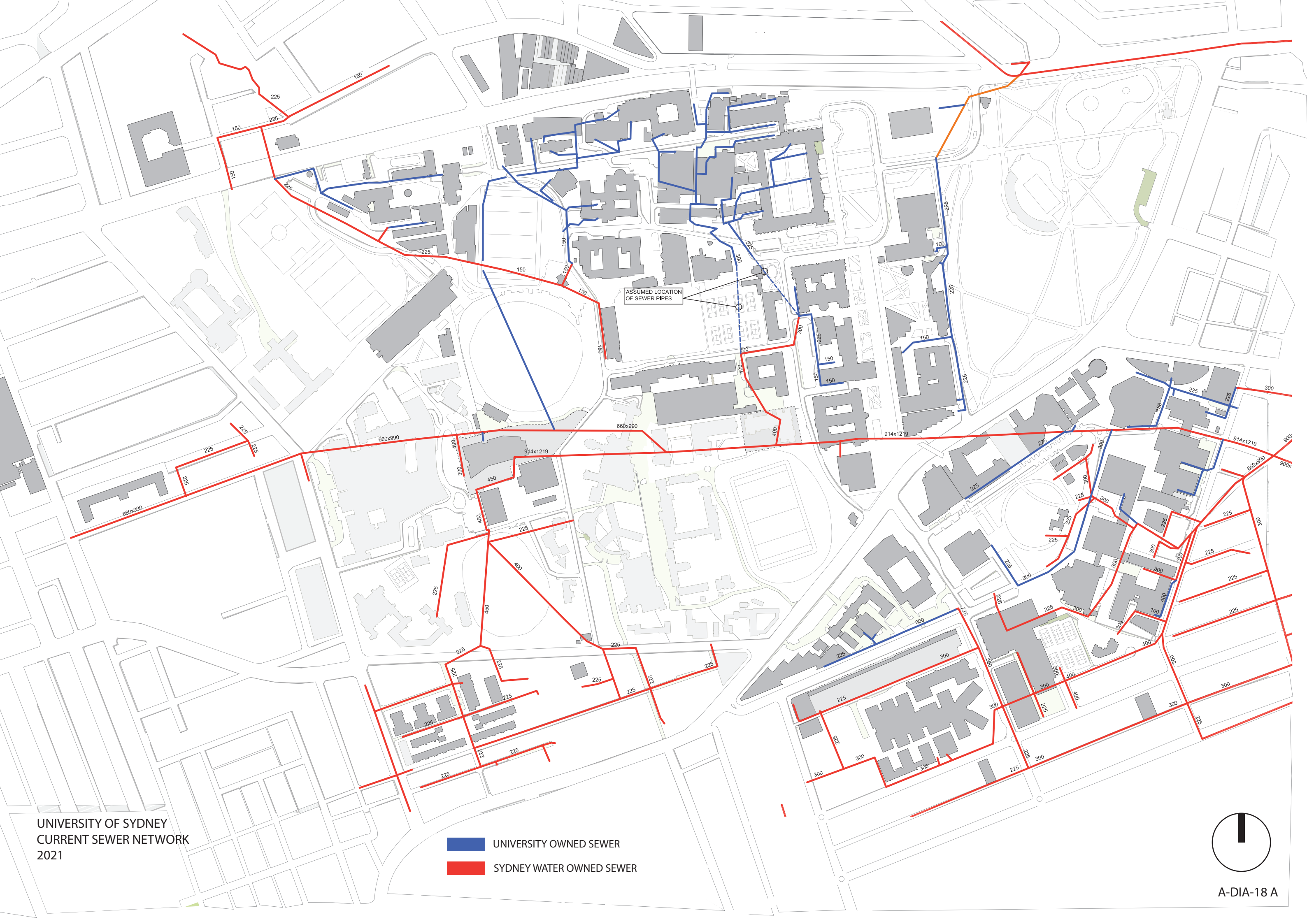
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|---|---------------------------------------|---|---------------------------------|
|  | JEMENA OWNED (HIGH PRESSURE 1050 kPa) |  | UNIVERSITY OWNED (MED PRESSURE) |
|  | JEMENA OWNED (MED. PRESSURE 210 kPa) |  | UNIVERSITY OWNED (LOW PRESSURE) |
|  | JEMENA OWNED (MED PRESSURE 100 kPa) | | |



UNIVERSITY OF SYDNEY
CURRENT WATER NETWORK
2021

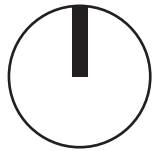
- | | | | |
|---|-----------------------------|---|------------------------|
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|  | SYDNEY WATER |  | COLLEGE/ HOSPITAL MAIN |
|  | UNIVERSITY PUMPED MAIN | | |





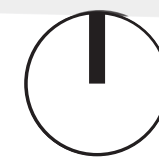
UNIVERSITY OF SYDNEY
CURRENT SEWER NETWORK
2021

- UNIVERSITY OWNED SEWER
- SYDNEY WATER OWNED SEWER

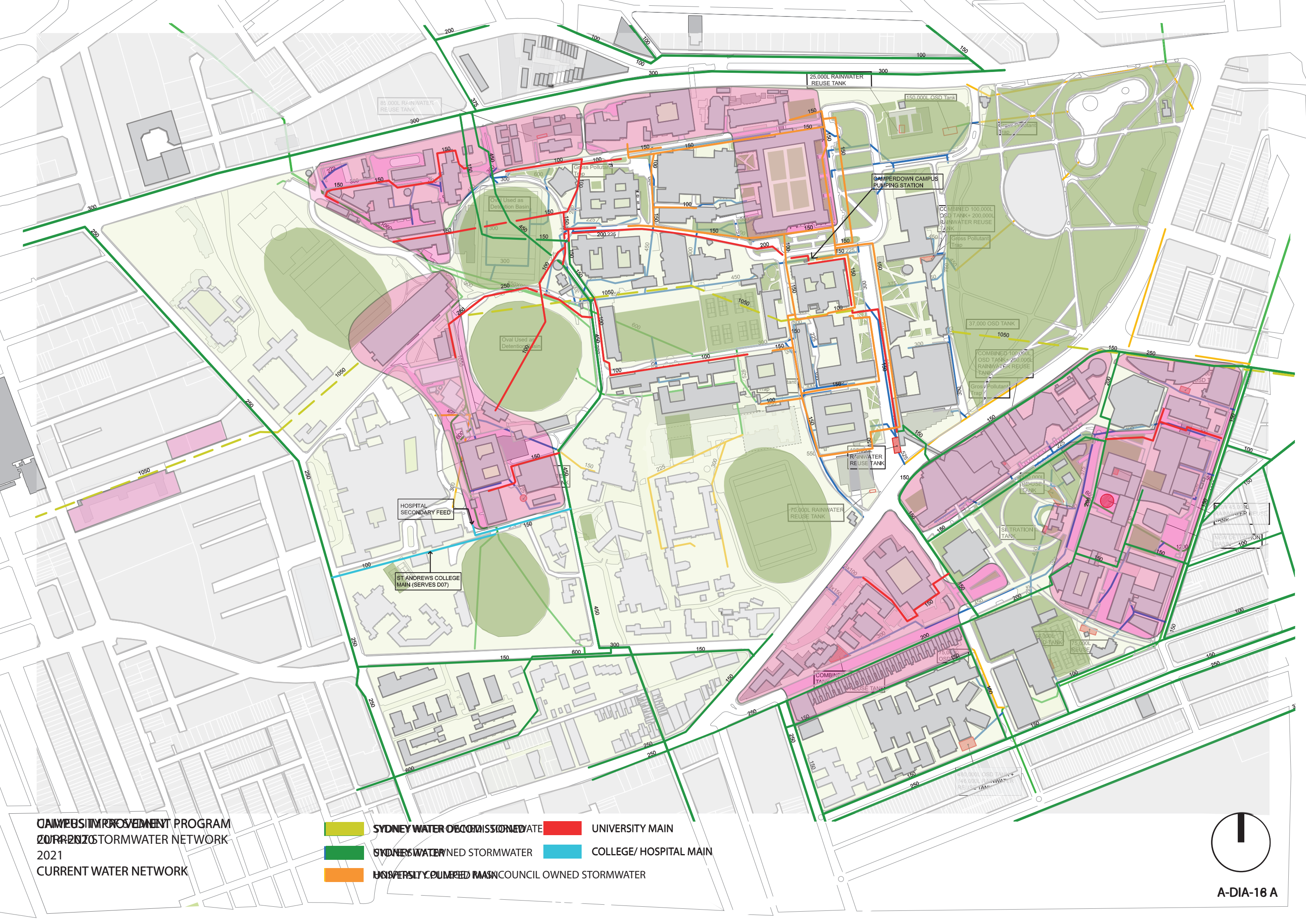


**CAMPUS IMPROVEMENT PROGRAM
2021
CURRENT WATER NETWORK**

- | | | | |
|---|----------------------------------|---|---------------------------------|
|  | SYDNEY WATER CONCESSIONED |  | UNIVERSITY MAIN |
|  | SYDNEY WATER |  | COLLEGE/ HOSPITAL MAIN |
|  | UNIVERSITY COUNCIL OWNED | | COUNCIL OWNED STORMWATER |



A-DIA-16 A



Nikki Changavalli (CETEC)

From: Nora Babik <nora.babik@sydney.edu.au>
Sent: Friday, 1 December 2023 5:20 PM
To: Paulo Da Silva (CETEC); Nikki Changavalli (CETEC); Laura MacMahon
Cc: Drew Bagnall
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo,

Yes, that's fine.

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

University Infrastructure
THE UNIVERSITY OF SYDNEY
Services Bldg, Bldg G12 | 22 Codrington Street, Darlington
The University of Sydney | NSW | 2006
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From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Sent: Friday, December 1, 2023 5:16 PM
To: Nora Babik <nora.babik@sydney.edu.au>; Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora,

Shall we just PDF the appendixes and attach them as one long correspondence?

Regards
Paulo Da Silva



Dr Paulo Da Silva
PhD, BSc(Hons), M.RACI, M.AIDGC,
NABERS Accredited Assessor
Principal Consultant - Dangerous Goods

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From: Nora Babik <nora.babik@sydney.edu.au>
Sent: Friday, December 1, 2023 5:14 PM
To: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>; Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Thank you Nikki. Can you please send us all the appendices as well?

APPENDIX A – DOCUMENTS PROVIDED BY THE CLIENT, EMAIL

CORRESPONDENCE WITH JEMENA



Also, we are working on a generic introduction/background section to be inserted in all our reports. We will review your report and send you any comments along with the generic intro.

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

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From: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>
Sent: Thursday, November 30, 2023 6:27 PM
To: Nora Babik <nora.babik@sydney.edu.au>; Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora and Laura,

Please see attached our report for your review.

Thank you,
Nikki



Nikki Changavalli
Sydney
BSc. MSc. Chemistry
Senior Consultant

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From: Nora Babik <nora.babik@sydney.edu.au>
Sent: Thursday, November 16, 2023 12:43 PM
To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>; Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Great, thank you Paulo.

Kind Regards,

Nora Babik | Senior Project Manager

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From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Sent: Thursday, November 16, 2023 10:23 AM
To: Nora Babik <nora.babik@sydney.edu.au>; Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>; Laura

MacMahon <laura.macmahon@sydney.edu.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora

The site won't be hazardous or require a risk assessment. All we now need is to wait for a response from Jemema and then once we have that response, the new design of the building, excavations, etc. would need to follow any requirements as specified by Jemema.

However, I can't imagine it to be too onerous. I think this one will be somewhat easy.

Regards

Paulo Da Silva



Dr Paulo Da Silva

PhD, BSc(Hons), M.RACI, M.AIDGC,

NABERS Accredited Assessor

Principal Consultant - Dangerous Goods

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From: Nora Babik <nora.babik@sydney.edu.au>

Sent: Thursday, November 16, 2023 8:40 AM

To: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>; Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Thank you Nikki. Please keep us updated.

We are lodging our SSDA in Jan 2024 and want to ensure we don't need any hazard/risk assessments.

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

University Infrastructure

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From: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>

Sent: Wednesday, November 15, 2023 4:49 PM

To: Nora Babik <nora.babik@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>; Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora,

Just giving you an update here.

You have given me all the information required to complete the assessment and, I have also been in contact with Jemena regarding their medium pressure gas pipeline on Parramatta Rd adjacent to the proposed A01 building.

The Infrastructure Protection Officer at Jemena confirmed that if the gas pipeline is of high pressure, they would need to be on-site during excavations. However, as the gas pipeline is of medium pressure, they have currently directed me to their Gas Networks Engineer, from whom I am yet to hear.

I will keep you in the loop once I heard something from him.

Thank you,
Nikki



Nikki Changavalli
Sydney
BSc. MSc. Chemistry
Senior Consultant

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From: Nora Babik <nora.babik@sydney.edu.au>

Sent: Wednesday, November 15, 2023 3:46 PM

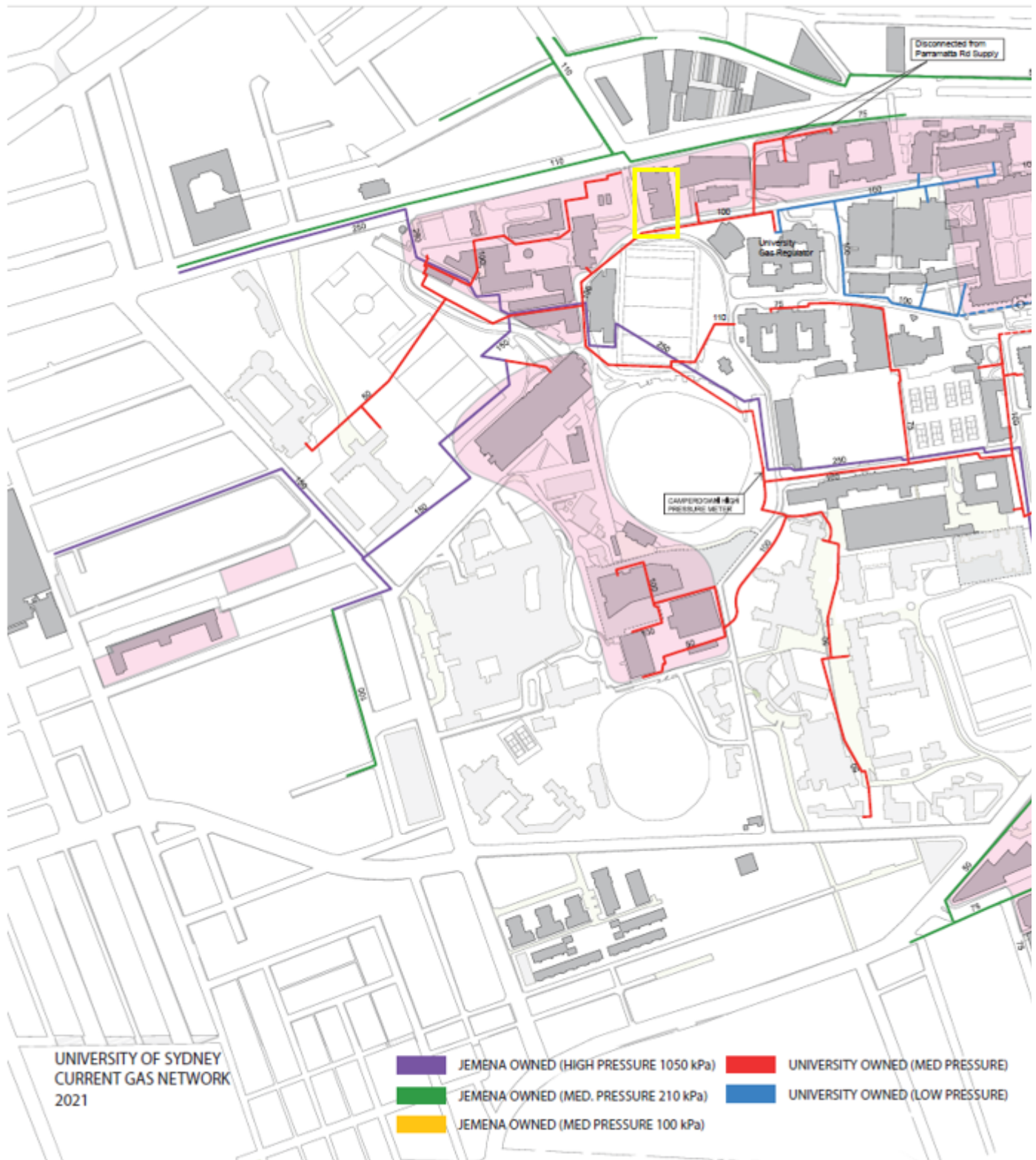
To: Laura MacMahon <laura.macmahon@sydney.edu.au>; Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>; Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nikki,

Is the below information provided to you sufficient?

As part of the SSDA submission we must satisfy the following requirements. Can you please advise if you need anything else to confirm we are not a Hazardous and Offensive Development due to no chemical storage or usage?



LAURA MACMAHON | Project Manager | CPPM
University Infrastructure

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E laura.macmahon@sydney.edu.au | **W** <http://sydney.edu.au>

From: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>
Sent: Tuesday, November 7, 2023 12:30 PM
To: Laura MacMahon <laura.macmahon@sydney.edu.au>; Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Cc: Nora Babik <nora.babik@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Laura,

Hope you are rested from your leave. 😊

Thank you for sharing the floor plans and the general standard to construct learning spaces at USyd.

I happened to speak to the Infrastructure Department at Jemena last week and they would like to know exactly where the A01 building would be on Ross St. Particularly, they want to know if the development would be on one of their gas pipelines or if their pipelines would be running outside the A01 building structure.

Would you be able to confirm that for me, please?

Thank you,



Nikki Changavalli
Sydney
BSc. MSc. Chemistry
Senior Consultant

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From: Laura MacMahon <laura.macmahon@sydney.edu.au>
Sent: Tuesday, November 7, 2023 12:08 PM
To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>; Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>
Cc: Nora Babik <nora.babik@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo & Nikki,

Apologies for the late response, both Nora and I have been on annual leave (lucky us).

Attached are the latest floor plans for A01. The building is a General Teaching Space building, which means there is no faculty or school 'owner' with no specialised teaching.

For clarity, attached is the Learning spaces standard our teaching spaces will be something like 9 Seminar rooms and/or 10 Learning Studios. Definitely no chemicals or dangerous goods.

I asked Chris Hipsley but he said we do not have a relationship with Jemena, could you please use your contacts.

Let me know if you want to discuss further.

Many thanks,

Laura

LAURA MACMAHON | Project Manager | CPPM
University Infrastructure

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E laura.macmahon@sydney.edu.au | **W** <http://sydney.edu.au>

From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Sent: Thursday, October 26, 2023 3:04 PM

To: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>; Laura MacMahon
<laura.macmahon@sydney.edu.au>

Cc: Nora Babik <nora.babik@sydney.edu.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Laura and Nora

Just to further elaborate on Nikki's email.

If there is no direct contact which the university deals with, then that is ok, we can reach out to our contacts. It just makes it easier when the person we talk to knows or is familiar with the university.

Also a simple description of the project which clearly identifies the project as being a space in which chemicals are not used. So any sort of tender documentation or similar would be enough.

Regards
Paulo Da Silva



Dr Paulo Da Silva
PhD, BSc(Hons), M.RACI, M.AIDGC,
NABERS Accredited Assessor
Principal Consultant - Dangerous Goods
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From: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>

Sent: Thursday, October 26, 2023 2:59 PM

To: Laura MacMahon <laura.macmahon@sydney.edu.au>

Cc: Nora Babik <nora.babik@sydney.edu.au>; Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Laura and Nora,

Can you please provide us details on the development? Any floor plans perhaps to begin with?

Can you also confirm that chemicals / dangerous goods will NOT be stored in this development?

Thank you!

Also, if you do have a contact at Jemena to speak to regarding the gas pipeline corridors around the development, please let us know, that would be great!

Thanks again,
Nikki



Nikki Changavalli
Sydney
BSc. MSc. Chemistry
Senior Consultant

+61 474 461 863 | +61 2 9966 9211

From: Laura MacMahon <laura.macmahon@sydney.edu.au>
Sent: Thursday, October 12, 2023 3:02 PM
To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Cc: Nora Babik <nora.babik@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo,

Nice to see you last week.

Please find attached for your execution. Can you please also issue back current insurances with the signed terms?

Many thanks,
Laura

LAURA MACMAHON | Project Manager | CPPM
University Infrastructure

THE UNIVERSITY OF SYDNEY
G12 Services Building | The University of Sydney | NSW | 2006
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E laura.macmahon@sydney.edu.au | **W** <http://sydney.edu.au>

From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Sent: Tuesday, October 10, 2023 3:13 PM
To: Nora Babik <nora.babik@sydney.edu.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora

We have updated our report as requested.

I have provided 2 fees, one which is to confirm no chemicals will be stored/used and document a hazard analysis for the gas pipeline.

The second fee is to confirm the development doesn't fall within the corridor and then just document discussions and provide a report/document just saying the development doesn't apply.

Regards
Paulo Da Silva



Dr Paulo Da Silva
PhD, BSc(Hons), M.RACI, M.AIDGC,
NABERS Accredited Assessor
Principal Consultant - Dangerous Goods
+61 458 639 888 | +61 2 9966 9211

From: Nora Babik <nora.babik@sydney.edu.au>
Sent: Tuesday, October 10, 2023 2:09 PM
To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo,

Thank you for your fee proposal.

It would be great if you can breakdown your fee to have the full report and the letter confirming the SEPP is not applicable. In case we don't need the full letter. In our SEARs requirements below, it states, "**if** the development is adjacent to or on land in a pipeline corridor, report on consultation outcomes with the operator of the pipeline and prepare a hazard analysis (pipeline)"

We need to confirm if we are indeed adjacent to or on land in a pipeline corridor. In regard to the proposed works, it will definitely not have any dangerous goods/haz materials. We are proposing dry teaching spaces in the whole building with a small food/beverage café on ground level.

16	Hazards and Risks Where there are dangerous goods and hazardous materials associated with the development provide a preliminary risk screening in accordance with Chapter 3 of SEPP (Resilience and Hazards) 2021. Where required by SEPP (Resilience and Hazards) 2021, provide a Preliminary Hazard Analysis prepared in accordance with <i>Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis and Multi-Level Risk Assessment</i>. <u>If the development is adjacent to or on land in a pipeline corridor, report on consultation outcomes with the operator of the pipeline and prepare a hazard analysis (pipeline).</u>
----	--

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

University Infrastructure

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From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Sent: Tuesday, October 10, 2023 1:19 PM

To: Nora Babik <nora.babik@sydney.edu.au>

Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora

As requested, please find attached fee proposal.

Note that we will need to follow the SEPP 33 procedure, however, because we are being asked to provide a hazard analysis (pipeline) report. I believe the report will be relatively large.

If all we need to do is “report on consultation outcomes with the operator”. Then the fee will be much cheaper.

Regards

Paulo Da Silva



Dr Paulo Da Silva

PhD, BSc(Hons), M.RACI, M.AIDGC,

NABERS Accredited Assessor

Principal Consultant - Dangerous Goods

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From: Nora Babik <nora.babik@sydney.edu.au>

Sent: Friday, October 6, 2023 3:52 PM

To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>

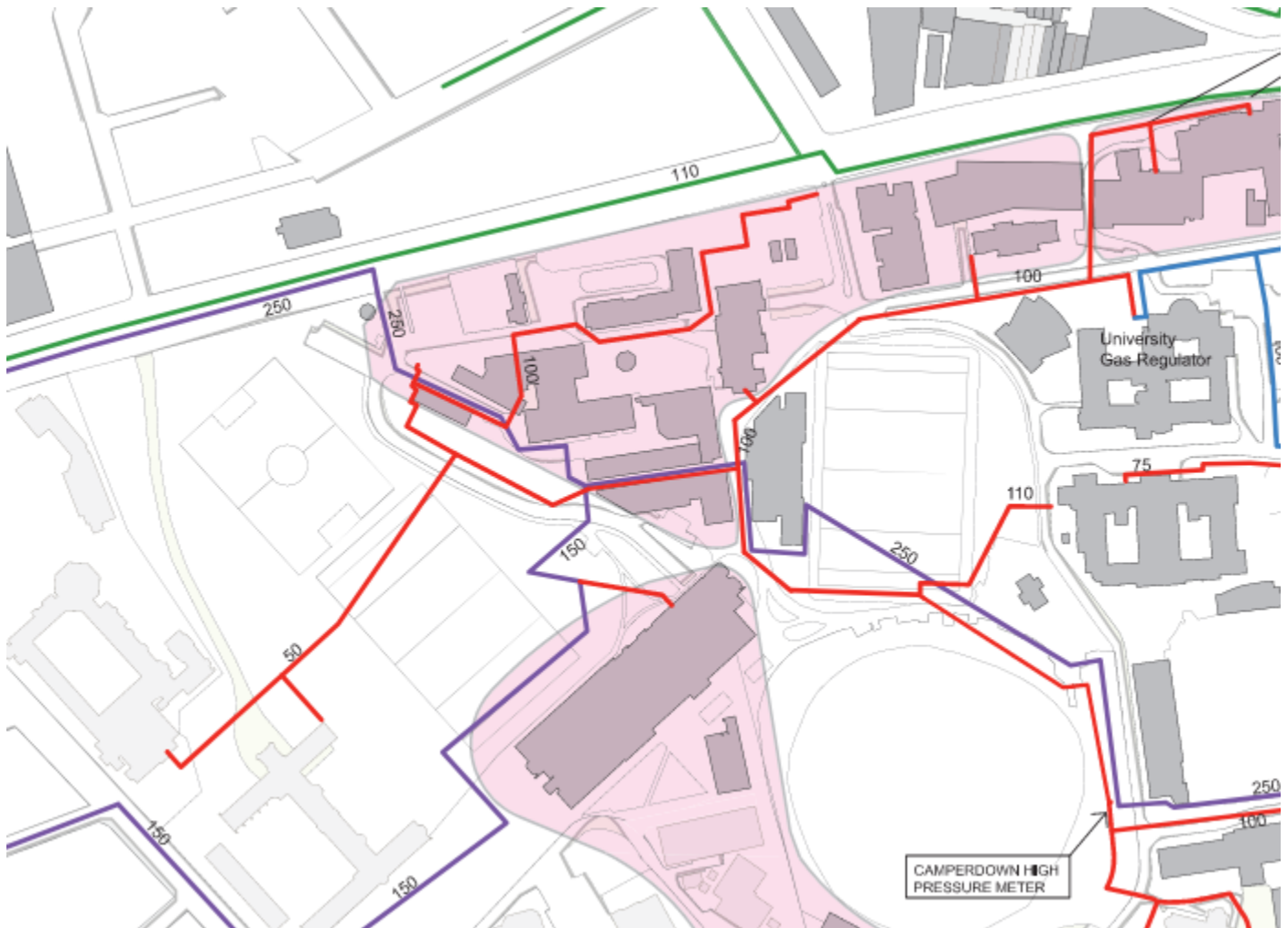
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo,

Please see attached and below snap shot of major services running adjacent to the site.

Can you please supply us with a fee proposal for generating a letter for us? It would be good to have your fee for a Preliminary Hazard Analysis as well, in case we may require.

Thank you.



Kind Regards,

Nora Babik | Senior Project Manager

University Infrastructure

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From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Sent: Monday, September 25, 2023 5:48 PM
To: Nora Babik <nora.babik@sydney.edu.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora

In the vicinity of the building, are you aware, or is USyd infrastructure aware of any major gas pipeline which runs through the area?

I'm not aware of any, but if you could confirm?

I can then easily provide a fee for 1-2 hours to generate a letter for you.

Regards
Paulo Da Silva



Dr Paulo Da Silva
PhD, BSc(Hons), M.RACI, M.AIDGC,
NABERS Accredited Assessor
Principal Consultant - Dangerous Goods

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From: Nora Babik <nora.babik@sydney.edu.au>
Sent: Monday, September 25, 2023 4:24 PM
To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo,

Would you be able to provide us a letter confirming this item is not applicable?

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

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From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Sent: Monday, September 25, 2023 4:14 PM

To: Nora Babik <nora.babik@sydney.edu.au>

Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora

A pipeline corridor is a main pipeline for gas which may run through the university. This type of pipeline is from the source of the gas and runs to where it is used, basically it is a distribution line and is considered major infrastructure.

I'm not aware of any major gas pipelines running through the university.

Regards

Paulo Da Silva



Dr Paulo Da Silva

PhD, BSc(Hons), M.RACI, M.AIDGC,

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Principal Consultant - Dangerous Goods

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From: Nora Babik <nora.babik@sydney.edu.au>

Sent: Monday, September 25, 2023 4:10 PM

To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>

Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>

Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo,

We wanted to make sure we didn't require anything as the SEARS also notes the highlighted below. Not sure what a pipeline corridor is.

Hazards and Risks

Where there are dangerous goods and hazardous materials associated with the development provide a preliminary risk screening in accordance with Chapter 3 of SEPP (Resilience and Hazards) 2021.

Where required by SEPP (Resilience and Hazards) 2021, provide a Preliminary Hazard Analysis prepared in accordance with *Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis and Multi-Level Risk Assessment*.

If the development is adjacent to or on land in a pipeline corridor, report on consultation outcomes with the operator of the pipeline and prepare a hazard analysis (pipeline).

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

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From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Sent: Monday, September 25, 2023 4:06 PM
To: Nora Babik <nora.babik@sydney.edu.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora

If no chemicals will be used onsite after completion, then the SEPP33 would not be applicable.

I mean we would come to the conclusion that the SEPP 33 is not applicable.

Regards
Paulo Da Silva



Dr Paulo Da Silva
PhD, BSc(Hons), M.RACI, M.AIDGC,
NABERS Accredited Assessor
Principal Consultant - Dangerous Goods

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From: Nora Babik <nora.babik@sydney.edu.au>
Sent: Monday, September 25, 2023 4:04 PM
To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Paulo,

Yes, that is correct.

This building will not have any dangerous goods.

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

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From: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Sent: Monday, September 25, 2023 3:08 PM
To: Nora Babik <nora.babik@sydney.edu.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: RE: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments

Hi Nora

Just to confirm, you are only after a SEPP33 (i.e. Chapter 3 of SEPP (Resilience and Hazards) 2021), and not a dangerous goods risk assessment as well for the design of the new facility?

Regards
Paulo Da Silva



Dr Paulo Da Silva
PhD, BSc(Hons), M.RACI, M.AIDGC,
NABERS Accredited Assessor
Principal Consultant - Dangerous Goods

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From: Nora Babik <nora.babik@sydney.edu.au>
Sent: Monday, September 25, 2023 10:08 AM
To: Paulo Da Silva (CETEC) <Paulo.DaSilva@cetec.com.au>
Cc: Drew Bagnall <drew.bagnall@sydney.edu.au>; Laura MacMahon <laura.macmahon@sydney.edu.au>
Subject: A01 Ross St Teaching & Learning Hub - RFQ - Hazards and Risks Assessments
Importance: High

Hi Paulo,

Hope you have been well. We have obtained your contact information from the Sydney Biomedical Accelerator team who have just completed their SSDA documents.

The University of Sydney would like to request CETEC to provide a fee proposal on the **Hazards and Risks Assessments** for the new A01 Ross St Teaching & Learning Hub Project for the University of Sydney.

Overview on Project

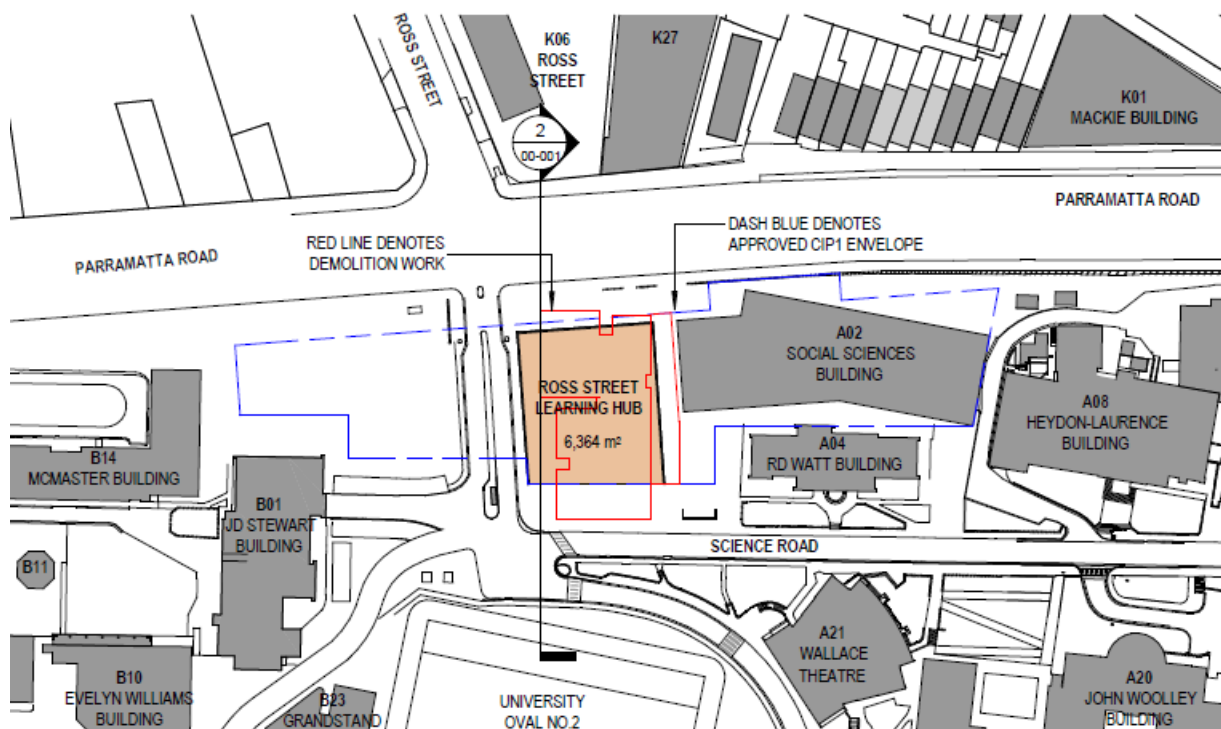
The Ross Street Teaching & Learning Hub is a proposed new building designed to maximise the accommodation of large flat floor teaching spaces. The facility will adopt a teaching at scale methodology that allows the University to transition to an increased ratio of face to face teaching (from online teaching) in accordance with its strategic plan and recent foreign legislative changes.

The development site area is approximately 1,273m² and currently contains a number of temporary single storey demountable buildings (Demountable Village). The development will require supporting services infrastructure, power amplification via new kiosk substations and modifications to the existing fire hydrant main.

The proposed Ross Street Teaching & Learning Hub is not intended to accommodate any permanent staff. It is envisaged that the building will be capable of accommodating up to 1,500 existing students and 30 existing staff.

Location

The Ross Street Learning Hub is to be located on a site within the University of Sydney's Camperdown Campus. The site is a gateway to the University, adjoining Ross Street, Science Road and Parramatta Road. Snap shot below and reference design (indicative design) attached.



Objectives

The proposed building will consist of approximately 5,800m² of GFA over 5 floors, be located within the existing CIP1 approved building envelope, and will achieve a maximum building height of approximately 24m above the existing ground level. The typology of spaces will predominantly consist of large flat floor seminar rooms, plantroom, circulation space and supporting food and beverage offering on Level 1.

Key deliverables:

- Teaching spaces that test learning at scale, with a minimum capacity of 60 students and at least one 'as-large-as-possible' classroom for Connected Learning at Scale (CLaS) style teaching, noting that maximum class sizes (i.e. structure-free floor plate) are restrained by the building envelope and a target area allocation of 3.5-3.8m² per student.
- A building that is futureproofed – a skeleton that is scalable, provides uniformity and supports multiple configurations.
- Teaching spaces that are consistent and easy to use.
- Students that want to learn on campus and stay – aided by visual transparency of spaces, visual proximity to other students and activities, and supporting food and beverage.
- A ground plane that prioritises the pedestrian creating a safe entry to campus (noting a traffic assessment needs to be completed to ensure pedestrian safety).
- A development that enhances the University's stock of accessible spaces.

This project will be a State Significant Development Application which will require a **Hazards and Risks Assessments** as per the Secretary's Environmental Assessment Requirements (SEARs). We have provided a snap shot of your scope and requirements. Please provide us a fee for both a Preliminary Analysis and an option for a Hazard Analysis (Pipeline) – if we may require.

The Uni SBA project has just completed their SEARS and have completed the below requirements. We would be similar.

Items	Issue and Assessment Requirements	Documentation / Deliverables
16	Hazards and Risks Where there are dangerous goods and hazardous materials associated with the development provide a preliminary risk screening in accordance with Chapter 3 of	1. Preliminary Hazard Analysis 2. If required: - Hazard Analysis (Pipeline)

SEPP (Resilience and Hazards) 2021.

Where required by SEPP (Resilience and Hazards) 2021, provide a Preliminary Hazard Analysis prepared in accordance with *Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis and Multi-Level Risk Assessment*.

If the development is adjacent to or on land in a pipeline corridor, report on consultation outcomes with the operator of the pipeline, and prepare a hazard analysis.

If the development is adjacent to or on land in a pipeline corridor, report on consultation outcomes with the operator of the pipeline and prepare a hazard analysis (pipeline).

Can you please review and come back to us with your fee proposal by **COB, Friday 29 September 2023**.

Please confirm receipt of this email.

Thank you.

Kind Regards,

Nora Babik | Senior Project Manager

University Infrastructure

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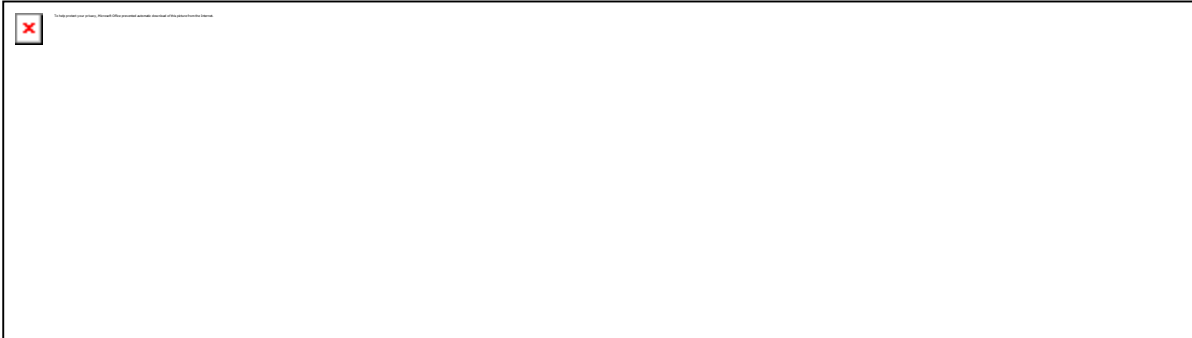
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Nikki Changavalli (CETEC)

From: CustomerRelationsNSW@jemena.com.au
Sent: Tuesday, 31 October 2023 2:47 PM
To: Nikki Changavalli (CETEC)
Subject: [Jemena: 51387] Gas - Enquiry



Hello,

Thanks for contacting Jemena!

I would recommend sending through any plans of the proposed works to our asset management team at: infrastructureprotection@jemena.com.au so they can review and advise further. This would need to be sent as a separate new email, otherwise it will be re-directed here.

Generally speaking however, if you are conducting works within 3m we would suggest a high pressure standby/site inspection which can be applied for through our online portal.

Kind regards,

Aaron
Customer Care Consultant
Jemena
T:1300 137 078 | www.jemena.com.au
PO Box 1220, North Sydney NSW 2059
customerrelationsnsw@jemena.com.au

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Nikki Changavalli (CETEC)

From: Secondary Field Officer <secondfieldoffic@Zinfra.com.au>
Sent: Thursday, 2 November 2023 10:44 AM
To: Nikki Changavalli (CETEC); Infrastructure Protection
Subject: RE: University of Sydney - new development around Jemena gas pipelines

Hi Nikki

As discussed, gas networks engineer gas.networks.engineer@jemena.com.au

Thanks,

Craig Thompson

Secondary Field Officer

M: 0499 658 883

E: secondfieldoffic@zinfra.com.au



4A Bellevue Circuit
Pemulwuy NSW 2145 Australia
www.zinfra.com.au

From: Nikki Changavalli (CETEC) <Nikki.Changavalli@cetec.com.au>
Sent: Wednesday, 1 November 2023 5:22 PM
To: Infrastructure Protection <infrastructureprotection@jemena.com.au>
Subject: University of Sydney - new development around Jemena gas pipelines

⚠ WARNING: This email originated from outside of the organisation. Do **not** click links or open attachments unless you recognise the sender and are expecting the content or attachment from the sender.

Hi team,

My name is Nikki Changavalli and I am a Dangerous Goods Consultant at CETEC. I have received your email information from you Customer Care team (attached) because I am looking to speak to someone regarding a University of Sydney New Development Project for which, we have been engaged by the university.

I am working on developing a Chapter 3 of SEPP (Resilience and Hazards) 2021 and have been asked by council to also include comment in relation to the gas pipeline which belongs to Jemena and runs through the University of Sydney, Camperdown campus. Attached are the gas pipeline plans as per the records in 2021. As far as I understand, the development will be a teaching building on Ross St, Camperdown / Darlingtong. It is anticipated that there will be minimal to no usage of chemicals in the building.

As per the council request, we wanted to find out: as a supplier and the owner of gas pipelines which run through the university, do you see or have any concerns of the development?

Please let us know.

Thank you,



Nikki Changavalli
Sydney
BSc. MSc. Chemistry
Senior Consultant

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